

## **STUDY ON THE FLORA OF CHINNAR WILDLIFE SANCTUARY**

N. Sasidharan



KERALA FOREST RESEARCH INSTITUTE  
PEECHI, THRISSUR

April 1999

Pages: 365

Index is Linked in this Report

## CONTENTS

	Page	File
Index to Families		r.167.2
Abstract		r.167.3
1 Introduction	i	r.167.4
2 Review of Earlier Work	i	r.167.5
3 Study Area and History	ii	r.167.6
4 Method	viii	r.167.7
5 Results	viii	r.167.8
6 Discussion	x	r.167.9
7 Systematic Treatment	1	r.167.10
8 References	363	r.167.11

## Index to families

<b>FAMILIES</b>	<b>PAGES</b>	<b>FAMILIES</b>	<b>PAGES</b>
ACANTHACEAE	229	CELASTRACEAE	65
AIZOACEAE	140	CHENOPODIACEAE	262
AMARANTHACEAE	256	CLUSIACEAE	30
AMARYLLIDACEAE	310	COCHLOSPERMACEAE	22
ANACARDIACEAE	79	COMBRETACEAE	126
ANNONACEAE	11	COMMELINACEAE	317
APIACEAE	142	CONVOLVULACEAE	207
APOCYNACEAE	186	CORNACEAE	143
AQUIFOLIACEAE	65	CRASSULACEAE	124
ARACEAE	323	CUCURBITACEAE	135
ARALIACEAE	143	CYPERACEAE	325
ARECACEAE	322	DIOSCOREACEAE	313
ARISTOLOCHIACEAE	265	DIPTEROCARPACEAE	31
ASCLEPIADACEAE	189	DROSERACEAE	125
ASTERACEAE	158	EBENACEAE	180
BALANOPHORACEAE	276	ELAEAGNACEAE	272
BALSAMINACEAE	51	ELAEOCARPACEAE	48
BASELLACEAE	262	ERICACEAE	176
BEGONIACEAE	139	ERIOCAULACEAE	324
BIGNONIACEAE	227	ERYTHROXYLACEAE	49
BOMBACACEAE	39	EUPHORBIACEAE	276
BORAGINACEAE	203	FLACOURTIACEAE	22
BRASSICACEAE	16	GENTIANACEAE	202
BUDDLEJACEAE	201	GESNERIACEAE	226
BURSERACEAE	58	GNETACEAE	300
BUXACEAE	290	HAEMODORACEAE	310
CACTACEAE	139	HERNANDIACEAE	271
CAESALPINIACEAE	109	HIPPOCRATEACEAE	67
CAMPANULACEAE	175	HYDROPHYLLACEAE	203
CAPPARACEAE	16	HYPERICACEAE	29
CAPRIFOLIACEAE	144	HYPOXIDACEAE	311
CARYOPHYLLACEAE	26	ICACINACEAE	65

<b>FAMILIES</b>	<b>PAGES</b>	<b>FAMILIES</b>	<b>PAGES</b>
JUNCACEAE	321	PODOSTEMACEAE	264
LAMIACEAE	245	POLYGALACEAE	24
LAURACEAE	267	POLYGONACEAE	263
LENTIBULARIACEAE	226	PONTEDERIACEAE	316
LILIACEAE	313	PORTULACACEAE	27
LINACEAE	49	RANUNCULACEAE	9
LOBELIACEAE	176	RHAMNACEAE	68
LOGANIACEAE	199	ROSACEAE	123
LORANTHACEAE	272	RUBIACEAE	144
LYTHRACEAE	132	RUTACEAE	54
MALPIGHIACEAE	49	SABIACEAE	78
MALVACEAE	32	SALICACEAE	300
MELASTOMATACEAE	130	SALVADORACEAE	186
MELIACEAE	61	SANTALACEAE	275
MENISPERMACEAE	14	SAPINDACEAE	73
MIMOSACEAE	116	SAPOTACEAE	178
MORACEAE	295	SCROPHULARIACEAE	220
MORINGACEAE	81	SI MAROUBACEAE	58
MYRSINACEAE	177	SMILACACEAE	316
MYRTACEAE	127	SOLANACEAE	216
NYCTAGINACEAE	255	STERCULIACEAE	40
OCMNACEAE	58	SYMPLOCACEAE	183
OLEACEAE	183	THEACEAE	31
ONAGRACEAE	134	THYMELAEACEAE	271
OPILIACEAE	64	TILIACEAE	43
ORCHIDACEAE	301	TYPHACEAE	322
OXALIDACEAE	50	ULMACEAE	294
PAPAVERACEAE	16	URTICACEAE	291
PAPILIONACEAE	81	VACCINIACEAE	176
PASSIFLORACEAE	134	VERBENACEAE	238
PHYTOLACCACEAE	263	VIOLACEAE	20
PIPERACEAE	266	VISCACEAE	275
PITTOSPORACEAE	23	VITACEAE	70
PLANTAGINACEAE	255	XYRIDACEAE	317
PLUMBAGINACEAE	177	ZINGIBERACEAE	310
POACEAE	334	ZYGOPHYLLACEAE	50

## ABSTRACT

The floristic study in Chinnar Wildlife Sanctuary, from 1994 to 1998 resulted in the documentation of an exclusive and concise flora of its own. The sanctuary is located between 77°05'-E -77°16' E longitude and 10°15' N - 10°21' N latitude comprising an area of 90.44 km<sup>2</sup> along the rain shadow region of the W. Ghats.

During the study, 965 species of flowering plants were collected accounting for 578 genera representing 135 families. The angiosperms are represented with 964 taxa under 577 genera representing 134 families. Among the angiosperms 794 taxa accounts for the major Dicotyledons representing 466 genera of 116 families. The other group, Monocotyledons is represented with 171 species belonging to 111 genera of 18 families. Gymnosperm is represented with only one taxa.

There are 114 peninsular Indian endemics which constitute about 11.8% of the plant wealth of the sanctuary. One species of *Cuscuta* collected from the sanctuary needs confirmation for its new identity. *Albizia lathamii*, *Kalanchoe olivacea*, *Chrysopogon velutinus*, *Cryptocoryne consubrina*, *Knoxia sumatrensis* var. *linearis* and *Theriophonum sivaganganum* belong to the endangered category. *Exacum anamallayanum*, brought under the rare category could be collected. *Ipomoea mombassana* collected from the sanctuary was a new record to India.

*Lepisanthes senegalensis*, *Decalepis hamiltonii*, *Chloris roxburghiana*, *Enneapogon schimperanus*, *Enteropogon monostachyos*, *Oplismenus undulatifolius*, *Oropetium thomaeum* and *Tragus roxburghiana* are some new records to the flora of Kerala.

The sanctuary is a treasure house of medicinal plants with 335 species out of 964 recorded from the sanctuary. The tribes of the sanctuary, Hill Pullayas and Muthuvas, make use of some medicinal plants and their uses are specific for each group and many of such uses are not hitherto properly recorded.

The study area is located on the eastern side of the phytogeographic region of the Western Ghats and is one of the two regions in Kerala lying on the leeward side of the Western Ghats. Because of these climatic and geographic characteristics, the flora of the study area closely resembles to that of Deccan and Carnatic regions. Six different vegetation types in an area of 90.44 km<sup>2</sup> is really noteworthy and the notable absence of semi-evergreen and evergreen forests, while other upward and downward forest types occupying the area, can be attributed to the topographic features. All vegetation types but the sholas are highly disturbed. These disturbed areas have been gradually established with exotic and weedy species like *Lantana*, *Chromolaena*, *Vicoa*, etc.

## 1. Introduction

Acquisition of precise and exhaustive information on the systematics of flora and fauna has gathered an unprecedented momentum as bio-diversity and its conservation have become the growing concerns of the last few decades of the present century. Many national and international organisations like IUCN, CITES, CBD, etc. came in to the forefront of biological science primarily with the view of sustainable utilisation of natural resources. The natural resources are invaluable and renewable in the sense of species. The sole responsibility of conserving the bio-diversity rests with the world in general and with the tropical and subtropical countries in particular as bio-diversity is more in these regions. To determine the diversity of species better comprehension on the identity of species. is a prerequisite. Incomplete and distorted data on identity and distribution often lead to the wrong notion of the species concept and thereby biological wealth assessment. Endemism, though conceptual in meaning is a measure to project the wealth of a region and the basic assumption is that the higher the endemism, the higher the wealth of the region is.

India is one of the 10 mega biodiversity nations with about 17000 flowering plant taxa with 5725 endemics (Nayar. 1996). Three hotspots of bio-diversity have been identified in India viz. the Eastern Himalaya, Western Himalaya and Western Ghats. The flowering plant taxa accounts for 4000 in the Western Ghats with 1500 endemics. constituting nearly 37.5% (Nayar, 1996).

Chinnar Wildlife Sanctuary, one of the 12 Wildlife Sanctuaries in Kerala, falls in the eastern side of the Western Ghats. The vegetation of the Sanctuary is peculiar because of the geographic and climatic distinctiveness. The study on the flora of this protected area was taken up due to its geographic occupancy and different vegetation types and provides ample room for taking policy decisions on conservation and management practices.

## 2. Review of earlier work

The Europeans were the first to begin systematic floristic exploration in Indian sub-continent. van Rheedee in his monumental work, *Hortus indicus malaburicus* (1678-1693) accounts on the Malabar plants in 12 volumes with illustrations and is also the first published work on the flora of the subcontinent. *Illustrations of Indian Botany* (1840) and *Icones Plantarum Indiae Orientalis* (1838-1853) by Wight and *Prodromus Florae Peninsulae Indiae Orientalis* (1834) together with Walker-Arnott are some important works on the flora of Peninsular India. Beddome in *the Flora Sylvatica for Southern India* (1868-1874) and *Icons Plantarum Indiae Orientalis* (1868-1874) throw light on the angiosperm flora of this region. *Flora Indica* (1820,1824) by William Roxburgh was a significant step towards the compilation of the flora of India. The seven volume work. *The Flora of British India* (1872-1897) by J.D. Hooker dealt with the

flora of erstwhile British India. It is followed by *The Flora of the Presidency of Bombay* (1901-1908) by T. Cooke and *The Flora of the Presidency of Madras* (1915-1936) by J.S. Gamble. The latter work is adjudged as the best among the regional floras.

*The Forest Trees of Travancore* (1908) by T.F. Bourdillon is the first comprehensive work on the forest flora of Travancore, giving an account of 582 indigenous trees and his herbarium collections also included many herbs, shrubs and climbers, though they were not included in the work. It was followed by *The Flowering Plants of Travancore* (1914) by Rama Rao and it deals with 3535 plants. *Vernacular List of Trees, Shrubs and Climbers of the Madras Presidency* (1915) by Lushington, *Flora of Anamalai Hills in Coimbatore District, Madras Presidency* (1921) by Fischer and *Flora of South Indian Hill Stations* (1932) by Fyson are the other important works. Burkil (1965) in *The Chapters on the History of Botany in India* has dealt with the contributions of various botanists.

Since then, especially in the second half of the present century work on the regional floras were undertaken primarily with the view of preparing a complete and comprehensive flora of India and major work was done on this by the Botanical Survey of India. *The Flora of Tamil Nadu, India* (Nair & Henry, 1983; Henry *et al* 1987 and 1989) by Nair *et al* was published as part of aforementioned project. The district wise floras of Kerala are either completed or being completed. *The Flora of Calicut* (Manilal and Sivarajan, 1982), *Flora of Cannanore* (Ramachandran and Nair, 1988) and *Flora of Palghat* (Vajrevelu, 1990), *Flora of Silent Valley* (Manilal, 1988), *Flora of Kerala: Grasses* (Sreekumar and Nair, 1991), *Flora of Thiruvananthapuram* (Mohanan and Henry, 1994), *Flora of Thenmala Forest Division* (Subramaniyan, 1995), *Flora of Nilambur* (Sivarajan and Philip Mathew, 1996) and *Flowering Plants of Thrissur Forests* (Sasidharan and Sivarajan, 1996) have been already published. Studies of Ph.D. programmes of *Flora of Quilon District* (Mohanan, 1984), *Flora of Pathanamthitta District* (Anilkumar, 1994), *Flora of Agasthyamala* (Mohanan, 1995) are yet to be published. Besides these works frequent botanical exploration studies by other botanists resulted in the publications of many new and interesting taxa. *The Flora of Tamil Nadu-Carnatic* (1981 - 1988) by Matthew has immense value with regard to the floristics of the present study area due to its similarity.



### **3. Study area and history**

Chinnar Wildlife Sanctuary, geographically located along the rain shadow region of the Western Ghats with an area of 90.44 km<sup>2</sup> comes under the political boundary of Idukki district of Kerala state. Chinnar was a part of the Marayur Forest Division till it was declared as a Wildlife Sanctuary in August 1984 by the GO. (p)/No. 229/84/AD (Ramesan, 1990). considering the adequate faunal, floral, geomorphological and natural significance. The *Chinnar* river is the boundary on the north separating the adjacent

Indira Gandhi Wildlife Sanctuary of Tamil Nadu and also serves as the state boundary. In the east it is also the state boundary which limits the area of the Sanctuary. The Sanctuary shares its boundaries in the south and the west with Marayur forest Division and Eravikulam National Park respectively. A public road for 16 km connecting Munnar-Udumelpettu passes through more or less middle of the Sanctuary from Karimutty to Chinnar.

The area is cherished by the two perennial rivers, the *Chinnar*, originating from the High Ranges of Eravikulam and the *Pambar*, one of the three east flowing rivers in Kerala, originating from the Thalayar valley. Besides its tributaries, many seasonal rivulets traverse through the Sanctuary and ultimately drain to the *Pambar*. The two rivers merge at Kuttar and flow together to Amaravati reservoir.

The terrain is highly undulating. The different regions of the area experience varying climate reflecting in the different vegetation types. The hot period in Chinnar proper prolongs up to nine months while in the higher reaches it is too short. The altitude ranges from 400 m to 1883 m asl.

The protected area is inhabited by two tribe groups, the *Muthuvas* and *Hill Pulayas*. They are randomly settled at 11 areas. *Hill Pulayas* have raised settlements at Champakkad, Palapetty, Alampetty and Ichampetty. The Muthuvas who prefer to live at more interior forest areas have settled at Olikkudy, Ollavayal, Mangappara, Thayannamkuddy, Puthukkudy, Mavelikkudy, Iruttalakkudy and Ichampetty. These two groups seldom mingle and Muthuvas enjoy the caste superiority. These two tribal groups are considered to be immigrants from the near by state of Tamil Nadu (Velu Pillai, 1940). Their socio-religious customs, life styles, linguistics, traditional ideologies supplement the belief that they might have come from the foothills of Anamalais. The old tribal medical practitioners of these groups in the Sanctuary perhaps may be the last generation of the custodians of many tribal medicines. The use of modern medicines and easy availability of them have considerably changed their attitude towards the use of some crude but valuable plant medicines. Though it is single unit as wildlife Sanctuary, the tribe men settled on the south of the Pambar are attached to the Kizhanthur village and on the north to Marayur village and the *Pambar* river serves as the village boundary. They mainly depend upon the forest products and forests related works for their lively hood. Lemon grass cultivation is widely practised by these two groups. It is a very convincing fact that the population of tribes have considerably increased beyond the supportive capacity of non forest areas available and its antagonistic deeds have been often reflected in the forest areas. The areas for agriculture and settlements have been clearly demarcated recently understanding the worse implications of the above problem.

A brief and accountable historical information of an area is a requisite to appraise of the significance of the area. The study area is a part of the Anjanad valley in the High

Ranges of erstwhile Travancore state. The name Anjanad is derived from the fact that the valley is constituted of five villages viz. Vattavada, Kottakombur, Kanthallur, Keezhanthur and Marayur. The historically significant megalithic burial sites consisting of dolmens and cysts are found in the Marayur village and their remnants are also found at Alampetty, Ichampetty and Palapetty in the Sanctuary. These are said to be edifices of the part of civilisations of people who once lived and buried. Archaeological department conducted some surveys during 1947-48 regarding the structures and recorded some revelations (Sreedhara Menon, 1975).

Vegetation of the Sanctuary in the past had been severely affected by forest fire. The scrub and dry vegetation of the Sanctuary is highly prone to fire and the long dry season adds much to this cause. The shifting of cultivation in the past by the tribes of the Sanctuary virtually played great role in the destruction of natural forests and the extent of natural forests have been narrowed down. Most of such abandoned cultivated areas are established by weedy and less useful plant such as *Lantana*, *Chromolaena*, *Prosopis*, etc. Plantations of *Eucalyptus* and *Teak* were raised in 1971 at some areas at Chinnar. Ollavayal and Vanchikulam, but the results are found to be unsatisfactory. In addition species like *Azadirachta indica*, *Ailanthus excelsa*, *Tamarindus indica* were planted at Chinnar. Sandal, natural as well as plantation form a considerable part of the vegetation of the Sanctuary.

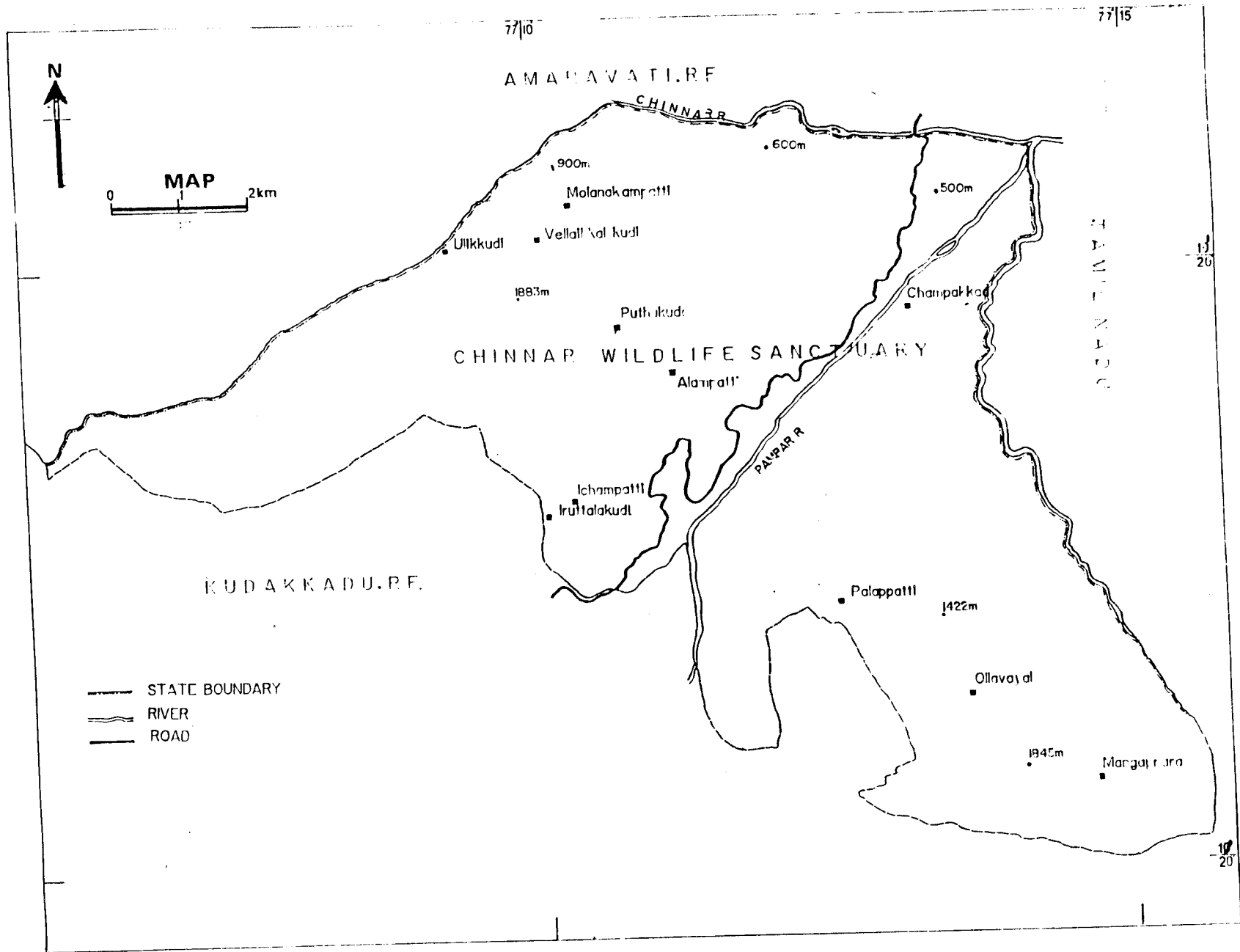
### 3.1 Location

The study area is located between 10° 15' - 10° 21' N latitude and 77° 05' - 77° 16' E longitude of Kerala state and comprises 90.44 km<sup>2</sup>. This is the only Sanctuary in Kerala situated along the rain shadow region of the Western Ghats. The Sanctuary shares its boundary with Tamil Nadu on the north and the east. The boundaries on the west and the south are shared by Eravikulam National Park and Marayur Reserve Forest respectively (Map).

### 3.2 Topography

The terrain is much undulated with hills and hillocks of varying altitude from 400 m at Chinnar to 1883 m at Vellakkalmalai. The other major peaks in the Sanctuary are Viriyattumalai, Thengamalai, Karumalai, Anakunnu and Gellimalai.

The area is drained by two perennial rivers passing through the Sanctuary, the *Chinnar* and the *Pambar*. During the north east monsoon, the dominant rainy season, a few ephemeral water courses take origin from higher mountains and drain the area and then dry up for the rest of the year.



### 3.3 Geology, rock and soil

The main geological formation is of crystalline rocks (Pre Cambrian) with charnockites. The charnokites with narrow bands of pyroxene granulite, magnetite - quartzite and calc granulite form the most wide spread group. The soil type vary from loamy sand to sandy loam and loam and the depth is low. Natural salt licks have been recorded from the Sanctuary. These salt licks are found in dry areas such as Mannala, Athithurai, Myladumpara, etc. where leaching is less. The soil in the salt lick sites has higher Sodium. Potassium. Calcium and Magnesium contents. Herbivores like elephants, spotted deer and sambar deer use the salt licks (Ramachandran *et al*, 1995).

### 3.4 Climate

The Sanctuary is situated on the leeward side of Western Ghats and experiences prolonged hot season and much less rainy days. The temperature is relatively higher with the lowest of 12°C and the highest of 38°C with mean annual temperature of 36°C. The major part of the Sanctuary receives rain during north-east monsoon. The rainy days in a year ranges from 30 to 40 days accounting for 300 to 500 mm in Chinnar and adjacent areas. But the higher altitude areas like Olikkudy, Karimutty and Karivepinshola receive the shower during both north-east and south-east monsoon with high rainfall. The significant difference in temperature and rainfall in different areas of the Sanctuary along with other geographic factors are responsible for the widely varied forest types and subtypes in an area of 90.44 km<sup>2</sup>.

### 3.5 Vegetation

The vegetation of the Sanctuary is highly disturbed mainly due to anthropogenic factors and cattle grazing. Therefore in many cases secondary forest types replace primary types and an obvious classification of forest types is really a hurdle. Not with standing these, the vegetation of the Sanctuary can be broadly classified according to Champion and Seth (1968) and Chandrasekharan (1962a,b,c) in to the following types. They are.

1. Southern tropical thorn forest (scrubjungle)
2. Southern dry mixed deciduous forest (dry deciduous forest)
3. Southern moist mixed deciduous forest (moist deciduous forest)
4. Tropical riparian fringing forest (riparian forest)
5. Southern montane wet temperate forest (hill shola forest)
6. Southern montane wet grassland (grassland).

Dry deciduous forest and scrub jungle are the two main forest types which together constitute about 50% of the total forest area. They are located at low land areas.

### **Southern tropical thorn forest (scrubjungle)**

This is the least distributed forest type in Kerala and is the second major forest type in the Sanctuary with regard to the area. The open low forest type is characterised by xerophytic species with short bole and low branching. The canopy is wide open. Therefore the canopy level differentiation is indistinguishable. The hardwood trees, thorny shrubs and climbers are characteristic features of the forest type. The undergrowth is furnished with some herbaceous forms during monsoons and remains exposed for the rest of the time. This forest type is distributed at Chinnar, Champakkad, Chunkam, Nellimedu and on the slopes of Alampetty, Ichampetty, Palapetty, etc.

The major species representing the forest type are *Acacia* spp., *Euphorbia* spp., *Capparis* spp., *Opuntia* spp., *Ziziphus* spp., *Grewia* spp., *Cordia* spp., *Albizia amara*, *Atalantia monophylla*, *Pleiospermium alatum*, *Prosopis juliflora*, *Dichrostachys cinerea*, *Diospyros cordifolia*, *Pisonia aculeata*, *Carissa carandas*, *Strychnos potatorum*, *Ceropegia juncea*, *Pergularia daemia*, *Caralluma* spp., *Helixanthera* spp., etc.

### **Southern dry mixed deciduous forest (dry deciduous forest)**

The forest type is characterised by predominant hardwood deciduous tree species. The canopy is open with poor undergrowth. Bamboos are barely represented. The canopy level is vague in this type also. This is the dominant forest type in the Sanctuary constituting nearly 33%. It is found at Palapetty, Alampetty, Ichampetty, Karimalai, Thayanankkudy, Puthukkudy, etc.

The most characteristic species present invariably in the forest type are *Anogeissus latifolia*, *Chloroxylon swietenia*, *Hardwickia binata*, *Boswellia serrata*, *Santalum album*, *Cassia fistula*, *Sterculia urens*, *Sapindus emarginatus*, *Canthium coromandelicum*, *Tarenna asiatica*, *Dodonaea angustifolia*, *Garuga floribunda*, *Shorea roxburghii*, etc.

### **Southern moist mixed deciduous forest (moist deciduous forest)**

The closed high forest is characterised mostly by deciduous plants, only for a brief time compared to the above forest type. The forest type covers less than 7% area of the Sanctuary at Palapetty, Karimalai, Puthukkudy, Ichampetty, Alampetty, etc. The occasional occurrence of some of the characteristic tree species of the forest type along with the notable absence of some predominant trees like *Terminalia* spp., *Xylia xylocarpa*, *Careya arborea* and *Dillenia pentagyna* might be due to the clearance of this forest type for converting to agricultural purpose. The view is strengthened because most of the agricultural areas are lying mixed with this forest type.

The upper canopy trees are *Grewia tiliifolia*, *Schleichera oleosa*, *Wrightia tinctoria*, *Bridelia crenulata*, *Buchanania lanzan*, *Pterocarpus marsupium*, *Gmelina arborea*, *Stereospermum*

*colais*, *Albizia odoratissima*, etc. The species forming the middle canopy include *Premna tomentosa*, *Atalantia racemosa*, *Cipadessa baccifera*, *Clerodendrum serratum*, *C. viscosum*, etc.

The undergrowth constitutes *Helicteres isora*, *Desmodium velutinum*, *Indigofera pulchella*, *Rhinacanthus nasutus*, *Justicia betonica*, etc.

### **Tropical riparian fringing forest (riparian forest)**

The forest type is characterised by a few evergreen and semi-evergreen species restricted on the sides of streams forming a narrow fringe. In the Sanctuary the forest type is restricted mostly along the sides of the *Pambar* and *Chinnar* rivers.

The dominant species are *Terminalia arjuna*, *Hopea parviflora*, *Bischofia javanica*, *Mangifera indica*, *Drypetes roxburghii*, *Vitex leucoxylon*, *Pongamia pinnata*, *Garcinia gummi-gutta*, *Mallotus stenanthus*, *Calophyllum calaba*, *Entada rheedei*, *Lepisanthes tetraphylla*, *Syzygium cumini*, *Schefflera racemosa*, *Homonoia riparia*, *Vitex altissima*, *Salix tetrasperma*, *Gnetum ula*, etc.

### **Southern montane wet temperate forest (hill shola forest)**

The high altitude evergreen closed forest is characterised by short boled and branchy species. The highly attracting varying degree of red colour of leaves of the species is really a fascinating view and is also one of the conspicuous features of this forest type. The forest type is localised at two places, Olikkudy shola and Kariveppinshola, at altitudes above 1300 m asl. This is the only undisturbed forest type in the Sanctuary covering 0.23% of the total area. There is no marked differentiation of canopy layers.

The dominant species of the forest type are *Syzygium* spp. *Elaeocarpus recurvatus*, *Actinodaphne malabarica*, *Agrostistachys indica*, *Fagraea ceylanica*, *Cryptocarya anamallayana*, *Calamus gamblei*, *Pittosporum* spp., *Gordonia obtusa*, *Mallotus tetracoccus*, *Aglaiia elaeagnoidea*, *Gomphandra coriacea*, *Microtropis parviflora*, *Meliosma pinnata*, *Rhodomyrtus tomentosus*, *Mussaenda tomentosa*, *Ardisia pauciflora*, *Cinnamomum verum*, *Litsea wightiana*, *Cassine paniculata*, *Ficus amplocarpa*, etc.

### **Southern montane wet grassland (grassland)**

The high altitude natural grasslands are sighted along the boundaries with Eravikulam and Kudakkad Reserve Forests. The predominant species are *Arundinella mesophylla*, *A. setosa*, *Apluda mutica*, *Ischaemum nilagiricum*, *Setaria pumila*, *Themeda triandra*, *Cymbopogon flexuosus*, *Echinochloa colona*, *Digitaria wallichiana*, *Chrysopogon zeylanicus*, *Viola betonicifolia*, *Pimpinella candolleana*, etc.

The vegetation on the slopes and hilltops have been cleared earlier by the tribes for cultivation of lemon grass and food crops. The abandoned cultivated areas in the past

are lacking shrubs and trees for a considerable area and the vegetation of that area is dominated with grasses. The lemon grass cultivation is a common practice among the tribes and a considerable portion of the agricultural land is utilised for this purpose. The true grasslands above the sholas are outside the Sanctuary. Teak and eucalyptus plantation of small patches have been raised at Vanchikulam and Ollavayal. The area composed of barren land and exposed rock constitute a considerable part of the Sanctuary. The agricultural land comprise nearly 6.4% of the area of the Sanctuary.

### **Exotic weeds**

The likely hood to establish exotic weeds is higher wherever the natural vegetation is disturbed and in turn it is a measure to estimate the degree of disturbance of the vegetation. However. once exotics are spread, they gradually suppress the natural regeneration and take dominance over the other species due to their increased and wide adaptability resulting in the loss of biodiversity and endemism. The same is true in the study area as the practice of shifting cultivation in the past by tribes gave way to the greater chance for the exotics to be established in those areas and now the area occupied by these exotics are not inconsiderable. The exotics established areas are spread at various regions of the Sanctuary, The major exotics in the Sanctuary are *Lantana* spp., *Parthenium hysterophorus*, *Argemone mexicana*, *Vicoa indica*. *Euphorbia* spp., *Chromolaena odorata*, etc.



## 4. Method

Extensive field trips were conducted periodically during 1994-1998 to collect plant specimens in generative phases. The herbarium was prepared from the collected specimens following the standard specification (Bridson and Forman, 1991). The identification was performed with pertinent literature and comparing with authentic specimens available from herbarium. The specimens of all species described in the work are deposited in Kerala Forest Research Institute (KFRI) herbarium.

The abbreviations used in the text *Fl.*, *Fr.*, *D i s t.*, *NS* and *KKS* stand for Flowering, Fruiting, Distribution, N. Sasidharan and K.K. Sajeev respectively.

## **5. Results**

### **5.1 Floristic Analysis**

The present floristic study resulted in the documentation of 965 species of flowering plants from the study area which constitutes 24% of the total flowering plants of the Western Ghats from where 4000 species have been recorded (Nayar, 1996). The species represent 578 genera under 135 families. The major flowering group Dicotyledons are represented with 794 species under 466 genera of 116 families, *ie* 82.3% flora of the

study area belongs to the Dicots. Monocotyledons are represented with 171 species under 111 genera from 18 families and constitute 17.7% of the flora of the Sanctuary. There is only one species representing the Gymnosperm.

The 10 dominant families in the Western Ghats are also dominant in the study area though the relative positions are slightly changed. The first and second dominant families in the study area are Fabaceae (103/45) and Poaceae (78/53) while in the Western Ghats the position is vice versa. The other dominant families in their downward order are Asteraceae (48/37), Euphorbiaceae (41/18) Rubiaceae (40/25), Acanthaceae (28/15), Lamiaceae (27/12), Asclepiadaceae (25/15), Cyperaceae (25/9) and Orchidaceae (22/18). The species from 10 families constitute 45.5% of the total flora of the Sanctuary. Forty-one families are represented with one species each. Though the family and generic diversity are better represented the species diversity within the genera is less.

As many as nine species of grasses viz. *Chloris roxburghii*, *Chrysopogon velutinus*, *Enneapogon schimperanus*, *Enteropogon monostachyos*, *Eragrostis diplachnoides*, *Oplismenus undulatifolius*, *Oropetium thomaeum*, *Setaria geniculata*, *Tragus roxburghii* (Sajeev. *et al.*, 1998) are new records to the flora of Kerala. Other species being new records to Kerala include *Theriophonum sivaganganum*, *Lepisanthes senegalensis*, *Decalepis hamiltonii*. The identity of one species of *Cuscuta* is yet to be confirmed. About 335 medicinal plants are present in the Sanctuary of which many are used by tribes in the crude form. The ethnobotanical details of 64 species have been reported (Sajeev and Sasidharan. 1997). *Ipomoea mombassana* collected from the Sanctuary is a new record to India (Biju *et al*, 1998). *Albizia lathamii* a critically endangered species was collected from the sanctuary and it is the first recollection after the type collection (Sajeev *et al.*, 1998).

## 5.2. Endemic Plants

Nayar (1996) has identified 5 centres of endemism in the Southern Western Ghats viz. Agasthyamalai hills. Anamalai and High Ranges, Nilgiris Silentvalley-Wyanad-Kodagu. Shimoga-Kanara and Palni Hills which together account for 3900 species of flowering plants with 1256 endemics. The study area falls with in the Anamalai-High Ranges. There are 114 peninsular Indian endemics in the study area representing 11.8% of the flora. These 114 species represent 38 families. Poaceae is the largest family with 12 endemics and the genus *Impatiens* is the largest endemic genus with 9 species.

## 5.3. Rare and Threatened Plants

The rare and threatened plant taxa of South India have been relatively well recorded by Joseph (1977), Henry *et al* (1979), Jain & Sastry (1984), Ahmedullah & Nayar (1987) and Nayar & Sastry (1987. 1988. 1990). Out of 1272 endemic taxa in Kerala. 460 are placed under various threat categories by Nayar (1997). The 7 species of this

category collected from the Sanctuary are *Albizia lathamii*, *Chrysopogon velutinum*, *Theriophonum sivaganganum*, *Cryptocoryne consubrina*, *Knoxia sumatrensis* var. *linearis*, *Exacum anamallayanum* and *Kalanchoe olivacea*. Except the rare species *Exacum anamallayanum* all others belong to the endangered category. The present collection of *Albizia lathnmii* is the first recollection from a different locality after the type collection and *Chrysopogon velutinum* and *Theriophonum sivaganganum* are also new records to the flora of Kerala.

## 6. Discussion

Owing to its geographic position in the rain shadow region of the W. Ghats, the Sanctuary enjoys a unique position among the other sanctuaries in Kerala. About 60% of the flora of the Sanctuary is of Deccan-Carnatic elements. Thus the flora of the Sanctuary has more resemblance to the Deccan-Carnatic elements rather than that of the wet regions of the W. Ghats.

The enumeration of 965 angiosperm taxa from an area of 90.44 km<sup>2</sup> of protected area does not thwart our expectations while considering the high degree of disturbance due to anthropogenic as well as natural calamities like fire and landslides. The 965 species represents 25% of the species of the total estimated flora of Kerala. The large number of families and genera with fewer number of species and low percentage of endemism give way to the assumption that the vegetation of the Sanctuary is highly disturbed. Nayar (1996) has recorded that about 3100 out of 4000 species of flowering plants of the Western Ghats occur in the close wet evergreen and dry evergreen forests. The absence of evergreen forests among the other 6 kinds of forest types is really a notable feature of the study area. This reason can also be attributed to the lower number of endemics and threat categories plants because most of the above category plants are seen in the evergreen forests. The rainfall is the decisive factor in determining the flourishing of the vegetation of the region as low rainfall and long dry season for some years have severely affected the growth and development of the vegetation.

As many as 290 species have medicinal properties, many of which have been used by the tribes as medicine. The vegetation, though constituted by different forest types is highly disturbed, therefore each type is invaded with many species other than the typical species of each and every forest type. The interaction of the people, especially the tribes with the forest for fuel wood for lemon oil extraction is a devastating step to be checked for the conservation of vegetation. Until and unless the external pressure on the forest is minimised or ceased the progress of the vegetation seems hardly possible. The lower plant groups are poorly represented in the area and they were not studied in detail during the study.

## 7. Systematic Treatment

### 7.1. Key to Families

- 1. Ovules covered; stigma present : **Angiosperms**
- 1. Ovules naked; stigma absent : **Gymnosperms**

#### Angiosperms

- 1. Stem with scattered vascular bundles; leaves parallel veined (except Dioscoreaceae, Araceae and Smilacaceae) cotyledon one : Monocotyledons
- 1. Stem with concentric vascular bundles; leaves reticulately veined, cotyledons 2 : Dicotyledons

#### Dicotyledons

- 1. Perianth lobes absent or uniseriate : 114
- 1. Perianth lobes biseriate or multiseriate : 2
- 2. Inner whorl of perianth lobes free to the base : 3
- 2. Inner whorl of perianth lobes fused : 76
- 3. Ovary superior : 4
- 3. Ovary inferior or half inferior : 67
- 4. Stamens more than 10 : 5
- 4. Stamens 10 or less : 26
- 5. Stamens perigynous : 6
- 5. Stamens hypogynous : 7
- 6. Leaves opposite; fruit capsular : Lythraceae
- 6. Leaves alternate; fruit drupe : Rosaceae
- 7. Ovary apocarpous : 8
- 7. Ovary mono or syncarpous : 9
- 8. Herbs : Ranunculaceae
- 8. Trees : Annonaceae
- 9. Fruit a legume : Mimosaceae (p.p.)
- 9. Fruit not a legume : 10
- 10. Stamens variously united : 11
- 10. Stamens free : 18
- 11. Anthers one celled : 12
- 11. Anthers 2-celled : 13
- 12. Stamens monadelphous : Malvaceae
- 12. Stamens 2-many delphous : Bombacaceae
- 13. Leaves opposite : 14
- 13. Leaves alternate : 15
- 14. Ovule solitary; trees : Clusiaceae (P.P.)
- 14. Ovules many; herbs : Hypericaceae
- 15. Seeds winged: bracteoles prominent : Sterculiaceae
- 15. Seeds not winged; bracteoles inconspicuous : 16

16. Flower solitary	: Theaceae (p.p.)
16. Flowers not solitary	: 17
17. Sepals 2; flowers bisexual	: Portulacaceae
17. Sepals 5; flowers unisexual	: Euphorbiaceae
18. Leaves gland dotted	: Rutaceae (p.p.)
18. Leaves not gland dotted	: 19
19. Seeds with cottony hairs	: Cochlospermaceae
19. Seeds without cottony hairs	: 20
20. Ovary borne as gynophore	: Capparaceae
20. Ovary sessile	: 21
21. Leaves lobed or compound	: 22
21. Leaves simple	: 23
22. Fruit prickly; herbs	: Papaveraceae
22. Fruit not prickly; stragglers	: Rosaceae (p.p.)
23. Fruit winged	: Dipterocarpaceae
23. Fruit not winged	: 24
24. Petals fimbriate	: Elaeocarpaceae
24. Petals entire	: 25
25. Leaves opposite	: Clusiaceae (p.p.)
25. Leaves alternate	: Tiliaceae
26. Fruit a legume	: 27
26. Fruit not a legume	: 29
27. Flowers zygomorphic	: 28
27. Flowers actinomorphic	: Mimosaceae (p.p.)
28. Corolla ascendingly imbricate	: Caesalpiniaceae
28. Corolla descendingly imbricate	: Papilionaceae
29. Stamens united wholly or partially	: 30
29. Stamens free	: 39
30. Leaves compound	: 31
30. Leaves simple	: 32
31. Flowers 3-merous	: Burseraceae (p.p.)
31. Flowers other than 3-merous	: Meliaceae (p.p.)
32. Climbers	: 33
32. Erect plants	: 34
33. Petals lacinate; flowers bisexual	: Malpighiaceae
33. Petals entire; flowers unisexual	: Menispermaceae (p.p.)
34. Flowers asymmetric	: 35
34. Flowers symmetric	: 37
35. Stamens as many as petals	: 36
35. Stamens more than petals, petals adnate to the staminal tube	: Polygalaceae
36. Ovary one celled; ovule parietal	: Violaceae
36. Ovary 5-celled, ovules axile	: Balsaminaceae
37. Petals with double ligule within	: Erythroxylaceae
37. Petals without ligule	: 38
38. Glands adnate to the staminal tube outside; plants without stellate hairs	: Linaceae
38. Glands absent; plants with stellate hairs	: Sterculiaceae

39. Climbing plants with tendril	: 40
39. Plants without tendril	: 42
40. Stamens as many as petals	: 41
40. Stamens more than petals	: Sapindaceae (p.p.)
41. Ovary one celled: corona present	: Passifloraceae
41. Ovary 2-celled; corona absent	: Uitaceae
42. Plants insectivorous	: Droseraceae
42. Plants non insectivorous	: 43
43. Flowers polygamo-dioecious or unisexual	: 44
43. Flowers bisexual	: 47
44. Ovary one celled	: Anacardiaceae (p.p.)
44. Ovary 2 or more celled	: 45
45. Leaves alternate	: 46
45. Leaves opposite, thorny shrubs	: Salvadoraceae
46. Leaves palmately veined, entire	: Menispermaceae
46. Leaves pinnately veined, crenate	: Celastraceae (p.p.)
47. Stamens more than petals	: 48
47. Stamens as many as or fewer than petals	: 54
48. Gynophore present	: Capparaceae
48. Gynophore absent	: 49
49. Leaves gland dotted	: Rutaceae (p.p.)
49. Leaves not gland dotted	: 50
50. Fruit a samara	: Simaroubaceae
50. Fruit not samara	: 51
51. Ovules axile	: 52
51. Ovules pendulous	: Anacardiaceae (p.p.)
52. Fruit prickly; herbs	: Zygophyllaceae
52. Fruit not prickly; trees	: 53
53. Stamens alternately long and short, bark resinous	: Burseraceae
53. Stamens subequal. bark no resinous	: Sapindaceae
54. Leaves pinnate	: 55
54. Leaves simple	: 56
55. Leaves 3-pinnate; stamens 5	: Moringaceae
55. Leaves once pinnate: stamens 2	: Sabiaceae (p.p.)
56. Leaves opposite	: 57
56. Leaves alternate	: 61
57. Stamens 2	: Oleaceae
57. Stamens more than 2	: 58
58. Stamens 3	: Hippocrateaceae
58. Stamens more than 3	: 59
59. Herbs	: 60
59. Trees	: Celastraceae (p.p.)
60. Ovary 1 or 2-celled	: Caryophyllaceae
60. Ovary 3 or more celled	: Lythraceae (p.p.)
61. Stamens 2	: Sabiaceae (p.p.)
61. Stamens more than 2	: 62



62. Ovary 1 or 2-celled	: 63
62. Ovary 3 or more celled	: 65
63. Stamens alternate to petals; trees or shrubs	: 64
63. Stamens opposite to petals; stragglers	: Opiliaceae (p.p.)
64. Ovules many, axile a partial	: Pittosporaceae
64. Ovules 1 or 2, erect	: Icacinaceae
65. Flowers polygamo-dioecious or unisexual	: Celastraceae (p.p.)
65. Flowers bisexual	: 66
66. Petals cucullate, enclosing stamens	: Rhamnaceae
66. Petals not cucullate; stamens free from petals	: Celastraceae (p.p.)
67. Plants armed; leaves reduced or absent	: Cactaceae
67. Plants unarmed; leaves developed	: 68
68. Stamens more than 10	: 69
68. Stamens less than 10	: 71
69. Leaves decussate, with intramarginal vein	: Myrtaceae
69. Leaves alternate, without intramarginal vein	: 70
70. Stamens united in bundles; flowers in spikes	: Symplocaceae
70. Stamens free; flowers in panicles	: Rosaceae (p.p.)
71. Flowers in umbels; fruit mericarps, aromatic	: Apiaceae
71. Flowers not in umbels; fruit not mericarps	: 72
72. Leaves compound	: Araliaceae
72. Leaves simple	: 73
73. Ovary 1-celled; stamens as many as petals	: Cornaceae
73. Ovary 2 - more celled; stamens twice as many as petals	: 74
74. Fruit a drupe	: Combretaceae
74. Fruit a capsule or berry	: 75
75. Fruit globose	: Melastomataceae
75. Fruit linear	: Onagraceae
76. Ovary inferior or half inferior	: 77
76. Ovary superior	: 84
77. Stamens more than corolla lobes	: Ericaceae
77. Stamens as many as corolla lobes or fewer	: 78
78. Plants with tendrils	: Cucurbitaceae
78. Plants without tendrils	: 79
79. Anthers syngenacious	: Asteraceae
79. Anthers free	: 80
80. Leaves opposite/whorled	: 81
80. Leaves alternate	: 82
81. Stipules present, or if present, then stigma 1 or 2-lobed	: Rubiaceae
81. Stipules absent, stigma 3-lobed	: Caprifoliaceae
82. Stamens opposite petals	: Myrsinaceae (p.p.)
82. Stamens alternate with petals	: 83
83. Corolla zygomorphic	: Lobeliaceae
83. Corolla actinomorphic	: Campanulaceae
84. Stamens more than corolla lobes	: 85
84. Stamens as many as or fewer than corolla lobes	: 88

85. Ovary apocarpous	: <b>Crassulaceae</b>
85. Ovary syncarpus	: 86
86. Leaves compound	: <b>Oxalidaceae</b>
86. Leaves simple	: 87
87. Corolla urceolate; flowers unisexual	: <b>Ebenaceae</b>
87. Corolla rotate or campanulate; flowers bisexual latex milky	: <b>Sapotaceae</b> (p.p.)
88. Leaves peltate	: <b>Menispermaceae</b> (p.p.)
88. Leaves not peltate	: 89
89. Stamens opposite petals	: 90
89. Stamens alternate with petals	: 94
90. Ovary 2 - many, locular	: 91
90. Ovary 1 - locular	: 92
91. Corolla urceolate; flowers unisexual	: <b>Ebenaceae</b>
91. Corolla rotate; flowers bisexual	: <b>Sapotaceae</b> (p.p.)
92. Ovule solitary	: <b>Opiliaceae</b> (p.p.)
92. Ovules many	: 93
93. Styles 5; calyx with stalked glands	: <b>Plumbaginaceae</b>
93. Style 1; calyx not glandular	: <b>Myrsinaceae</b>
94. Corolla irregular; stamens 4, didynamous or 2	: 95
94. Corolla regular: stamens 4 or 5	: 101
95. Fruit elastically dehiscent; bracts conspicuous	: <b>Acanthaceae</b>
95. Fruit not as above; bracts inconspicuous	: 96
96. Ovules and seeds few	: 97
96. Ovules and seeds many	: 98
97. Ovary 4-lobed, style gynobasic	: <b>Lamiaceae</b>
97. Ovary entire, style apical	: <b>Verbenaceae</b>
98. Leaves compound; seeds winged	: <b>Bignoniaceae</b>
98. Leaves simple; seeds not winged	: 99
99. Plants with small insectivorous bladders, aquatic or of wet places, placentation free central	: <b>Lentibulariaceae</b>
99. Plants not insectivorous; terrestrial placentation axile or parietal	: 100
100. Placentation axillary, unbranched	: <b>Scrophulariaceae</b>
100. Placentation parietal, branched or winged	: <b>Gesneriaceae</b>
101. Scapigerous herbs; leaves radical	: <b>Plantaginaceae</b>
101. Plants otherwise; leaves cauline	: 102
102. Leaves alternate	: 103
102. Leaves opposite	: 106
103. Ovules and seeds many	: 104
103. Ovules and seeds few	: 105
104. Styles 2, filaments dialated	: <b>Hydrophyllaceae</b>
104. Style 1, filaments not dialated	: <b>Solanaceae</b>
105. Fruit capsular; corolla usually plicate mostly climbers	: <b>Convolvulaceae</b>
105. Fruit dry with 4 nutlets or drupaceous with 1-4 locular pyrene, mostly erect plants	: <b>Boraginaceae</b> (p.p.)
106. Stamens 2	: <b>Oleaceae</b>
106. Stamens 4 or 5	: 107
107. Anthers connate or connivent around stigma; carpels free or partly connate	: 108
107. Anthers free, away from stigma; carpels connate	: 109

108. Anthers connate with stigma forming gynostegium; corona present	: Asclepiadaceae
108. Anthers connivent around stigma; corona absent	: Apocynaceae
109. Herbs	: 110
109. Woody plants	: 111
110. Ovary 4-locular, 4 ovulate, plants hispid	: Boraginaceae (p.p.)
110. Ovary 1-locular, many ovulate, plants glabrous	: Gentianaceae
111. Ovules pendulous; seeds or pyrene solitary calyx persistent	: Verbenaceae (p.p.)
111. Ovules axile; seeds 2 or more	: 112
112. Petals shortly connate at base	: Celastraceae (p.p.)
112. Petals united to more than half their length	: 113
113. Fruit a capsule	: Buddlejaceae
113. Fruit a berry	: Loganiaceae
114. Plants submerged	: Podostemaceae
114. Plants not submerged	: 115
115. Parasites	: 116
115. Autophytes	: 118
116. Achlorophyllous, rot parasite, anthers connate	: Balanophoraceae
116. Chlorophyllous, stem parasites, anthers free	: 117
117. Perianth limb tubular; anthers dehiscence longitudinal	: Loranthaceae
117. Perianth limb campanulate; anthers dehiscence other than longitudinal	: Viscaceae
118. Perianth absent	: 119
118. Perianth present	: 121
119. Inflorescence a cyathium	: Euphorbiaceae (p.p.)
119. Inflorescence spicate	: 120
120. Twiners or small herbs; fruit berry	: Piperaceae
120. Trees; fruit a capsule	: Sabiaceae
121. Twiners	: 122
221. Other than twiners	: 124
122. Ovary inferior; stamens adnate to stylar column	: Aristolochiaceae
122. Ovary superior; stamens free from style	: 123
123. Flowers bisexual	: Basellaceae
123. Flowers unisexual	: Menispermaceae (p.p.)
124. Ovary inferior or half inferior	: 125
124. Ovary superior	: 131
125. Leaves and young shoots covered with peltate or stellate scales	: Elaeagnaceae
125. Scales absent	: 126
126. Ovary 2-6 locular	: Begoniaceae
126. Ovary mono locular	: 127
127. Anthers dehiscing by valves	: Hernandiaceae
127. Anthers not dehiscing by valves	: 128
128. Stamens twice the number of perianth lobed	: Combretaceae (p.p.)
128. Stamens equal to fewer than perianth lobes	: 129
129. Fruit dehiscent; herbs	: Lythraceae (p.p.)
129. Fruit indehiscent	: 130
130. Stigmas 3, unarmed shrubs or trees	: Santalaceae
130. Stigma peltate or two lobed herbs; if shrubs, then armed	: Nyctaginaceae

131. Anthers dehiscent by valves	: Lauraceae
131. Anthers dehiscent not by valves	: 132
132. Ovary apocarpous	: 133
132. Ovary syncarpous	: 136
133. Flowers unisexual, staminal filaments united in column	: 134
133. Flowers bisexual, staminal column absent	: 135
134. Tree	: Sterculiaceae (p.p.)
134. Climbers	: Menispermaceae (p.p.)
135. Stamens 5	: Aizoaceae (p.p.)
135. Stamens many	: Ranunculaceae (p.p.)
136. Ovary 2-many locular	: 137
136. Ovary mono locular	: 142
137. Flowers unisexual	: 138
137. Flowers bisexual	: 139
138. Bracteoles conspicuous; leaves triplinerved	: Buxaceae
138. Bracteoles inconspicuous; leaves not so	: Euphorbiaceae (p.p.)
139. Herbs	: 140
139. Shrubs or trees	: 141
140. Leaves opposite, style present	: Aizoaceae (p.p.)
140. Leaves alternate, style absent	: Phytolaccaceae
141. Leaves simple	: Rhamnaceae (p.p.)
141. Leaves compound	: Sapindaceae (p.p.)
142. Stipules ochreate	: Polygonaceae
142. Stipules if present, not ochreate	: 143
143. Fruit a syconium	: Moraceae (p.p.)
143. Fruit otherwise	: 144
144. Herbaceous plants	: 145
144. Woody plants	: 148
145. Flowers unisexual	: Urticaceae (p.p.)
145. Flowers bisexual	: 146
146. Ovary truncate or depressed around style	: Aizoaceae (p.p.)
146. Ovary not as above	: 147
147. Perianth scaly; stigma entire or 2	: Amaranthaceae
147. Perianth fleshy; stigmas 5	: Chenopodiaceae
148. Leaves compound	: Caesalpiniaceae (p.p.)
148. Leaves simple	: 149
149. Stipules present	: 150
149. Stipules absent	: 154
150. Style branched	: 151
150. Style unbranched	: 153
151. Anthers recurved in bud, latex milky	: Moraceae (p.p.)
151. Anthers erect in bud, latex absent	: 152
152. Ovule solitary	: Ulmaceae
152. Ovules 2	: Euphorbiaceae (p.p.)

153. Placentation parietal	: <b>Flacourtiaceae</b> (p.p.)
153. Placentations not parietal	: <b>Urticaceae</b>
154. Styles 5	: <b>Flacourtiaceae</b> (p.p.)
154. Style 1	: <b>155</b>
155. Stamens many	: <b>Clusiaceae</b> (p.p.)
155. Stamens 10	: <b>Thymeleaceae</b>

## Monocotyledons

1. Ovary inferior	: <b>2</b>
1. Ovary superior	: <b>7</b>
2. Flowers zygomorphic	: <b>3</b>
2. Flowers actinomorphic	: <b>4</b>
3. Stamens and style united in a column	: <b>Orchidaceae</b>
3. Stamens and style free	: <b>Zingiberaceae</b>
4. Herbs; flowers bisexual	: <b>5</b>
4. Climbers; flowers unisexual	: <b>Dioscoreaceae</b>
5. Stamens free	: <b>Hypoxidaceae</b>
5. Stamens united	: <b>6</b>
6. Flowers in racemes	: <b>Haemodoraceae</b>
6. Flowers in umbels	: <b>Amaryllidaceae</b>
7. Perianth lobes petaloid	: <b>8</b>
7. Perianth lobes not petaloid or absent	: <b>12</b>
8. Flowers unisexual; leaves reticulately veined	: <b>Smilacaceae</b>
8. Flowers bisexual; leaves venation otherwise	: <b>9</b>
9. Perianth with 3-petaloid parts	: <b>10</b>
9. Perianth with 6-petaloid parts	: <b>11</b>
10. Inflorescence a bracteolate head	: <b>Xyridaceae</b>
10. Inflorescence otherwise	: <b>Commelinaceae</b>
11. Plants aquatic	: <b>Pontederiaceae</b>
11. Plants terrestrial	: <b>Liliaceae</b>
12. Plants woody	: <b>13</b>
12. Plants herbaceous	: <b>14</b>
13. Leaves pinnately or palmately divided	: <b>Arecaceae</b>
13. Leaves entire	: <b>Poaceae</b> (p.p.)
14. Inflorescence spike	: <b>15</b>
14. Inflorescence heads or of spikelets	: <b>16</b>
15. Spadices with large spathes	: <b>Araceae</b>
15. Spikes without spathes	: <b>Typhaceae</b>
16. Leaves septate	: <b>Juncaceae</b>
16. Leaves not septate	: <b>17</b>
17. Inflorescence a head	: <b>Eriocaulaceae</b>
17. Inflorescence spikelets other than head	: <b>18</b>
18. Stem terete, sheaths open	: <b>Poaceae</b> (p.p.)
18. Stem triquetrous, sheaths closed	: <b>Cyperaceae</b>

## RANUNCULACEAE

- |                                                              |                     |
|--------------------------------------------------------------|---------------------|
| 1. Climbers; leaves opposite                                 | : 2                 |
| 1. Erect herbs; leaves alternate                             | : 3                 |
| 2. Terminal leaflet modified in to a tendril; petals present | : <b>Naravelia</b>  |
| 2. Tendrils and petals absent                                | : <b>Clematis</b>   |
| 3. Petals absent; leaves thrice lobed                        | : <b>Anemone</b>    |
| 3. Petals present, glandular at base; leaves not lobed       | : <b>Ranunculus</b> |

### ANEMONE L.

**Anemone rivularis** Buch.-Ham. ex DC., Syst. 1: 211. 1817; Fl. Brit. India 1: 9. 1872; Fl. Pres. Madras 4. 1915. *A. wightiana* Wight & Arn., Prodr. 3. 1834; Wight, Ic. t. 936. 1845.

Perennial herbs, densely clothed with hairs at the base. Leaves 6-8 x 4-7 cm, thrice lobed, hairy, acute. Flowers solitary or several on simple scape of cymes. to 20 cm; involucre 3-partite; sepals 5, 11 x 8 mm, oblong-ovate, imbricate, petaloid, white, lower side blue: stamens numerous, filaments of unequal length; carpels numerous. Achenes in heads, 6 mm long, sessile, beaked.

*Fl. & Fr.* April-June

*D i s t.* Common in high altitude grasslands

Pothumala, *KKS 17374*

### CLEMATIS L.

- |                                                        |                       |
|--------------------------------------------------------|-----------------------|
| 1. Flowers less than 1.5 cm across; leaves bipinnate   | : <b>C. gouriana</b>  |
| 1. Flowers more than 2.5 cm across; leaves 3-5 foliate | : 2                   |
| 2. Plants densely tomentose; filaments pubescent below | : <b>C. wightiana</b> |
| 2., Plants glabrous; filaments glabrous                | : <b>C. munroiana</b> |

**Clematis gouriana** Rosb. ex DC., Syst. Nat. I: 138. 1817; Wight, Ic. tt. 933 & 934. 1845: Fl. Brit. India 1: 4. 1872; Fl. Pres. Madras 3. 1915; Matthew, Fl. TN. Carnatic 1. 1983 & Ill. Fl. TN. Carnatic t. 1. 1982.

Climbing shrubs. Leaves bipinnate. leaflets to 6 x 3.5 cm. ovate. sparsely pubescent, basally 3-5 nerved. acuminate: petiole to 6.5 cm, twinning, petiolule 1 cm. Panicles axillary and terminal, to 16 cm, dense, sparsely pubescent, peduncles 2-6 cm; flowers white. 1.2 cm across; sepals 4. oblong; filaments glabrous; carpels 10-15. Achenes 3 mm, oblong, pubescent, achenial style 5 cm, pilose.

*Fl. & Fr.* February-March

*D i s t.* Common in moist deciduous forests

Karimutty, *KKS 15979*

**Clematis munroiana** Wight. Ill. 1: 5. t. 1. 1831: Fl. Pres. Madras 3. 1915. *C. smilacifolia* auct. non Wall. 1820; Fl. Brit. India 1: 3. 1872, p.p.

Climbing shrubs, branchlets grooved. Leaves trifoliate; leaflets 10 x 3.5 cm, lanceolate, apex obtusely acuminate, margin distantly serrate, glabrous, basally 3-5 nerved; petiole to 8 cm, twinning, petiolule to 2 cm. Panicles 15-20 cm, usually 3-flowered; pedicels to 8 cm; sepals 4, 2.5 x 0.6 cm, elliptic, pubescent, dark brown inside, slightly golden outside; stamens white, filaments glabrous; carpels numerous. Achenes densely pilose.

*Fl. & Fr.* September-October

*D i s t.* Common in shola forests

Karivepinshola, *KKS* 17453

**Clematis wightiana** Wall. ex Wight & Arn., Prodr. 2. 1834; Wight, Ic. t. 935. 1845; Fl. Brit. India 1: 5. 1872; Fl. Pres. Madras 3. 1915.

Climbing shrubs. tomentose. Leaves 3-5 foliolate, leaflets 6 x 4 cm, ovate, acuminate, densely tomentose, crenate or lobed with spiny protuberance. base cordate; petiole to 3 cm, twinning'. Panicles axillary or terminal, peduncles to 2.5 cm; sepals 4, yellow-brown, 18 x 12 mm, ovate, glabrous inside; stamens numerous, filaments pubescent below; carpels many; stigma pilose. Achenes in globose heads. pubescent.

*Fl. & Fr.* February-March

*D i s t.* Common in shola forests

Olippara, *KKS* 17247

#### NARAVELIA A. DC.

**Naravelia zeylanica** (L.) DC.. Syst. Nat. 1: 167. 1817; Fl. Brit. India 1: 7. 1872; Fl. Pres. Madras 3. 1915; Matthew, Fl. TN. Carnatic 2. 1983 & Ill. Fl. TN. Carnatic t. 2. 1982. *Atragene zeylanica* L., Sp. Pl. 542. 1753.

Climbing shrubs. branchlets pubescent. Leaves 3-foliolate; terminal leaflets modified in to 3-fid tendril, lateral leaflets 8-14 x 4-6 cm, broadly ovate, abruptly acute, pubescent beneath. basally 5-nerved. Panicles axillary or terminal, pedicels 2-3.5 cm, pubescent; sepals 4-5. 6 x 2.5 cm: petals 10-12, greenish-yellow, to 8 mm: stamens and carpels numerous, stigma clavate. Achenes 4 mm, pubescent with long coiled pilose stigma.

*Fl. & Fr.* January-February

*D i s t.* Common on hedges and cleared slopes

Churullipetty, *KKS* 11873

#### RANUNCULUS L.

**Ranunculus reniformis** Wall. ex Wight & Arn., Prodr. 3. 1834; Wight, Ic. t. 75. 1838; Fl. Brit. India 1: 16. 1872; Fl. Pres. Madras 5. 1915.

Annual or perennial herbs, pubescent. Leaves radical and cauline, base sheathing, lamina 6-7 x 5-6 cm, ovate. cordate at base. pubescent margins broadly crenate; petiole up to 6 cm. Flowers solitary or paniced. pedicels to 10 cm: sepals 5, imbricate, 8 x 5 mm. obovate. hairy outside; petals 10, in two series. 8 x 6 mm. ubovate. yellow, with a nectary at base; stamens

numerous, lower up to 5 mm; carpels numerous, style curved, 1 mm. Achenes in heads, 2 mm long, beaked.

*Fl. & Fr.* April-May

*D i s t.* Common in high altitude grasslands.

Pothumala, *KKS 17375*

## ANNONACEAE

- |                                                                |              |
|----------------------------------------------------------------|--------------|
| 1. Climbers                                                    | : Uvaria     |
| 1. Trees                                                       | : 2          |
| 2. Outer petals smaller than inner petals, saccate             | : Miliusa    |
| 2. Outer petals as long as or longer than inner petals         | : 3          |
| 3. Inner petals lozenge shaped, connate at apex to form a dome | : Mitrephora |
| 3. Petals similar, free                                        | : 4          |
| 4. Anthers flat topped; leaves pubescent                       | : Polyalthia |
| 4. Anthers not flat topped; leaves glabrous                    | : Alphonsea  |

### ALPHONSEA Hook. f. & Thomson

**Alphonsea sclerocarpa** Thw., Enum. Pl. Zeyl. 11. 1858; Fl. Brit. India 1: 89. 1872; Fl. Pres. Madras 23. 1915; Matthew, Fl. TN. Carnatic 6. 1983 & III. Fl. TN. Carnatic t. 4. 1982.

Small trees. Leaves 6-11 x 2.5-4 cm, lanceolate or oblong, coriaceous. Flowers in clusters or cymes, leaf opposed; peduncles 15 mm long, pedicels 3 mm long, tomentose: sepals 1 x 1 mm: petals yellow, outer and inner whorls subequal, 9 x 4 mm, base pouched, tip slightly recurved: stamens 20-25, 2 mm, sessile; carpels 4-6, oblong, ovules ca. 8 in two rows. Fruit 3-4 x 2-3 cm. rugose, reddish, tomentose.

*Fl. & Fr.* February-April

*D i s t.* Rare, in dry deciduous forests

Chinnar, *NS 5911*; Alampetty, *KKS 11969*

### MILIUSA Lesch. ex A. DC.

- |                                                      |                       |
|------------------------------------------------------|-----------------------|
| 1. Pedicels 5 mm or less; petals sparsely hairy      | : <b>M. eriocarpa</b> |
| 1. Pedicels more than 1 cm; petals densely tomentose | : <b>M. tomentosa</b> |

**Miliusa eriocarpa** Dunn in Gamble, Fl. Pres. Madras 21. 1915; Matthew, Fl. TN. Carnatic 10. 1983 & III. Fl. TN. Carnatic t. 7. 1982. **M. indica** Lesch. var. **tomentosa** Hook. f., & Thoms. in Hook. f., Fl. Brit. India 1: 86. 1872; Bedd., Ic. t. 85. 1868-1874.

Small trees; branchlets strigose. Leaves 4-6 x 2-2.5 cm, ovate, pubescent, apex obtuse, base slightly cordate; petiole to 3 mm, pubescent. Flowers axillary, solitary; pedicels pubescent, bracteate; sepals 1-2 mm, broadly ovate, pubescent; outer petals 3-4 mm, pubescent; inner 13 x 7 mm, saccate at base: anthers not concealed by connectives; carpels numerous, 2 mm long, tomentose, stigma oblong. Fruitlets 10 x 8 mm, ovoid, globose, red.

*Fl. & Fr.* August-November

*D i s t.* Common in moist deciduous forests; endemic to Peninsula India.

Palapetty, *KKS 15847*



**Miliusa tomentosa** (Roxb.) Sinclair, Gard. Bull. ss. 14: 378. 1955. *Uvaria tomentosa* Roxb., Pl. Cor. t. 35. 1795. *Saccopetalum tomentosum* (Roxb.) Hook. f. & Thorns., Fl. Ind. 152. 1855 & in Fl. Brit. India 1: 88. 1872; Bedd., Ic. t. 49. 1868-1874; Fl. Pres. Madras 22. 1915; Matthew, Fl. TN. Carnatic 14. 1983 & Ill. Fl. TN. Carnatic t. 9. 1982.

Medium trees; branchlets tomentose. Leaves to 15 x 7 cm, ovate-oblong, pubescent, acute or acuminate, base rounded. Flowers axillary, solitary or clustered, yellow; pedicels to 5 cm. tomentose; sepals 8 x 2 mm, lanceolate, pubescent outside; outer petals 9 x 2 mm, inner 18 x 8 mm, pouched at base, pubescent outside; anthers not concealed by connectives; carpels pubescent, stigma oblong.

*Fl.* January-March

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15501*

#### **MITREPHORA Hook. f. & Thorns.**

**Mitrephora heyneana** (Hook. f. & Thorns.) Thw., Enum. Pl. Zeyl. 8. 1858; Fl. Brit. India 1: 77. 1872; Bedd., Ic. t. 77. 1868-1874; Fl. Pres. Madras 19. 1915; Matthew, Fl. TN. Carnatic 11. 1983. *Orophen heyneana* Hook. f. & Thorns., Fl. Ind. 110. 1855 [Fig. 1].

Small trees; branchlets tomentose. Leaves 5-8.5 x 35-4 cm, ovate, glabrous, coriaceous. acuminate. Flowers terminal or leaf opposed, solitary or 2-3 together, yellow; pedicels tomentose, 0.5 cm long; sepals to 1 mm, pubescent; outer petals 15 x 8 mm, elliptic-obovate. pubescent outside: inner petals 8 x 5 mm. clawed, upper half densely tomentose inside; anthers concealed by connectives; carpels several ovuled. Fruitlets 1.5 x 1 cm, ovoid, tomentose. pedicels thickened.

*Fl. & Fr.* April-June

*D i s t.* Common in dry deciduous forests near water courses

Kombakkayam, *KKS 15684*; Chengamperu, *11732*

#### **POLYALTHIA Blume**

**Polyalthia cerasoides** (Roxb.) Bedd., Fl. Sylv. t. 1. 1869; Fl. Brit. India 1: 63. 1872; Fl. Pres. Madras 17. 1915; Matthew, Fl. TN. Carnatic 12. 1983 & Ill. Fl. TN. Carnatic t. 8. 1982. *Uvaria cerasoides* Roxb.. Pl. Cor. t. 33. 1795.

Small trees; branchlets pubescent. Leaves 6-13 x 3-4 cm, oblong-lanceolate, pubescent. thinly coriaceous. apex acuminate or acute; petioles to 3 mm. Flowers axillary, solitary, bracteolate; pedicels 2.5 cm, pubescent; sepals 6 x 3 mm, ovate, pubescent; petals similar. 8 x 4 mm, coriaceous. slightly inflexed, greenish-yellow; anthers flat topped; carpels stalked. pubescent.

*Fl.* March

*D i s t.* Occasional along the slopes in moist deciduous forests: endemic to Peninsula India.

Mangavada. *KKS 11964*

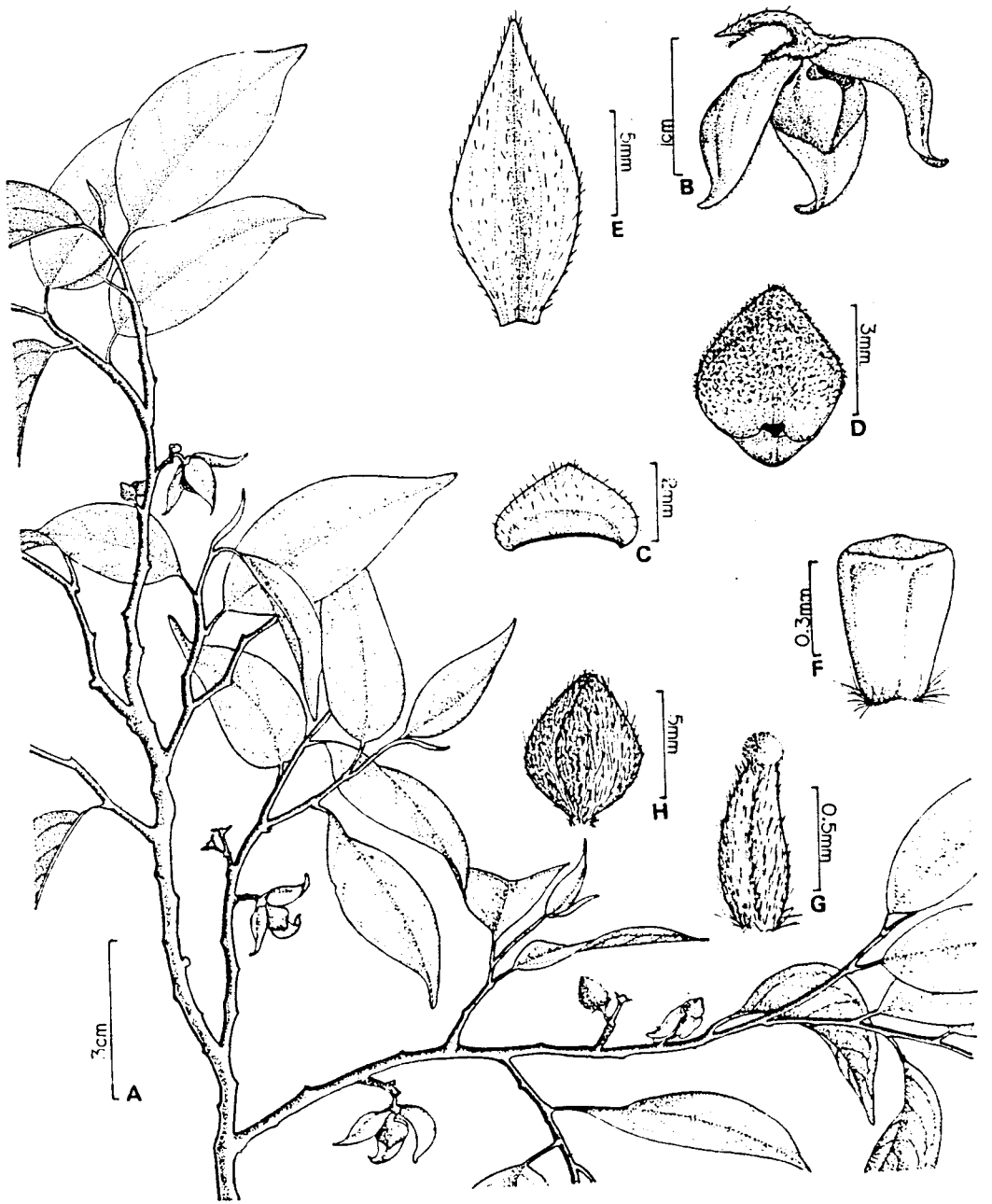


Fig. 1. *Mitrephora heyneana* (Hook.f. & Thoms.) Thw. A. flowering twig, B. flower, C. sepal, D. inner petal, E. outer petal, F. stamen, G. carpel, H. fruitlet.

## UVARIA L.

**Uvaria narum** (Dunal) Wall. ex Wight & Arn., Prodr. 9. 1834; Wight, III. 1: t. 6. 1840; Fl. Brit. India 1: 50. 1872; Fl. Pres. Madras 13. 1915; Matthew, Fl. TN. Carnatic 14. 1983 & III. Fl. TN. Carnatic t. 10. 1982.. *Unona narum* Dunal, Monog. Anon. 99. 1817.

Scandent shrubs; branchlets sparsely hairy. Leaves 11-16 x 3-5 cm, elliptic, lanceolate, apex acuminate, thin coriaceous, lower surface brownish. Flowers extra-axillary, leaf opposed, solitary; pedicels 1 cm, tomentose; sepals 8 x 5 mm, broadly ovate, tomentose, basally connate; petals fleshy, outer 2 x 1.5 cm; inner 2 x 1 cm, obovate, tomentose, apex in curved, golden-brown; anthers concealed by connectives; carpels numerous, 5 mm, oblong, tomentose.

*Fl.* March-April

*D i s t.* Common near the streamsides

Mangavada, KKS 11992

## MENISPERMACEAE

- |                                                                          |               |
|--------------------------------------------------------------------------|---------------|
| 1. Stamens free; inflorescence racemose                                  | : 2           |
| 1. Stamens united to form a synandrium; inflorescence panicles or umbels | : 3           |
| 2. Leaves deeply cordate at base, branchlets glabrous                    | : Tinospora   |
| 2. Leaves ovate at base, branchlets pubescent                            | : Pachygone   |
| 3. Leaves not peltate; sepals recurved                                   | : Anamirta    |
| 3. Leaves peltate; sepals not recurved                                   | : 4           |
| 4. Inflorescence in cymose umbels, glabrous; stamens 6                   | : Stephania   |
| 4. Inflorescence in corymbose cymes, tomentose; stamens 4                | : Cissampelos |

## ANAMIRTA Colebr.

**Anamirta cocculus** (L.) Wight & Arn., Prodr. 446. 1834; Fl. Brit. India 1: 93. 1872; Fl. Pres. Madras 28. 1915; Matthew, Fl. TN. Carnatic 17. 1983 & III. Fl. TN. Carnatic tt. 11 & 961b. 1982. *Menispermum cocculus* L., Sp. Pl. 340. 1753.

Large woody climbers. Leaves 10-15 x 9-14 cm, ovate, cordate at base, basally 5-nerved, glabrous except at nerve axils; petioles to 12 cm. Panicles on old wood, pendulous, 30-50 cm long; flowers creamy-white, male flowers-) bracteate, small; sepals concave; petals absent; stamens yellow, female flowers-carpels 3, staminodes 9, stigma reflexed, gynophore thick. Drupe 1 x 0.7 cm, ovoid, dorsally gibbous, glabrous.

*Fl. & Fr.* October-November

*D i s t.* Common along streamsides

Chinnar, KKS 15898

## CISSAMPELOS L.

**Cissampelos pareira** L. var. **hirsuta** (Bunch.-Ham. ex DC) Forman in Kew Bull. 22. 356. 1968; Matthew, Fl. TN. Carnatic IS. 1983 & III. Fl. TN. Carnatic t. 12. 1982. *C. hirsuta* Bunch.-Ham. ex DC.. Syst. 1: 535. 1817. *C. pareira* L., Sp. Pl. 1031. 1753 p.p; Fl. Brit. India 1: 103. 1872; Fl. Pres. Madras 30. 1915.

Climbers, tomentose. Leaves peltate, 4-5 x 5-6 cm, reniform, apiculate, tomentose; petioles 2-5 cm long. Flowers greenish, male flowers in subcorymbose cymes, pendant, densely pubescent; sepals 4, ciliate; petals 4, connate at base; synandrium recurved, female flowers in racemes, crowded in the axils of leafy bracts; sepal and petal one each, minute; ovary pilose, style 3-fid. Drupe 4 mm, ovoid, tubercled, scarlet.

*Fl. & Fr.* September-April

*D i s t.* Common in degraded open areas

Kottamala, *KKS 15852*; Ichampetty, *15575*

#### **PACHYGONE Miers**

**Pachygone ovata** (Poir.) Miers ex Hook. f. & Thoms., *Fl. Ind.* 203. 1855 & in Hook. f., *Fl. Brit. India* 1: 105. 1872; *Fl. Pres. Madras* 31. 1915; Matthew, *Fl. TN. Carnatic* 21. 1983 & *Ill. Fl. TN. Carnatic* t. 16. 1982. *Cissampelos ovata* Poir. in Lam., *Encycl.* 5: 10. 1804. *Cuculus plukenetii* DC., *Syst. I*: 520. 1817; Wight,  *Ic. tt.* 824 & 825. 1844-1845.

Climbing shrubs; branchlets pubescent. Leaves 3-7 x 2-3.5 cm, ovate, mucronate at tip, 3-5 nerved; petioles 1.5-2.5 cm, hairy. Racemes axillary, flowers white pubescent, male - in the axils of subulate bracts; outer sepals smaller, linear, inner obovate; petals white. auricled and embracing the filaments; stamens free, filaments incurved, pistillodes 3, female - staminodes 6; carpels 3. Drupe 7 x 6 mm, reniform, endocarp smooth.

*Fl. & Fr.* January-February

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5916*; *KKS 11683*

#### **STEPHANIA Lour.**

**Stephania japonica** (Thunb.) Miers, *Ann. Mag. Nat. Hist. (ser. 3)* 13: 14. 1866; *Fl. Pres. Madras* 29. 1915; Forman in *Kew Bull.* 11: 49. 1956; Matthew, *Fl. TN. Carnatic* 22. 1983 & *Ill. Fl. TN. Carnatic* t. 17. 1982. *Menispermum japonicum* Thunb., *Fl. Japan* 193. 1784. *Stephania hernandifolia* sensu Hook. f. & Thoms. in Hook. f., *Fl. Brit. India* 1: 103. 1872 p. p., non Walp. 1842. *Cyclea hernandifolia* Wight & Arn., *Prodr.* 14. 1834; Wight,  *Ic. t.* 939. 1845.

Climbing shrubs; branchlets striate, sap watery. Leaves peltate, 5-9 x 4-7 cm, glabrous. coriaceous, acuminate, shortly apiculate, base truncate; petioles 4-5 cm, striated. Umbels axillary, male flowers - sepals 4-8, ovate; petals 3-5; anthers transversally dehiscent, female flowers - sepals 3-5; petals 3-5; sepals 3-5; carpel 1, stigma 3-lobed. Drupes 6 mm across. globose, red, endocarp compressed.

*Fl. & Fr.* March-May

*Dist.* Common in moist deciduous forests

Mangavada, *KKS 11990*; Ichampetty, *15655*

#### **TINOSPORA Miers**

**Tinospora cordifolia** (Willd.) Miers ex Hook. f. & Thoms., *Fl. Ind.* 184. 1855 & in Hook. f., *Fl. Brit. India* 1: 97. 1872; *Fl. Pres. Madras* 26. 1915; Matthew, *Fl. TN. Carnatic* 33. 1983 & *Ill.*

Fl. TN. Carnatic t. 19. 1982. *Menispermum cordifolium* (Willd.) DC., Syst. 1: 517. 1817; Wight, Ic. t. 485 & 486. 1841.

Climbing shrubs, sap watery, bark corky and grooved in older branches, glabrous. Leaves 5-9 x 5-10 cm, glabrous, 5-nerved at base, deeply cordate; petioles to 6 cm long. Flowers in racemes from mature stem, male flowers - outer sepals smaller; petals shorter than the inner sepals; stamens 6, free, opposite to petals, female flowers - staminodes 6, carpels 3, stigma forked. Drupes 6 x 5 mm, sessile; seeds grooved vertically.

*Fl. & Fr.* January-February

*D i s t.* Common on the sides of water courses

Alampetty, *KKS 15896*; Kalladuthupurai, *KKS 11700*

## PAPAVERACEAE

### ARGEMONE L.

*Argemone mexicana* L., Sp. Pl. 508. 1753; Wight, Ill. 1: t. 11. 1840; Fl. Brit. India 1: 117. 1872; Fl. Pres. Madras 35. 1915; Matthew, Fl. TN. Carnatic 29. 1983 & Ill. Fl. TN. Carnatic t. 23. 1982.

Erect herbs, to 70 cm, spiny, sap yellow. Leaves alternate, 12-30 x 4-10 cm, dissected. semi-amplexicaule, membranous, margins spiny, midrib thick. Flowers terminal, solitary, 4.5 cm across, yellow; sepals 2-3; petals 4-6; stamens many; ovary 1 celled, ovules many, stigma 5-lobed. Capsule 4 x 2 cm, oblong, spiny, dehiscent apically downwards; seeds rugose.

*Fl & Fr.* February-March

*D i s t.* Frequent in abandoned cultivated areas

Champakkad, *KKS 11920*

## BRASSICACEAE

### CARDAMINE L.

*Cardamine trichocarpa* Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 18. 1847; Fl. Pres. Madras 38. 1915. *C. subumbellata* Hook. ex Hook. f. & T. Anders. in Hook. f., Fl. Brit. India 1: 138. 1872.

Diffuse branched herbs; stem thinly hairy. Leaves to 4.5 cm long; leaflets orbicular, deeply crenate, thinly hairy. Flowers in terminal racemes, 3 mm across, white; pedicels 6 mm long; sepals 4, oblong; stamens 4. Pod terete, striate. 2.5 x 0.15 cm; seeds I-seriate. 2 x 1 mm. oblong, smooth, brown.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Cliampakkad, *KKS 15956*

## CAPPARACEAE

1. Herbs, fruit a capsule

: Cleome

1, Shrubs/trees/stragglers

: 2

- |                                                                                                        |            |
|--------------------------------------------------------------------------------------------------------|------------|
| 2. Stamens 2 or 4, attached to the long gynandrophore; disc infundibuliform, not enclosed in the calyx | : Cadaba   |
| 2. Stamens more than 20; disc small and enclosed in the calyx                                          | : 3        |
| 3. Leaves trifoliate                                                                                   | : Crataeva |
| 3. Leaves simple                                                                                       | : Capparis |

#### CADABA Forssk.

**Cadaba fruticosa** (L.) Druce in Bot. Exch. Club. Soc. Brit. Isles 3: 415. 1914; Matthew, Fl. TN. Carnatic 37. 1983 & Fur. III. Fl. TN. Carnatic t. 6. 1988. *Cleome fruticosa* L., Sp. Pl. 671. 1753. *Cadaba indica* Lam., Encycl 1: 544. 1785; Fl. Brit. India 1: 172. 1872; Fl. Pres. Madras 43. 1915.

Rigid wiry shrubs. Leaves simple. 1.5-4 x 1-2 cm, oblong, slightly pubescent; petioles up to 0.5 cm. Racemes few flowered, greenish-white; sepals 2 + 2, 1 x 0.5 cm, obovate; petals 4, 1.5 cm long, clawed, to 0.4 mm. disc prominent, infundibuliformis, lateral to the gynandrophore. long hairy; stamens 4, exserted; ovary one celled, many ovuled, stigma sessile, clavate. hairy. Berry 4 x 0.5 cm, globose; seeds globose.

*Fl. & Fr.* June-July

*D i s t.* Common in dry deciduous forests

Chinnar, KKS 15697

#### CAPPARIS L.

- |                                                                |                        |
|----------------------------------------------------------------|------------------------|
| 1, Erect shrubs or trees                                       | : 2                    |
| 1. Scandent shrubs or climbers                                 | : 4                    |
| 2. Flowers axillary, solitary                                  | : 3                    |
| 2. Flowers in terminal corymbs, plants tomentose, unarmed      | : <i>C. grandis</i>    |
| 3. Cataphylls present; leaves over 2 cm broad                  | : <i>C. brevispina</i> |
| 3. Cataphylls absent; leaves under 2 cm broad                  | : <i>C. divaricata</i> |
| 4. Flowers in supra axillary rows; filaments turning to purple | : <i>C. zeylanica</i>  |
| 4. Flowers in corymbs or umbels                                | : 5                    |
| 5. Berry 1 cm across; leaves less than 3 cm long               | : <i>C. sepiaria</i>   |
| 5. Berry 4 cm across; leaves more than 3.5 cm long             | : <i>C. roxburghii</i> |

**Capparis brevispina** DC., Prodr. 1: 346. 1824; Wight, Ic. t. 126. 1837; Fl. Pres. Madras 45. 1915; Matthew, Fl. TN. Carnatic 39. 1983. *C. zeylanica* sensu Hook. f. & Thoms. in Hook. f., Fl. Brit. India 1: 174. 1872 p.p. non L. 1762.

Shrubs, 2-4 m, branchlets hairy. Leaves 5-7 x 2-4 cm, elliptic or oblong, acute, coriaceous. stipular spines very small, cataphylls present, linear. Flowers axillary, solitary, 4-5 cm across; pedicels 4 cm long; sepals 4 in two whorls; petals 4, oblong, obovate, white with brown patches; stamens numerous, exserted, gynandrophore as long as or longer than the filaments. anthers dorsifixed; ovary 6 mm, ellipsoid, ovules few to many.

*Fl.* January-February

*D i s t.* Common in dry deciduous forests

Alampetty, KKS 11968

Fl. TN. Carnatic t. 19. 1982. *Menispermum cordifolium* (Willd.) DC., Syst. 1: 517. 1817; Wight, Ic. tt. 485 & 486. 1841.

Climbing shrubs, sap watery, bark corky and grooved in older branches, glabrous. Leaves 5-9 x 5-10 cm, glabrous, 5-nerved at base, deeply cordate; petioles to 6 cm long. Flowers in racemes from mature stem, male flowers - outer sepals smaller; petals shorter than the inner sepals; stamens 6, free, opposite to petals, female flowers - staminodes 6, carpels 3, stigma forked. Drupes 6 x 5 mm, sessile; seeds grooved vertically.

*Fl. & Fr.* January-February

*D i s t.* Common on the sides of water courses

Alampetty, *KKS 15896*; Kalladuthupurai, *KKS 11700*

## PAPAVERACEAE

### ARGEMONE L.

*Argemone mexicana* L., Sp. Pl. 508. 1753; Wight, III. 1: t. 11. 1840; Fl. Brit. India I: 117. 1872; Fl. Pres. Madras 35. 1915; Matthew, Fl. TN. Carnatic 29. 1983 & III. Fl. TN. Carnatic t. 33. 1982.

Erect herbs, to 70 cm, spiny, sap yellow. Leaves alternate, 12-30 x 4-10 cm, dissected. semi-amplexicaule, membranous, margins spiny, midrib thick. Flowers terminal, solitary, 4.5 cm across, yellow; sepals 2-3; petals 4-6; stamens many; ovary 1 celled, ovules many, stigma 5-lobed. Capsule 4 x 2 cm, oblong, spiny, dehiscent apically downwards; seeds rugose.

*Fl. & Fr.* February-March

*D i s t.* Frequent in abandoned cultivated areas

Champakkad, *KKS 11920*

## BRASSICACEAE

### CARDAMINE L.

*Cardamine trichocarpa* Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 18. 1847; Fl. Pres. Madras 38. 1915. *C. subumbellata* Hook. ex Hook. f. & T. Anders. in Hook. f., Fl. Brit. India 1: 138. 1872.

Diffuse branched herbs; stem thinly hairy. Leaves to 4.5 cm long; leaflets orbicular, deeply crenate, thinly hairy. Flowers in terminal racemes, 3 mm across, white; pedicels 6 mm long; sepals 4, oblong; stamens 4. Pod terete, striate. 2.5 x 0.15 cm; seeds I-seriate. 2 x 1 mm. oblong, smooth, brown.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 15956*

## CAPPARACEAE

1. Herbs, fruit a capsule

: Cleome

1. Shrubs/trees/stragglers

: 2

**Capparis divaricata** Lam., Encycl. 1: 606. 1785; Wight, Ic. t. 889. 1844-1845; Fl. Brit. India 1: 174. 1872; Matthew, Fl. TN. Carnatic 39. 1983 & Fur. III. Fl. TN. Carnatic t. 7. 1988. *C. stylosa* DC., Prodr. 1: 246. 1824; Fl. Pres. Madras 45.1915.

Small trees. Leaves 4-6 x 1.5-1.7 cm, elliptic, lanceolate, mucronate, coriaceous; petioles 0.5-0.7 cm, stipular spines, 3 mm long, straight, stout. Flowers axillary, solitary. Berry 5-6 cm across, globose, rugose, ribbed and beaked.

*Fr.* September-November

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11815*

**Capparis grandis** L. f., Suppl. Pl. 263. 1781; Wight, Ic. t. 21. 1838; Fl. Brit. India 1: 176. 1872; Fl. Pres. Madras 46. 1915; Matthew, Fl. TN. Carnatic 40. 1983 & III. Fl. TN. Carnatic t. 962d. 1982.

Small (trees; branchlets densely tomentose. Leaves to 5 x 4 cm, ovate, slightly emarginate, tomentose on both sides; petioles 1 cm, densely tomentose. Corymbs terminal, lower corymbs with leaves, upper with small bracts. flowers 2 cm across, white; peduncles 3 cm, tomentose, pedicels 2.5 cm, buds tomentose. Berry 2.5 cm across, globose.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 17400: 15976*

**Capparis roxburghii** DC., Prodr. 1: 247. 1824; Wight, Ic. t. 1048. 1846; Fl. Brit. India 1: 175. 1872; Fl. Pres. Madras 45. 1915.

Woody climbers, young branchlets hairy, black on drying, smooth, spines very small. a few. Leaves 6 x 2-3 cm, oblong, elliptic, obtuse at apex, slightly emarginate. Flowers in racemes, 4 cm across, white. Berry ovoid, 2-4 cm across, stipe to 6 cm long.

*Fl. & Fr.* June-July

*D i s t.* Common in dry deciduous forests

Cliurullipetty, *KKS 15713*

**Capparis sepiaria** L.. Syst. Nat. ed. 10. 2: 1071. 1759; Fl. Brit. India I: 177. 1872; Fl. Pres. Madras 46. 1915; Matthew, Fl. TN. Carnatic 43. 1983 & Fur. III. Fl. TN. Carnatic t. 9. 1988. *C. incanescens* DC., Prodr. 1: 247. 1824.

Stragglers; branchlets thinly pubescent. Leaves 2-3 x 0.5-2 cm, oblong, lanceolate, emarginate, pubescent; petioles ca. 0.5 cm, stipular spines in pairs, small recurved. Umbels corymbose, terminal and axillary, 1 cm across, white; peduncles 1 cm; pedicels 1.5 cm; sepals ovate, margin ciliate.

*Fl.* April-May

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 15676*



**Capparis zeylanica** L., Sp. Pl. ed. 2. 720. 1762; Fl. Pres. Madras 46. 1915; Matthew, Fl. TN. Carnatic 43. 1983 & Ill. Fl. TN. Carnatic t. 32. 1982. *C. horrida* L. f., Suppl. Pl. 264. 1781; Wight, Ic. t. 173. 1839; Fl. Brit. India 1: 178. 1872.

Stragglers, stems with adpressed pubescence. Leaves 5-9 x 4-6 cm, ovate, truncate, mucronate, entire, pubescent; petioles up to 1 cm, densely pubescent, stipular spines small, in pairs, recurved. Flowers in supra axillary rows, 3-4 cm across, white, buds densely pubescent; pedicels 4 cm, pubescent; stamens numerous, long exserted, white, turns to brown, gynandrophore as long as or longer than filaments; ovary 2.5 mm, ellipsoid.

*Fl.* March-April

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 11965*

### CLEOME L.

- |                                                       |                        |
|-------------------------------------------------------|------------------------|
| 1. Stamens inserted on long gynandrophore             | : <b>C. gynandra</b>   |
| 1. Stamens not so                                     | : 2                    |
| 2. Leaves simple                                      | : <b>C. monophylla</b> |
| 2. Leaves 3-5 foliate                                 | : 3                    |
| 3. Stamens 6, plants asperatus, not viscous           | : <b>C. aspera</b>     |
| 3. Stamens more than 6, plants viscous, not asperatus | : <b>C. viscosa</b>    |

**Cleome aspera** Koen. ex DC., Prodr. 1: 241. 1824; Wight, Ic. t. 287. 1840; Fl. Brit. India 1: 69. 1872; Fl. Pres. Madras 41. 1915; Matthew, Fl. TN. Carnatic 45. 1983 & Fur. III. Fl. TN. Carnatic t. 10. 1988.

Annual herbs, branching from the base, whole plant with minute spines. Leaves trifoliate at base, simple towards apex, terminal leaflets to 7, cm, gland dotted, leaflets oblanceolate. truncate at base; petioles 0.5 cm long. Flowers in raceme; sepals 4, 1 mm. linear: petals 4. 3 mm, yellow; capsule 3 cm long, linear, glabrous, ridges prominent.

*Fl. & Fr.* August-September

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 15757*

**Cleome gynandra** L., Sp. Pl. 671. 1753; Matthew, Fl. TN. Carnatic 46. 1983 & Ill. Fl. TN. Carnatic t. 34. 1982-Plate 2e. *Gynandropsis pentaphylla* (L.) DC., Prodr. 1: 238. 1824; Fl. Brit. India 1: 171. 1872; Fl. Pres. Madras 40. 1915. *Cleome pentaplylla* L., Sp. Pl. ed. 2. 983. 1762.

Glandular erect herbs. Leaves digitately 5-7 foliate, 7 x 6 cm, leaflets 5 x 2.5 cm, obovate: petiole 3-15 cm. Flowers in bracteate racemes, 1.5 cm across, white; calyx lobes unequal, glandular, pubescent; petals long clawed, spreading; stamens 6, attached to the long gynandrophore; ovary glandular. Capsule 3-4 cm long terete, glandular, tip discoid.

*Fl. & Fr.* March-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 17399*

**Cleome monophylla** L., Sp. Pl. 672. 1753; Fl. Brit. India 1: 168. 1872; Fl. Pres. Madras 41. 1915; Matthew, Fl. TN. Carnatic 48. 1983 & Fur. III. Fl. TN. Carnatic t. 12. 1988.

Herbs, pubescent. Leaves simple, 2 x 1 cm, oblanceolate. Racemes terminal, flowers pinkish; sepals 6 mm, oblong-acuminate; petals 4 mm, obovate; stamens 6. Capsule 4-6 cm long, with linear ridges, pubescent, tip bulbous.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, KKS 11552

**Cleome viscosa** L., Sp. Pl. 672. 1753; Wight, Ic. t. 2. 1838; Fl. Brit. India 1: 170. 1872; Fl. Pres. Madras 41. 1915; Matthew, Fl. TN. Carnatic 49. 1983 & Fur. III. Fl. TN. Carnatic t. 13. 1988.

Viscous herbs, with glandular hairs. Leaves 3-5 foliate, terminal leaflet 2 x 1 cm, lateral 1.5 x 1 cm, oblong, inequilateral, racemes terminal, to 30 cm; petioles 1.5 cm long. Flowers 1.5 cm across, yellow; stamens more than 6; ovary densely glandular; stigma discoid. Capsule 5-7 cm long, glandular, with prominent linear ridges.

*Fl. & Fr.* August-November

*D i s t.* Very common in dry deciduous forests

Gellimala, KKS 15788

#### CRATAEVA L.

**Crataeva adansonii** DC. ssp. **odora** (Buch.-Ham.) Jacobs in Blumea 12: 198. 1964; Matthew. Fl. TN. Carnatic 50. 1983 & III. Fl. TN. Carnatic t. 35. 1982. *C. religiosa* Forst. f. var. *roxburghii* (R. Br.) Hook. f. & Thoms. in Hook. f., Fl. Brit. India 1: 172. 1872.

Small trees. Leaves 3-foliate, lateral leaflets 7-15 x 1-3.5 cm, ovate-lanceolate, glabrous; petiole to 6 cm. Corymbs terminal, to 10 cm; pedicels 5 cm, sepals 5 mm, oblong; petals 1.5 cm, obovate, white, long clawed; stamens less than 30, filaments shorter than gynandrophore; ovary 3 mm, ovoid, many ovuled, stigma discoid. Berry 2.5 x 2 cm, globose.

*Fl. & Fr.* February -April

*D i s t.* Rare, in dry deciduous forests

Palapetty, KKS 15521

#### VIOLACEAE

1. Calyx appendaged at base; flowers white

: **Viola**

1. Calyx not appendaged at base; flowers pink

: **Hybanthus**

#### HYBANTHUS Jacq.

**Hybanthus enneaspermus** (L.) F.v. Muell., Fragm. Phyt. Austr. 10: 81. 1876; Matthew, Fl. TN. Carnatic 53. 1983 & III. Fl. TN. Carnatic t. 37. 1982. *Viola enneaspema* L., Sp. Pl. 937.

1753. *Ionidium suffruticosum* (L.) Ging. in DC., Prodr. 1: 311. 1824; Wight, Ic. t. 308. 1840: Fl. Brit. India 1: 185. 1872; Fl. Pres. Madras 49. 1915.

Subshrubs, branchlets pubescent. Leaves alternate, 3 x 0.8 cm, elliptic-oblong, serrate, pubescent. acute, base cuneate, decurrent, subsessile; stipule linear. Flowers axillary, solitary, red; pedicels 6 mm, recurved; sepals subequal, 3 mm, lanceolate, pubescent; lower petals long clawed, to 1 mm; lateral 2, 5 mm, ovate, acute, upper two 3 mm, acute; stamens 5, filaments 1 mm, dilated, anthers connate; ovary 1 mm across, globose; stigma oblique. Capsule 3-valved. 8 mm long, ovoid, glabrous: seeds many, glabrous.

*Fl. & Fr.* August-September

D i s t. Occasional in dry deciduous forests

Chinnar, *KKS 11769*; Champakkad, 15812

### VIOLA L.

1, Stoloniferous herbs; leafbase deeply cordate

: *V. pilosa*

1. Herbs without stolon; leafbase decurrent to the petiole

: *V. betonicifolia*

*Viola betonicifolia* J.E. Smith in Rees, Cyclop. 37: n. 7. 1817. ssp. *nepalensis* (Ging.) Becker in Bot. Jahrb. 54: Beibl. 120, 166. 1917. *V. patrinii* auct. non Ging. 1824; Fl. Brit. India 1: 183. 1872; Fl. Pres. Madras 48. 1915: Matthew, Fl. TN. Carnatic 54. 1983 & Ill. Fl. TN. Carnatic t. 38. 1982. *V. walkeri* Wight, Ill. 1: 42. t. 18. 1840.

Stemless herbs. Leaves cauline. 4 x 1.5 cm. triangular, ovate. acute, serrate. base decurrent to the petiole, puberulus; petiole to 7 cm; stipule to 7 mm. Flowers axillary. solitary, white: pedicels to 20 cm: sepals 3 mm. lanceolate; lower petals pouched at base, 1.2 x 4 mm: anthers connate; ovary 2.5 mm, style 1.5 mm. stigma terminal. Capsule 1-celled; seeds many.

*Fl. & Fr.* April-May

D i s t. Common in evergreen forests

Pothumala, *KKS 17391*

*Viola pilosa* Blume, Cat. Gew. Buitenz. 57. 1823. *V. serpens* Wall. ex Ging. in DC.. Prodr. 1: 296. 1824; Fl. Brit. India 1: 184. 1872; Fl. Pres. Madras 48. 1915; Matthew, Fl. TN. Carnatic 55. 1983. *V. wightiana* Wall. ex Wight, Ic. t. 943. 1845.

Prostrate herbs, rooting at nodes. Leaves mostly alternate, 3.5-6 x 3.5-6 cm, ovate. base deeply cordate. hirsute. apex acute, crenate: petiole to 15 cm, hairy, stipules foliaceous, 1 cm. Flowers solitary, white; pedicels to 10 cm, hairy; sepals 7 mm, lower lanceolate, hairy; petals 1 cm, subequal, longer one obovate, spurred at the base, 6 mm; anthers 2 mm, oblong, connective produced above; ovary 2 mm, ovoid, puberulus, style 2 mm, stigma lateral.

*Fl.* April-May

D i s t. Common in evergreen forests

Pothumala, *KKS 17342*

## COCHLOSPERMACEAE

### COCHLOSPERMUM Kunth ex A. DC. *nom. cons.*

**Cochlospermum religiosum** (L.) Alston in Trimen, Handb. Fl. Ceylon 6 (Suppl.): 14. 1931; Matthew, Fl. TN. Carnatic 56. 1983 & III. Fl. TN. Carnatic tt. 39 & 963a. 1982. *Bombax religiosum* L., Sp. Pl. 512. 1753. *Cochlospermum gossypium* DC., Prodr. 1: 527. 1824; Bedd., Fl. Sylv. t. 171. 1872; Fl. Brit. India 1: 90. 1872; Fl. Pres. Madras 50. 1915.

Small trees, with sap, branchlets with prominent leafscars. Leaves palmately 5-lobed, 6-16 x 8-20 cm; tomentose below, later glabrous. Corymbs terminal; flowers yellow, 12 cm across; sepals imbricate, 3 x 2.5 cm, obovate, pubescent; petals subequal. emarginate; stamens many, in 6-10 phalagens; ovary 5 carpellate; stigma simple. Capsule striated, 15 x 8 cm; seeds many embedded in silky cotton.

*Fl. & Fr.* February-June

*D i s t.* Occasional in rocky areas

Palapetty, *KKS 15521*

## FLACOURTIACEAE

- |                                     |                     |
|-------------------------------------|---------------------|
| 1. Flowers unisexual                | : <b>Flacourtia</b> |
| 1. Flowers bisexual                 | : <b>2</b>          |
| 2. Flowers in racemes: stamens many | : <b>Scolopia</b>   |
| 2. Flowers in clusters: stamens 10  | : <b>Casearia</b>   |

### CASEARIA Jacq.

**Casearia ovata** (Lam.) Willd., Sp. Pl. 2: 629. 1799; Mukli. in Bull. Bot. Soc. Bengal 14: 629. 1972. *Anavinga ovata* Lam. Encycl. 1: 148. 1789. *C. esculenta* Roxb., Fl. Ind. 2: 422. 1832; Fl. India 2: 592. 1879; Fl. Pres. Madras 521. 1919.

Large trees. Leaves to 17 x 6 cm, elliptic-oblong, apex obtuse, to shortly acuminate, base obliquely acuminate, chartaceous; petiole to 1.5 cm. Flowers in axillary clusters; pedicels to 3 mm; calyx lobes 5, 2 mm, broadly ovate; petals absent; stamens 10, 1 mm, alternating with staminodes; ovary 1 mm, ovoid, styles 0.5 mm.

*Fl. & Fr.* March-May

*D i s t.* Common in shola forests

Olikkudy, *KKS 17300*

### FLACOURTIA L'Herit.

- |                                        |                       |
|----------------------------------------|-----------------------|
| 1. Leaves ovate; branchlets pubescent  | : <b>F. ramontchi</b> |
| 1. Leaves obovate; branchlets glabrous | : <b>F. indica</b>    |

**Flacourtia indica** (Burm. f.) Merr. Interpr. Ramph. Herb. Amb. 377. 1917; Matthew, Fl. TN. Carnatic 60. 1983 & Fur. III. Fl. TN. Carnatic t. 14. 1988. *F. sepiaria* Rosb., Pl. Cor. t. 68. 1796; Fl. Brit. India 1: 194. 1872; Fl. Pres. Madras 54. 1915.

Small weak shrubs, sparsely spiny. Leaves alternate, clustered at the apex of branchlets, 5 x 2.5 cm, obovate, margins crenulate at the apex; petiole less than 5 mm. Flowers axillary, greenish; sepals 4, imbricate, 1.5 x 1.5 mm, broadly ovate, ciliate; petals absent; disc lobed: stamens more than 20. filaments up to 3 mm; anthers versatile.

*Fl.* July-September

*D i s t.* Occasional in dry deciduous forests

Athiyodai, *KKS 17423*

**Flacourtia ramontchi** L'Herit., *Strip. Nov.* 3: 59. tt. 30 & 30 B. 1786; Wight,  *Ic.* t. 85. 1838; *Fl. Brit. India* 1: 193. 1872; *Fl. Pres. Madras* 54. 1915; Matthew, *Fl. TN. Carnatic* 60. 1983 & III. *Fl. TN. Carnatic* t. 41. 1982. *F. sapida* Roxb., *Pl. Cor.* t. 69. 1796; Wight & Arn., *Prodr. Fl. Incl.* 29. 1834.

Small armed trees. branchlets terete, pubescent, bark whitish. Leaves to 6 x 4.5 cm, ovate-elliptic, chartaceous, 3-nerved from slightly above the base, crenate; petioles 1.5 cm, pubescent. flowers yellow, 4 mm across; stamens many, disc extra-staminal, glandular, pistillode absent.

*Fl.* February-May

*D i s t.* Rare, along the banks of rivers

Palapetty, *KKS 15506*

#### **SCOLOPIA Schreb. nom cons.**

**Scolopia crenata** (Wight & Arn.) Clos, *Ann. Sci. Nat. Bot.* 4, 8: 250. 1857; Bedd., *Fl. Sylv.* t. 78. 1871; *Fl. Brit. India* 1: 191. 1872; *Fl. Pres. Madras* 52. 1915; Matthew, *Fl. TN. Carnatic* 61. 1983 & III. *Fl. TN. Carnatic* t. 42. 1982. **Phoberos crenatus** Wight & Arn., *Prodr.* 29. 1834.

Armed trees. bark red, branchlets lenticellate. Leaves to 10 x 3 cm, elliptic, coriaceous. crenate, acuminate. Racemes axillary or terminal, sometimes slightly branched; sepals 5-6. 3 mm, basally united; petals 5-6, 2 mm, ovate; stamens many, filaments white; ovary 1 celled. style simple, stigma persistent, simple or 5-lobed. Berry *ca.* 1.5 cm across, globose: seeds 6. black on drying.

*Fl. & Fr.* April-July

*D i s t.* Occasional in evergreen forests and along riversides

Olikkudy, *KKS 15667*; Karimutty, *15559*; Alampetty, *15692*

#### **PITTOSPORACEAE**

##### **PITTOSPORUM Banks ex Gaertn.**

- |                                     |                          |
|-------------------------------------|--------------------------|
| 1. Inflorescence corymbs, pubescent | : <i>P. napaulense</i>   |
| 1. Inflorescence umbels, glabrous   | : <i>P. tetraspermum</i> |

**Pittosporum napaulense** (DC.) Rehder & Wilson, *Pl. Wilson.* 3: 326. 1916. *Senacia napaulensis* DC.. *Prodr.* 1: 347. 1824. *Pittosporum floribundum* Wight & Arn., *Prodr.* 154.

1834; Fl. Brit. India 1: 199. 1872; Fl. Pres. Madras 55. 1915; Matthew, Fl. TN. Carnatic **63**. 1983 & III. Fl. TN. Carnatic t. 43. 1982.

Small trees; branchlets terete, lenticellate, pubescent. Leaves fascicled, 8-16 x 3-4 cm, cuneate, oblong-lanceolate, apex acute or slightly acuminate, glabrous; petiole to 2 cm. Corymbs terminal, much branched, to 11 cm long, pubescent; flowers white; sepals 1-1.25 mm, ovate, margin ciliate; petals 6 x 2 mm, oblong, basally united, recurved; stamens free, yellow, 4 mm long; ovary 1-5 celled, ovate, pubescent; style 1, stigma 2-5-lobed.

*Fl.* February-April

*D i s t.* Occasional in low land shola forests

Olippara, *KISS 27242*

**Pittosporum tetraspermum** Wight & Arn., Prodr. 154. 1834; Wight, Ic. t. 971. 1845; Fl. Brit. India 1: 198. 1872; Fl. Pres. Madras 55. 1915.

Small trees; branchlets verticillate, glabrous. Leaves 5-8 x 3-4 cm, pale green below, obovate, elliptic, apex acute or acuminate. Umbels glabrous, 8-10 flowered, white; sepals 2 mm, ovate, acute; petals 6-8 x 2-2.5 mm, 3 nerved, recurved at middle; filaments 4 mm; anthers 2 mm; ovary tomentose, style 1, 3 mm, stigma capitate.

*Fl.* February-April

*D i s t.* Occasional in low land shola forests

Olippara, *KISS 17244*

## POLYGALACEAE

### POLYGALA L.

- |                                                |                             |
|------------------------------------------------|-----------------------------|
| 1. Racemes less than 2 cm long                 | : 2                         |
| 1. Racemes more than 3.5 cm long               | : 3                         |
| 2. Flowers yellow; leaves obovate-oblanceolate | : <b>P. chinensis</b>       |
| 2. Flowers green; leaves lanceolate            | : <b>P. rosmarinifolia</b>  |
| 3. Caruncle 3 fid to the base                  | : <b>P. persicariifolia</b> |
| 3. Caruncle cup shaped                         | : 4                         |
| 4. Shrubs                                      | : <b>P. arillata</b>        |
| 4. Herbs                                       | : 5                         |
| 5. Flowers white with violet shades            | : <b>P. sibirica</b>        |
| 5. Flowers yellow                              | : <b>P. elongata</b>        |

**Polygala arillata** Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 199. 1825; Fl. Brit. India 1: 200. 1872; Fl. Pres. Madras 58. 1915.

Shrubs. Leaves to 15 x 7 cm, elliptic, membranous, looped near the margins, acuminate, puberulus, base acute; petiole to 1.5 cm. Racemes terminal, dropping racemes, to 15 cm; pedicels to 1 cm: flowers yellow; sepals 5, 3 outer 5 mm, ovate, inner two longer, to 1.2 cm, obovate, petaloid; petals 3, united with the staminal tube, to 6 mm, free upwards, odd ones to 1.4 cm; hooded. Capsule 2 cm long, broadly reniform

*Fl. & Fr.* October-December

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17486*

***Polygala chinensis*** L., Sp. Pl. 704. 1753; Mukherjee in Bull. Bot. Soc. Bengal 12: 38. 1958 p.p.; Chandrab. & Nair in Proc. Indian Acad. Sci. (Plant Sci.) 90: 118. 1981. *P. glomerata* Lour., Fl. Cochinch. 426. 1790; Fl. Brit. India 1: 206. 1872; Burt, Notes Roy. Bot. Gard. Edinburgh 32: 404. 1973.

Herbs, branchlets hirsute. Leaves 1-5 x 0.5-1.5 cm, obovate-oblongate, bracts hairy, persistent. Racemes axillary, pubescent, less than 2 cm; keel petal crenate with shortly notched appendages; style curved hooked at apex. Capsule slightly winged, ciliate along the margins; seeds pilose, caruncle cup shaped.

*Fl. & Fr.* October-December

*D i s t.* Common in disturbed moist deciduous forests

Alampetty, *KKS 15910*, Churullipetty, *11742*

***Polygala elongata*** Klein ex Willd., Sp. Pl. 3: 879. 1802; Fl. Brit. India 1: 203. 1872; Fl. Pres. Madras 58. 1915; Chandrab. & Nair in Proc. Indian Acad. Sci. (Plant Sci.) 90: 125. 1981; Matthew, Fl. TN. Carnatic 66. 1983 & Fur. III. Fl. TN. Carnatic t. 16. 1988.

Erect herbs. Leaves 0.5-2.5 x 0.2-0.4 cm, linear-lanceolate, apiculate, bracts persistent. Racemes axillary, to 7 cm long, usually drooping, glabrous; flowers yellow; sepals persistent. Capsule slightly winged. 5 x 4 mm, caruncle cup shaped, 3 appendaged above; seeds hairy.

*Fl. & Fr.* October-December

*D i s t.* Common in low land areas

Chinnar, *KKS 11622*; Kalladuthupurai, *11691*

***Polygala persicariifolia*** DC., Prodr. 1: 326. 1824; Fl. Brit. India 1: 202. 1872 “*persicariaefolia*”~; Fl. Pres. Madras 58. 1915; Chandrab. & Nair in Proc. Indian Acad. Sci. (Plant. Sci.) 90: 115. 1981; Matthew, Fl. TN. Carnatic 72. 1983 & Fur. III. Fl. TN. Carnatic t. 19. 1988.

Herbs; branchlets slender, hairy. Leaves 2-6 x 0.5-1 cm, linear-lanceolate, hairy, acute. Racemes lateral, 5 cm; flowers pink, 3 mm across; bracts persistent; capsule winged, 5 x 4 mm. elliptic, ciliate along the margins; seeds hairy, dark.

*Fl. & Fr.* February-March

*D i s t.* Common in open dry forest areas

Nellimedu, *KKS 21941*

***Polygala rosmarinifolia*** Wight & Arn., Prodr. 37. 1834; Fl. Brit. India 1: 204. 1872; Fl. Pres. Madras 58. 1915; Chandrab. & Nair in Proc. Indian Acad. Sci. (Plant Sci.) 90: 122. 1981.

Erect herbs. Leaves to 2.5 x 0.3 cm, linear-oblong, acute. Racemes 1.5 cm long, axillary, 3-5 flowered. Flowers greenish; sepals 1.5 x 1 mm, ovate, obtuse, ciliate, inner sepals larger. Capsule 4.5 x 3 mm, pubescent; seeds 3 x 1 mm, oblong, pubescent, black.

*Fl. & Fr.* July-December

*D i s t.* Common in grasslands

Ollavayal, *KKS 17210*

**Polygala sibirica** L., Sp. Pl. 702. 1753; Fl. Brit. India 1: 205. 1872; Fl. Pres. Madras 58. 1915; Chandrab. & Nair. in Proc. India Acad. Sci. (Plant Sci.) 90: 113. 1981.

Prostrate herbs, branchlets hairy. Leaves 1-2 x 0.4-0.6 cm, oblanceolate, pubescent. Racemes axillary; bracts early cauducous; pedicel hairy. Capsule to 4 mm, winged, equal margin ciliate, caruncle cup shaped with 3 linear appendages.

*Fl. & Fr.* April-May

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17371*

## CARYOPHYLLACEAE

1. Petals 2 fid at apex; leaves ovate

: **Drymaria**

1. Petals entire; leaves not ovate

: **2**

2. Sepals keeled; flowers with pink tinge

: **Polycarpon**

2. Sepals not keeled; flowers white

: **Polycarpaea**

### DRYMARIA Willd. ex Schult.

**Drymaria cordata** (L.) Roem. ex Schult. in L., Syst. Veg. (ed. 16) 5: 1819/20; Wight & Arn., Prodr. 359. 1834; Fl. Brit. India 1: 244. 1874; Fl. Pres. Madras 63. 1915; Matthew, Fl. TN. Carnatic 76. 1983 & Ill. Fl. TN. Carnatic t. 45. 1982.

Diffuse prostrate herbs, rooting at the nodes. Leaves to 1.5 x 1 cm, rounded or ovate, base cordate, or subtruncate, puberulus, membranous; petiole to 3 mm, stipular hairs interpetiolar. Cymes axillary or terminal, to 5 cm; sepals 3 mm, lanceolate, green, 3-nerved; petals 2mm, bifid at apex; stamens 3-5, filaments 1.5 mm; ovary globose, 1 mm across, style 3 fid. Capsule 2.5 mm, oblong.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in marshy areas

Churullipetty, *KKS 11863*

### POLYCARPAEA Lam.nom. cons.

**Polycarpaea corymbosa** (L.) Lam.. Encycl. 2: 129. 1797; Wight, Ic. t. 712. 1843; Fl. Brit. India 1: 245. 1874; Fl. Pres. Madras 65. 1915; Matthew, Fl. TN. Carnatic 77. 1983 & III. Fl. TN. Carnatic t. 46. 1982. *Achyranthes corymbosa* L., Sp. Pl. 205. 1753.



Much branched herbs. branchlets villous. Leaves whorled or decimate, 1 x 0.2 cm, linear, acute, stipule scarious, fimbriate. Cymes corymbose. terminal; flowers white; bracts and bracteoles 2 mm, scarious; sepals 2.5 mm, scarious, lanceolate, acute; petals 0.8 mm. suborbicular; stamens 5, filaments 0.5 mm. Capsule 1 mm, oblong.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in rocky areas

Chinnar. *KKS 11582*

### POLYCARPON L.

*Polycarpon prostratum* (Forsk.) Asch. & Schweinf. in Oesterr. Bot. Z. 39: 128. 1889; Matthew, *Fl. TN. Carnatic* 78. 1983. *Alsine prostrata* Forsk., *Fl. Aeg.-Arab.* 20-7. 1775. *Polycarpon loeflingiae* (Wall. ex Wight & Arn.) Benth. ex Edgew. & Hook. f., *Fl. Brit. India* 1: 245. 1874; *Fl. Pres. Madras* 64. 1915. *Hapalosa loeflingiae* Wall. ex Wight & Arn., *Prodr.* 358. 1834.

Prostrate many branched herbs, pubescent. Leaves whorled, 1 x 0.3 cm, obovate-spathulate. pubescent, stipules 2 mm, lanceolate, liyaline. Cymes axillary and terminal, congested: sepals 2 mm, lanceolate. keeled. margins liyaline, pubescent; petals 1 mm, entire, oblong; stamens 2 or 3, filaments 1 mm; ovary 1.5 mm. ovoid; style 3-fid. Capsule 2 mm. ovoid.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in rocky areas

Champakkad, *KKS 15546*

### PORTULACACEAE

- 1: Flowers in panicles, erect subshrubs
- 1: Flowers solitary or in clusters, herbs

- : *Talinum*
- : *Portulaca*

### PORTULACA L.

- 1. Roots tuberous
- 1. Roots fibrous
- 2. Nodes glabrous
- 2. Nodes variously appendaged
- 3. Nodes with abundant scarious scales
- 3. Nodes with hairs
- 4. Leaves terete
- 4. Leaves flat

- : *P. tuberosa*
- : 2
- : *P. oleracea*
- : 3
- : *P. wightiana*
- : 4
- : *P. suffruticosa*
- : *P. quadrifida*

*Portulaca oleracea* L., *Sp. Pl.* 445. 1753; *Fl. Brit. India* 1: 246. 1874; *Fl. Pres. Madras* 66. 1915; Sivar., *J. Bombay Nat. Hist. Soc.* 78. 257. 1981; Matthew, *Fl. TN. Carnatic* 81. 1983 & III. *Fl. TN. Carnatic* t. 49. 1982.

Prostrate herbs. Leaves alternate. 2 x 1 cm, obovate, fleshy glabrous, apex obtuse. base decurrent to the petiole; petiole to 0.5 cm. Flowers in terminal clusters, yellow, surrounded by

2-6 involucral bracts; sepals 2, unequal, to 3 mm; petals 5, yellow, to 7 mm, obovate; stamens *ca.* 12, filaments unequal. Capsule 6 mm, obovoid, circumscissile, operculum near the base.

*Fl. & Fr.* June-September

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 17297*

**Portulaca quadrifida** L., *Syst. Nat.* ed. 12. 328. 1766 & *Mant. Pl.* 73. 1767; Wight, *Ill.* 2: t. 109. 1850; *Fl. Brit. India* 1: 247. 1874; *Fl. Pres. Madras* 66. 1915.

Small prostrate herbs, rooting at the lower branches, nodes densely hairy. Leaves alternate, 8 x 3 mm, ovate to lanceolate, acute, glabrous, base cuneate; petiole to 2 mm. Flowers terminal, solitary, 1 cm across; foliar involucre *ca.* 4. Capsule ovoid, 3-4 mm; seeds many, tubercled.

*Fl. & Fr.* June-September

*D i s t.* Occasional in open disturbed areas

Chinnar, *KKS 15773*

**Portulaca suffruticosa** Wight ex Wight & Arn., *Prodr.* 356. 1834; *Fl. Brit. India* 1: 247. 1874; *Fl. Pres. Madras* 66. 1915; Matthew, *Fl. TN. Carnatic* 82. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 25. 1988.

Fleshy erect herbs, many branched, nodes with hairs. Leaves alternate, 1 x 0.1 cm, terete, succulent, puberulous, sessile. Flowers in clusters at the ends, sessile, yellow; foliar involucre 6-8, to 1 cm. Capsule to 6 mm, oblong; seeds many, black.

*Fl. & Fr.* December-March

*D i s t.* Common in open rocky areas

Chengamperu, *KKS 11725*

**Portulaca tuberosa** Roxb., *Fl. India* 2: 464. 1832; *Fl. Brit. India* 1: 247. 1874; *Fl. Pres. Madras* 66. 1915; Matthew, *Fl. TN. Carnatic* 83. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 26. 1988. *Portulaca pilosa* L., *Sp. Pl.* 445. 1753, ssp. *pilosa* - Gees. *Blumea* 17: 295. 1969 & in Steenis. *Fl. Males.* 1. 7: 131. 1971.

Small herbs, root with a single tuber: nodes clothed with hairs. Leaves alternate, clustered at the apex, 2 x 0.2 cm, linear, fleshy acute; petiole to 2 mm. Flowers in terminal clusters, sessile. foliar involucre 4 to 6. Capsule ovoid, 6 x 3 mm: seeds many, minutely tubercled.

*Fl. & Fr.* June-September

*D i s t.* Occasional in open disturbed areas

Chinnar, *KKS 15774*

**Portulaca wightiana** Wall. ex Wight & Arn., *Prodr.* 356. 1834; *Fl. Brit. India* 1: 247. 1874; *Fl. Pres. Madras* 66. 1915; Matthew. *Fl. TN. Carnatic* 83. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 27. 1988.

Branched diffuse stout herbs, stem clothed with scales and leaves concealing the stem; nodes with abundant scales, 5 mm. ovate-lanceolate, scarious. Leaves alternate, to 6 mm.

elliptic, acute, puberulus. Flowers solitary, terminal subtended by involucre bracts. Capsule circumscissile, 3 mm, many seeded, minute, brown.

*Fl. & Fr.* July-October

D i s t. Occasional in open rocky areas

Athiyodai, *KKS 17424*

#### TALINUM Adans.

**Talinum portulacifolium** (Forsk.) Asch. & Schweinf. in Bull. Herb. Boissier 4. App. 2: 172. 1896; Matthew, Fl. TN. Carnatic 84. 1983 & Ill. Fl. TN. Carnatic t. 50. 1982. *T. cuneifolium* (Vahl) Willd., Sp. Pl. 2: 864. 1799; Fl. Brit. India 1: 247. 1874; Fl. Pres. Madras 66. 1915.

Erect herbs. Leaves alternate, 10 x 3.5 cm, obovate, cuneate, membranous, emarginate at apex; leaf base decurrent to the petiole; petiole to 1.5 cm. Panicle terminal, to 15 cm; flowers pink; bracts lanceolate, 6 mm; pedicels to 1.5 cm; sepals 2, 6 mm, lanceolate; petals 5, 1 x 0.6 cm, (obovate; stamens many, filaments unequal, connate at the base; ovary 3-celled, globose, 2 mm, style 6 mm, stigma 3 fid. Capsule 6 mm across, globose.

*Fl. & Fr.* April-May

D i s t. Rare, in abandoned cultivated areas

Champakkad, *KKS 15772*

### HYPERICACEAE

#### HYPERICUM L.

1, Shrubs; flowers more than 3 cm across

: **H. mysurense**

1. Herbs; flowers less than 2 cm across

: **H. japonicum**

**Hypericum japonicum** Thumb. ex Murr. in L., Syst. Veg. 702. 1784; Fl. Brit. India 1: 256. 1874; Fl. Pres. Madras 70. 1915; Matthew, Fl. TN. Carnatic 92. 1983 & Ill. Fl. TN. Carnatic t. 54. 1982.

Herbs. Leaves 6 x 3 mm, lanceolate, 3-nerved, glabrous, apex acute, gland dotted, sessile. Cymes terminal; sepals 4 x 1.5 mm, lanceolate, glabrous; petals yellow, 6 mm, oblanceolate; stamens many, filaments subconnate; ovary 3-lobed, 4 mm, ovoid, styles 3. Capsule 3 valved, 4 mm long, subcylindrical, septical.

*Fl. & Fr.* April-June

D i s t. Occasional in semi-evergreen forests

Ichampetty, *KKS 15580*; Pothumala, *17380*

**Hypericum mysurense** Wight & Arn., Prodr. 99. 1834; Fl. Brit. India 1: 253. 1874; Fl. Pres. Madras 70. 1915. *Norisca mysurensis* (Heyne ex Wight & Arn.) Wight, Ic. t. 56. 1838.

Shrubs. young branchlets 4-angled. Leaves 3 x 1 cm, elliptic, acute at apex, base decurrent to the stem, coriaceous. sessile. Cymes terminal; flowers yellow; sepals 8 x 3 mm, lanceolate; petals 2.5 cm long, obovate. 2.5 cm long; stamens numerous, combined into 5 phallegens of

various length, filaments 10-15 mm; ovary 5 mm, ovoid, I-celled, styles 5, 1 cm; stigma capitate. Capsule 1 cm long, subcylindrical, septicial.

*Fl. & Fr.* April-June

*D i s t.* Occasional along the margins of shola forests

Pothumala, *KKS* 17351

## CLUSIACEAE

- |                                                              |                      |
|--------------------------------------------------------------|----------------------|
| 1. Lateral venation primary only, parallel                   | : 2                  |
| 1. Lateral venation both primary and secondary, not parallel | : <b>Garcinia</b>    |
| 2. Flowers more than 3 cm across, branchlets terete          | : <b>Mesua</b>       |
| 2. Flowers less than 1 cm across, branchlets 4-angled        | : <b>Calophyllum</b> |

## CALOPHYLLUM L.

**Calophyllum calaba** L., Sp. Pl. 514. 1753; Nicols. et al., Interp. Hort. Malab. 81. 1988. *C. apetalum* Willd., Ges. Naturf. Freunde Berlin Mag. Nuest. 5: 79. 1811; Mahes., Bull. Bot. Surv. India 2: 143. 1900. *C. decipiens* Wight, Ic. t. 106. 1839; Fl. Pres. Madras 76. 1915.

Trees, bark deeply fissured, reddish brown inside; branchlets quadrangular. Leaves to 9.5 x 4 cm, obovate, acute, emarginate at tip, attenuate at base. Panicle axillary; sepals white, 8 x 5 mm, obovate, obtuse; filaments 6 mm long, slender. Drupe 8 x 4 mm, obovoid, obtuse, glabrous.

*Fl. & Fr.* October-January

*D i s t.* Common along the riversides: endemic to Peninsula India.

Champakkad, *KKS* 18260

## GARCINIA L.

**Garcinia gummi-gutta** (L.) Robs. in Brittonia 20: 103. 1968. *G. cambogia* (Gaertn.) Desr. in Lam., Encycl. 3: 701. 1792; Fl. Brit. India 1: 261. 1874; Fl. Pres. Madras 73. 1915; Matthew, Fl. TN. Carnatic 94. 1983. *G. conicarpa* Wight, Ic. t. 121. 1839.

Trees. Leaves to 12 x 5 cm, oblanceolate, glabrous, coriaceous, nerves distant, apex acute to obtuse, base cuneate; petiole to 1 cm. Flowers fascicled, male flowers umbellate; pedicel to 1 cm; calyx 4, outer 6 mm and inner 8 mm, ovate, orbicular; petals 4, unequal, yellowish, ovate; stamens many, monadelphous.

*Fl.* February-April

*D i s t.* Common on the sides of streams

Chinnar, *KKS* 15534; Olikkudy. 17184

## MESUA L.

**Mesua ferrea** L., Sp. Pl. 515. 1753; Fl. Brit. India 1: 277. 1874; Fl. Pres. Madras 77. 1915, var. **coromandeliana** (Wight) Singh in J. Econ. Tax. Bot. 10: 203. 1987 & in Sliarma & Sanjappa, Flora of India 3: 137. 1993; *M. ferrea* L. subsp. *pulchella* Vesque var. *coromandeliana* (Wight) Mahes., Bull. Bot. Surv. India 5: 336. 1964. *M. speciosa* Choisy in

DC., Prodr. 1: 52. 1824; Wight, Ic. t. 901. 1845. *M. coromandelica* Wight, Ic. t. 117. 1839; Bedd., Fl. Sylv. 1: 64. 1870.

Large trees. Leaves to 10 x 3 cm, elliptic, caudate-acuminate, base obtuse, coriaceous, glabrous, glossy; lateral nerves faint; petiole to 1 cm. Flowers axillary, solitary or in pairs, white; pedicels stout, 0.5 cm; sepals 4, woody, outer 1 x 1 cm, orbicular to obovate, inner 1.5 x 1 cm. obovate; petals 4. 2.5 x 1.5 cm, obovate; stamens numerous, filaments of various length; ovary 2-locular, 5 mm across, 4 ovuled, globose, style 5 mm.

*Fl.* March-April

*D i s t.* Common in semi-evergreen forests

Ichampetty, *KKS* 15594

## THEACEAE

1. Flowers unisexual, 3 mm across
2. Flowers bisexual, 4-5 cm across

: Eurya  
: **Gordonia**

### EURYA Thunb.

**Eurya nitida** Korth. in Temminck, Verh. Nat. Gesch. Bot. 3: 115. t. 17. 1840. *E. japonica* Thunb. var. *thunbergii* Thw., Enum. Pl. Zeyl. 41. 1858; Fl. Brit. India 1: 284. 1874. *E. japonica* auct. non Thunb. 1784; Bedd., Fl. Sylv. t. 92. 1871; Fl. Pres. Madras 79. 1915; Matthew, Fl. TN. Carnatic 97. 1983 & III. Fl. TN. Carnatic t. 56. 1982.

Small trees, branchlets tetragonal at apex. Leaves to 5 x 2.5 cm, elliptic, coriaceous, serrate towards the upper half, apex emarginate, lateral and transverse, nerves prominent alike; petiole to 5 mm. Flowers solitary, axillary, unisexual; female flowers - sepals 5, 2 mm, imbricating, ovate; petals imbricating, 1.5 mm. ovate, united at the base; ovary 4-celled, 2 mm. ovoid. ovules numerous, styles 4, 1 mm.

*Fl.* April-May

*D i s t.* Common in sliola forests

Pothumala, *KKS* 17352

### GORDONIA Ellis.

**Gordonia obtusa** Wall. ex Wight & Arn., Prodr. 87. 1834; Wight. III. I: t. 39. 1840; Fl. Brit. India 1: 291. 1874; Fl. Pres. Madras 791. 1915.

Medium trees; branchlets grey. Leaves to 12 x 4 cm, elliptic, acuminate, crenate, coriaceous. Flowers axillary, solitary. white, 4-5 cm across; sepals 5-6, unequal, basally cordate; petals larger than sepals, basally connate; stamens many; ovary 5-celled, style solitary, 5 ribbed; stigma spreading slightly 5-lobed. Capsule oblong; seeds winged.

*Fl. & Fr.* April-May

*D i s t.* Common on shola borders and along the ravines; endemic to Peninsula India.

Ichampetty, *KKS* 15588, Olikkudy, *I7245*

## DIPTEROCARPACAE

1. Panicles tomentose; leaves with glands at the nerve axils
1. Panicles glabrous; leaves without glands at the nerve axils

: Hopea  
: Shorea

### HOPEA Roxb.

**Hopea parviflora** Bedd., Fl. Sylv. t. 7. 1869; Fl. Brit. India 1: 308. 1874; Fl. Pres. Madras 82. 1915.

Large trees, bark fissured, brownish, young branchlets tomentose. Leaves 9 x 4 cm. ovate, acute at apex, base obtuse, glabrous, coriaceous, 8-10 nerved; petiole to 1 cm. Panicles axillary, tomentose, 5-15 cm; flowers unilateral; pedicels to 2 mm; outer sepals 3 mm, inner 2 mm, ovate, tomentose; petals 5 mm, ovate, fimbriate at apex; stamens 15; ovary 1.5 mm, glabrous, style 0.5 mm, stout. Fruit I-seeded with 2 wings, oblong.

*Fl. & Fr.* December-March

*D i s t.* Common along the sides of ravines; endemic to Peninsula India.

Kuttar, *KKS 15936*

### SHOREA Roxb. ex Gaertner f.

**Shorea roxburghii** G. Don, Gen. Syst. 1: 813. 1831; Matthew, Fl. TN. Carnatic 99. 1983 & III. Fl. TN. Carnatic tt. 58 & 963b. 1982. *S. talura* Roxb., Fl. Ind. 2: 618. 1832; Fl. Brit. India 1: 304. 1874; Fl. Pres. Madras 83. 1915. *Vatica laccifera* Wight & Arn., Prodr. 84. 1834; Wight. Ic. t. 164. 1839.

Large trees. Leaves 8-18 x 4-9 cm, elliptic, oblong, apex obtuse or emarginate, base slight cordate or truncate. glossy above, coriaceous, nerves 15-20 pairs, parallel; petiole to 1.5 cm. Panicles axillary and terminal, to 25 cm, glabrous; pedicels to 1 cm, jointed; outer sepals 5 mm, oblong, inner 2, 4 mm, ovate; petals 20 mm, ovate, villous; stamens 15; ovary 2 mm, globose, style 5 mm, stigma 3 fid, Fruit 1 cm, enclosed in accrescent calyx, lobes oblong, 3 longer. 7 x 1 cm; inner 2 smaller, 4 x 1 cm.

*Fl. & Fr.* February-June

*D i s t.* Occasional in semi-evergreen forests; endemic to Peninsula India.

Palapetty, *KKS 15510*; Karimutty. *15982*

## MALVACEAE

- |                                                                                                       |                          |
|-------------------------------------------------------------------------------------------------------|--------------------------|
| 1. Epicalyx present                                                                                   | : 2                      |
| 1. Epicalyx absent                                                                                    | : 5                      |
| 2. Styles twice the number of carpels                                                                 | : 4                      |
| 2. Styles as many as the number of carpels                                                            | : 3                      |
| 3. Capsule winged                                                                                     | : <b>Fioria</b>          |
| 3. Capsule not winged                                                                                 | : <b>Hibiscus</b> (p.p.) |
| 4. Leaves with a gland below the midrib at the base:<br>staminal tube antheriferous on the upper half | : <b>Urena</b>           |
| 4. Leaves without glands; staminal tube antheriferous throughout                                      | : <b>Pavonia</b>         |
| 5. Ovule 1 per locule, cocci one seeded                                                               | : <b>Sida</b>            |
| 5. Ovules 2 or more per locule, cocci 2-many seeded                                                   | : 6                      |
| 6. Fruit schizocarp                                                                                   | : 7                      |
| 6. Fruit capsular                                                                                     | : <b>Hibiscus</b> (p.p.) |
| 7. Schizocarp pendant: prostrate herbs                                                                | : <b>Herissantia</b>     |
| 7. Schizocarp erect: herbs or shrubs                                                                  | : <b>Abutilon</b>        |

## ABUTILON Mill.

- |                                      |                           |
|--------------------------------------|---------------------------|
| 1. Schizocarp 8-10-lobed             | : <i>A. neilgherrense</i> |
| 1. Schizocarp 15-20-lobed            | : <b>2</b>                |
| 2. Flowers yellow with a purple eye  | : <i>A. hirtum</i>        |
| 2. Flowers yellow without purple eye | : <i>A. indicum</i>       |

*Abutilon hirtum* (Lam.) Sweet, Hort. Brit. ed. 1. 53. 1826; Fl. Pres. Madras 91. 1915; Matthew, Fl. TN. Carnatic 106. 1983 & Fur. Ill. Fl. TN. Carnatic t. 32. 1988; Sivar. & Pradeep, Malv. Pen. India 190. 1996. *A. graveofens* (Roxb. ex Hornem.) Wight & Arn. var. *hirtum* (Lam.) Mast. in Hook. f., Fl. Brit. India 1: 327. 1874.

Erect subshrubs, 1-1.5 m tall; densely pubescent, mingled with some erect gland tipped hairs. Leaves 6.7 x 5-6 cm, ovate to orbicular, deeply cordate at base, acuminate, margin coarsely crenate, tomentose below, stipules 0.5 cm, lanceolate. Flowers axillary, solitary; pedicel 2 cm; sepals 1 x 0.5 cm, ovate, acuminate; petals 1.5 x 1.5 cm, ovate, yellow with purplish centre, spreading; staminal column 8 mm; ovary to 5 mm, 20-25 celled. Capsule 1.5 x 2 cm, densely tomentose.

*Fl. & Fr.* February-April

*D i s t.* Common in scrubjungles

Cliampakkad, *KKS 15763*

*Abutilon indicum* (L.) Sweet, Hort. Brit. ed. 1. 54. 1826, subsp. *indicum*; Wight, Ic. t. 12. 1838; Fl. Brit. India 1: 326. 1874; Fl. Pres. Madras 91. 1915; Sivar. & Pradeep, Malv. Pen. India 192. 1996. *Sida indica* L., Cent. Pl. 2: 26. 1756.

Shrubs, with adpressed pubescent. Leaves to 8 x 6.5 cm, broadly ovate, apex acute-acuminate, cordate. margin crenate, chartaceous, glaucous below, 7-9 nerved; petiole to 8 cm. Flower solitary, yellow; pedicels to 5 cm; calyx tube 4 mm, lobes ovate; petals 1 x 1 cm. obovate, staminal column 6 mm, glabrous above, filaments 3 mm. Schizocarps 1.5 x 2 cm, globose; mericarps 15 x 20, densely stellate hairy, mucronate, to 2 mm.

*Fl. & Fr.* November-March

*D i s t.* Occasional in moist deciduous forests

Mangavada. *KKS 15961*

*Abutilon neilgherrense* Munro ex Wight, III. 1: 66. 1840; Fl. Pres. Madras 91. 1915; Sivar. & Pradeep, Malv. Pen. India 198. 1996.

Large shrubs, with simple and stellate pubescence. Leaves to 16 x 15 cm, broadly ovate-cordate, apex acuminate, base cordate, margins serrate, glaucous beneath; petiole to 15 cm. Cymes axillary; peduncles to 5 cm; pedicels to 3 cm, jointed above the middle. Schizocarp 8-10 lobed, 1.5 cm across, subglobose, black, densely pubescent on the angles, minutely hairy between mericarps. mucronate to 1 mm.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Manala, *KKS 11901*

## FIORIA Mattei

**Fioria vitifolia** (L.) Mattei, Bol. Reale Orto Bot. Giardino Colon. Palermo ser. 2, 2: 71. 1917; Kundu & Biswas, Bull. Bot. Surv. India 16: 125-138. 1974; Sivar. & Pradeep, Malv. Pen. India 75. 1996. *Hibiscus vitifolius* L., Sp. Pl. 696. 1753; Fl. Brit. India 1: 338. 1874; Fl. Pres. Madras 98. 1915; Matthew, Fl. TN. Carnatic 119. 1983 & Ill. Fl. TN. Carnatic t. 62. 1982.

Subshrubs, tomentose. Leaves 2.5-9 x 2-9 cm, shallowly 3-5-lobed, basally 7-nerved, lobes triangular, apex acute, stellate pubescent; petiole 2-12 cm, stipules 2 mm. subulate. Flowers axillary, solitary, epicalyx slender, linear. 10 mm; calyx lobes 10 x 5 mm. lanceolate. pubescent: petals 4.5-5 x 4-5 cm, yellow, base purplish inside; staminal column 2 cm, ovary 5-celled, style branches 5. Capsule 5 celled, winged; seeds glabrous.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Churullipetty, KKS 15966; Alampetty, 15902

## HERISSANTIA Medik.

**Herissantia crispa** (L.) Briz., J. Arn. Arb. 49. 279. 1968; Sivar. & Pradeep, Malv. Pen. India 209. 1996. *Sida crispa* L., Sp. Pl. 685. 1753. *Abutilon crispum* (L.) Medicus. Malv. 29. 1787; Wight, Ic. t. 68. 1838; Fl. Brit. India 1: 327. 1874; Fl. Pres. Madras 91. 1915; Matthew. Fl. TN. Carnatic 105. 1983 & Ill. Fl. TN. Carnatic t. 59. 1982.

Prostrate herbs, with spreading hairs. Leaves 5 x 3.5 cm, ovate-cordate. acuminate. base deeply cordate, crenate; petiole to 3 cm, stipule 0.5 cm, linear. Flowers axillary, solitary, yellow; pedicels jointed above half. Schizocarp 1.5 x 1.5 cm, globose, drooping, mericarps 10. obtuse, sparsely hairy.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Alampetty, NS 5875; Chinnar, KKS 11608

## HIBISCUS L.

1. Epicalyx absent	: <b>H. lobatus</b>
1. Epicalyx present	: <b>2</b>
2. Trailing undershrubs; epicalyx bilobed	: <b>H. hispidissmus</b>
2. Shrubs or under shrubs; epicalyx entire	: <b>3</b>
3. Flowers white	: <b>H. micranthus</b>
3. Flowers yellow with central purple eye	: <b>4</b>
4. Plants covered with pungent hairs	: <b>H. lunariifolius</b>
4. Plants not covered with pungent hairs	: <b>H. canescens</b>

**Hibiscus canescens** Heyne ex Wight & Arn., Prodr. 49. 1834; Fl. Brit. India 1: 337. 1874; Fl. Pres. Madras 97. 1915; Matthew. Fl. TN. Carnatic 112. 1983; Sivar. & Pradeep, Malv. Pen. India 132. 1996.

Shrubs: branchlets tomentose. Leaves 12-17 x 6-12 cm, broadly ovate, broadly crenate, apex minutely apiculate. upper surface sparsely hairy, tomentose below, basally 7-nerved; petiole to



12 cm, hairy, stipules linear, cauducous, 1.5-2 cm. Flowers axillary, solitary; bracteoles 5, 2.5 cm, lanceolate, pubescent; sepals 1.5 cm; petals 6.5 x 3.5, obovate, yellow, base inside purple; staminal tube shorter than corolla. Capsule 3 x 4 cm, villous.

*Fl. & Fr.* January-March

*D i s t.* Common in disturbed moist deciduous forests

Chengamperu, *KKS 11735*

**Hibiscus hispidissmus** Griff., Not. Pl. Asiat. 4: 521. 1854; Sivar. & Pradeep, Malv. Pen. India 106. 1996. *H. furcatus* Roxb. ex DC., Prodr. 1: 448. 1824; Fl. Brit. India 1: 335. 1874; Fl. Pres. Madras 97. 1915; Matthew. Fl. TN. Carnatic 113. 1983 & Fur. III. Fl. TN. Carnatic t. 36. 1988.

Prickly trailing undershrubs. pubescent with stellate and simple hairs. Leaves 3-5-lobed, 8.5 x 7 cm, lobes lanceolate, serrate, membranous, pubescent, basally 5-nerved; petiole to 6 cm, stipules cauducous. Flowers axillary, solitary, pedicels jointed above the middle, epicalyx 8-12, bilobed, 20 mm, lobes unequal, persistent; fruiting sepals 2.5 x 1.5 cm, persistent, ciliate: pedicel to 7 cm. Capsule globose reddish, not exceeding calyx lobes, bristly hairy, beaked; seeds 5 mm, trigonous, warty, glandular.

*Fl. & Fr.* February-June

*D i s t.* Common in dry forest areas

Champakkad, *KKS 15532*

**Hibiscus lobatus** (Murr.) O. Ktze. in Rev. Gen. Pl. 3, 2: 19. 1898; Borss., Blumea 14. 77. 1966; Matthew, Fl. TN. Carnatic 114. 1983; Sivar. & Pradeep, Malv. Pen. India 125. 1996. ***Solandra lobata*** Murr., Comm. Soc. Reg. Sc. Gott. 6: 20. t. 1. 1785. ***Hibiscus solandra*** L' Herit., Strip. Nov. 1: 103. t. 49. 1788; Fl. Brit. India 1: 336. 1874; Fl. Pres. Madras 98. 1915.

/ Subshrubs, stem with spreading hairs. Leaves dimorphic, 3-5 x 2.5-3 cm, lower broadly ovate, upper deeply 3-lobed; petiole to 3 cm. Flowers axillary, solitary, pedicels 0.5 cm: calyx lobes 0.8 x 0.3 mm, jointed about one-third of its length: petals 5, 1.4 cm. obovate. white: staminal column equal to the petals, antheriferous throughout. Capsule 1 x 0.8 cm, ovoid; seeds 2, 2 x 2 mm, wrinkled, glabrous.

*Fl. & Fr.* January-May

*D i s t.* Very common in dry forest areas

Chinnar, *KKS 11545*; Champakkad. *11819*; Kathitheetimala. *15766*

**Note** : The plant shows variations with respect to the lobation of leaves; plants growing in dry regions have deeply 3-lobed leaves. The same plant exhibits leaf dimorphism in which the lower leaves are simple while the upper ones are 3-lobed.

**Hibiscus lunnariifolius** Willd., Sp. Pl. 3: 811. 1800; Wight, Ic. t. 6. 1838; Fl. Brit. India 1: 338. 1874; Fl. Pres. Madras 98. 1915; Matthew, Fl. TN. Carnatic 114. 1983; Sivar. & Pradeep, Malv. Pen. India 138. 1996.

Subshrubs or shrubs, covered with tomentum and stiff tribrachiata hairs. Leaves 7-14 cm across, orbicular, shallowly 3-5-lobed, base cordate, lobes acuminate, serrate; petiole to 16 cm, stipule cauducous. Flowers axillary, solitary or in false racemes; bracteoles 5-6, 20-25 cm, linear-lanceolate; calyx lobe 1.5 cm, lanceolate; petals 5.5 x 3.5 cm, obovate, yellow with dark purple centre; staminal column antheriferous throughout, ovary 5 celled, stigmas 5. Capsule 2 x 1.5 cm, densely stellate.

*Fl. & Fr.*, December-February

*D i s t.* Occasional in dry forest areas

Mangavada, *KKS 15962*

**Hibiscus micranthus** L. f., *Suppl. Pl.* 308. 1781; *Fl. Brit. India* 1: 335. 1874; *Fl. Pres. Madras* 97. 1915; Sivar. & Pradeep, *Malv. Pen. India* 97. 1996. *H. ovalifolius* auct., non Vahl, 1790; Matthew, *Fl. TN. Carnatic* 115. 1983 & Fur. III. *Fl. TN. Carnatic* t. 37. 1988.

Subshrubs; branchlets stellate, pubescent. Leaves 3-6.5 x 3-6 cm, broadly ovate, apes acute, shallowly 3-lobed, 5-nerved, dentate; petiole to 4 cm, pubescent, stipules linear, 8 mm. Flowers axillary, solitary; pedicels to 3 cm, jointed below the flower, curved, bracteoles 6, 2 mm; calyx lobes 3 mm, ovate; petals 1 x 0.5 cm, oblong, white; staminal column 6 mm; anthers yellow, ovary 5 celled, styles branches 5, 2 mm. Capsule 5 mm, subglobose; seeds 3-4 in each cell, clothed with long silky hairs.

*Fl. & Fr.* December-February

*D i s t.* Common in scrubjungles as undergrowth

Churullipetty, *KKS 11650*

#### PAVONIA Cav.

- |                                   |                        |
|-----------------------------------|------------------------|
| I Epicalyx segments 5, ovate      | : <b>P. burcheilii</b> |
| 1. Epicalyx segments 8-15, linear | : 2                    |
| 2. Leaves deeply lobed            | : <b>P. zeylanica</b>  |
| 2. Leaves shallowly lobed         | : <b>P. odorata</b>    |

**Pavonia odorata** Willd., *Sp. Pl.* 3: 837. 1800; *Fl. Brit. India* 1: 331. 1874; *Fl. Pres. Madras* 93. 1915; Matthew, *Fl. TN. Carnatic* 123. 1983 & Fur. III. *Fl. TN. Carnatic* t. 44. 1988; Sivar. & Pradeep, *Malv. Pen. India* 171. 1996.

Subshrubs; branchlets viscid pubescent. Leaves 2-2.5 x 1-1.5 cm, ovate, shallowly, 3-lobed, densely pubescent, subentire; petiole to 2.5 cm. Flowers axillary, solitary or in pairs; epicalyx 10-13, 0.8 cm long, aristate; calyx tube to 1.5 mm, lobes 2 mm, ovate; petals 1 x 0.5 cm, pink or white; staminal column to 1 cm. Schizocarp 4 mm long, mericarps 5; seeds 3 x 2 mm.

*Fl. & Fr.* December-February

*D i s t.* Common in dry forests

Chinnar, *NS 5920*; Alampetty, *KKS 11788*; 11789

**Note** . Profusely growing in dry forests. The large number of flowers at the terminal portion gives the appearance of a panicle.

**Pavonia burchellii** (DC.) Dier in Kew Bull. 1932: 152. 1932; Sivar. & Pradeep, Malv. Pen. India 176. 1996. *Pavonia procumbens* (Wall. ex Wight & Arn.) Walp., Rep. 1: 301. 1842, non Casaretto 1842; Fl. Pres. Madras 93. 1915; Matthew, Fl. TN. Carnatic 124. 1983 & Ill. Fl. TN. Carnatic t. 66, 1982. *Lebretonia procumbens* Wall. ex Wight & Arn., Prodr. 47. 1834; Wight, Ic. t. 4. 1838. *Pavonia glechomifolia* (A. rich.) Garcke ex Schweinf. Beitr. Fl. Aethiop. 1: 54. 1867; Fl. Brit. India 1: 330. 1874.

Subshrubs, pubescent, intermingled with spreading hairs. Leaves 4-5 x 3-5 cm, orbicular or ovate, apex acuminate, base cordate, margins serrate, stellate pubescent, 7-nerved; petiole to 4 cm long; bracts linear. Flowers axillary, solitary; pedicels 1 cm, in fruits up to 6.5 cm; epicalyx segments 5, 8 x 4 mm, pubescent; sepals connate at base, 6 x 4 mm, ovate, pubescent; petals 9 x 6 mm, obovate, yellow, glabrous; staminal column 7 mm. Schizocarp 8 mm across, mericarps 5. muricate; seeds 2 mm.

*Fl. & Fr.* December-February

*Dist.* Common in dry forests

Champakkad, KKS 11776; Chinnar, 11503, 15764

**Pavonia zeylanica** (L.) Cav. Diss. 3: 134. 1787; Fl. Brit. India 1: 330. 1874; Fl. Pres. Madras 93. 1915; Matthew, Fl. TN. Carnatic 124. 1983 & Ill. Fl. TN. Carnatic t. 67. 1982; Sivar. & Pradeep, Malv. Pen. India 173. 1996. *Hibiscus zeylanicus* L., Sp. Pl. 697. 1753.

Subshrubs; branchlets viscid, pubescent. Leaves 2-3 x 3-3.5. deeply 3-lobed, lobes distantly dentate, sinuses rounded, lobes obovate, pubescent; petiole 3-4 cm long, stipules linear. Flowers axillary, solitary; epicalyx 8-10, 7 mm long, linear; sepals basally connate about one-third, lobes 3 mm long, ovate, pubescent; petals 7 x 5 mm, obovate, pink or white; staminal column 6 mm long. Schizocarp 4 mm long, mericarps 4 x 3 mm, slightly winged on the margin.

*Fl. & Fr.* November-January

*Dist.* Common in dry forests

Chinnar, KKS 11534

#### SIDA L.

- |                                                  |                         |
|--------------------------------------------------|-------------------------|
| 1. Stipules in unequal pairs, falcate and linear | : <b>S. acuta</b>       |
| 1. Stipules all linear                           | : 2                     |
| 2. Ovary 5-celled; plants mucilaginous           | : <b>S. mysorensis</b>  |
| 2. Ovary 8-10 celled                             | : 3                     |
| 3. Mericarps awned                               | : 4                     |
| 3. Mericarps unawned                             | : <b>S. rhomboidea</b>  |
| 4. Leaves rhomboid                               | : <b>S. rhombifolia</b> |
| 4. Leaves ovate, cordate                         | : <b>S. cordifolia</b>  |

**Sida acuta** Burm. f., Fl. Ind. 147. 1768; Wight. Ic. t. 95. 1838; Fl. Pres. Madras 90. 1915; Matthew, Fl. TN. Carnatic 127. 1983 & Ill. Fl. TN. Carnatic t. 68. 1982-Plate 12a; Sivar. & Pradeep, Malv. Pen. India 238. 1996.

Subshrubs, glabrescent. Leaves 4-5 x 1-1.5 cm, lanceolate, acute, truncate at base, serrate, glabrescent; petiole to 0.8 cm. Flowers axillary, solitary; calyx lobes 3 mm, triangular; petals yellow; staminal column 3 mm. Schizocarps 5 mm; mericarps apically 2 awned.

*Fl. & Fr.* July-September

*D i s t.* Very common in dry and moist deciduous forests

Chinnar, *KKS 11522*

**Sida cordifolia** L., Sp. Pl. 684. 1753; Fl. Brit. India 1: 324. 1874; Fl. Pres. Madras 89. 1915; Matthew, Fl. TN. Carnatic 128. 1983 & Fur. III. Fl. TN. Carnatic t. 46. 1988; Sivar. & Pradeep, Malv. Pen. India 256. 1996.

Subshrubs; branchlets densely tomentose, intermingled with long hairs. Leaves to 5.5 x 4 cm. ovate, apex obtuse, base cordate, crenate, tomentose; petiole 1.5-3 cm, stipule 1 cm, linear. Flowers solitary or in groups of 4-5; pedicels to 3 cm; calyx lobes 3 mm, broadly ovate, connate at base, tomentose outside; petals 1 x 0.7 cm, yellow; staminal column 3 mm. Schizocarp 5 mm; mericarps 4 mm, awns 2, retrose barbed.

*Fl. & Fr.* November-January

*D i s t.* Common in scrubjungles and loosened soil

Chinnar, *KKS 11549, 11726*

**Sida mysorensis** Wight & Arn., Prodr. 59: 1834; Fl. Brit. India 1: 322. 1874; Sivar. & Pradeep, Malv. Pen. India 271. 1996. *S. glutinosa* auct. mult. non Cav. Diss. 1785; Fl. Pres. Madras 89. 1915; Matthew, Fl. TN. Carnatic 130. 1983 & Fur. III. Fl. TN. Carnatic t. 47. 1988.

Subshrubs, pubescent. covered with mucilaginous hairs. Leaves to 3.5 x 2 cm, ovate, apex acute, base cordate, 5-nerved, pubescent; petiole to 1.5 cm, stipules linear. Flowers usually solitary, sometimes in lax racemes; calyx tube 3 mm, glandular, lobes acuminate; petals 5 x 3 mm, yellow. Schizocarps. 3 mm, enclosed in calyx; mericarps 5, 2 mm, brownish, glabrous.

*Fl. & Fr.* December-February

*D i s t.* Occasional in moist deciduous forests up to 800 m

Alampetty, *KKS 11800*

**Sida rliombifolia** L., Sp. Pl. 684. 1. 3. Fl. Brit. India 1: 323. 1874; Fl. Pres. Madras 90. 1915; Sivar. & Pradeep, Malv. Pl. Indid 246. 1996. *Sida rhombifolia* ssp. *rhombifolia* Borss., Blumea 14: 193. *Sida rhombifolia* ssp. *rhombifolia* var. *rhombifolia* : Paul & Nayar in Nayar et al. (eds.), Fasc. Fl. India 19: 2 1988. *Sida alba* Cav., Diss. I. 22. t. 3. f. 8. 1785, non Linn., 1763.

Subshrubs; branchlets brown, stellate pubescent. Leaves 2-5 x 1.5-3.5 cm, rhomboid, apex acute, base obtuse or cuneate, margin serrate above the upper half, lower side tomentose; petiole 0.5 to 1 cm. stipule to 1 cm. ii. Flowers axillary. solitary or in clusters, yellow; pedicels to 6 mm, tomentose: calyx broadly apanulate, lobes triangular, to 3 mm, tomentosc

outside; petals 9 x 5 mm, obovate. Schizocarp enclosed in calyx, semiorbicular, 3 mm long; mericarps 8-10, awned at apex, to 1 mm.

*Fl. & Fr.* February-March

D i s t. Occasional near shola forests

Olikkudy, KKS 27222

**Sida rhomboidea** Roxb. ex Fleming, *Asiat. Res.* 11. 178. 1810; *Fl. Pres. Madras* 90. 1915; Sivar. & Pradeep, *Malv. Pen. India* 246. 1996. *S. rhombifolia* var. *rhomboidea* (Roxb. ex Fleming) Mast. in Hook. f., *Fl. Brit. India* 1: 324. 1874. *S. rhombifolia* ssp. *rhombifolia* sensu Borss., *Blumea* 14: 193. 1966.

Subshrubs; branchlets sparsely hairy. Leaves 1.5-3.5 x 1-2.5 cm, obovate. pubescent, lowers half entire, upper serrate, basally 3-nerved; petiole to 0.6 cm, stipules linear, 0.8 mm, cauducous. Flowers solitary, axillary; pedicels to 1 cm, pubescent; sepal connate basally, lobes 0.5 cm, acute, pubescent outside: petals 8 mm long, obovate. Schizocarp 2 mm, enclosed in calyx lobes; mericarps 8- 10, 2 mm. awnless, strongly coherent, glabrous, brownish.

*Fl. & Fr.* July-September

D i s t. Common in dry and moist deciduous forests

Karimutty, KKS 15776

#### URENA L.

**Urena lobata** L., *Sp. Pl.* 692. 1753; *Fl. Brit. India* 1: 329. 1874; *Fl. Pres. Madras* 92. 1915; Matthew, *Fl. TN. Carnatic* 134. 1983 & III. *Fl. TN. Carnatic* t. 70. 1982; Sivar. & Pradeep, *Malv. Pen. India* 181. 1996. *U. lobata* ssp. *lobata*; Borss., *Blumea* 14: 140. 1966.

Shrubs, pubescent. Lower leaves to 5 cm across, orbicular, shallowly lobed, pubescent, 5-7 nerved, upper leaves simple, lanceolate, mid vein with a gland beneath at the base, stipules 2 mm, lanceolate, white; petiole 3-8 cm long. Flowers axillary, solitary or 2-3 together; epicalyx of 5 segments, tube 2 mm long, lobes up to 5 mm, aristate; calyx lobes 4 mm, aristate; petals 20 x 10 mm, obovate, pink with dark centre; staminal column 10 mm; ovary 5 celled, hirsute, cells I-ovuled, style 10 branched, stigmas 10, capitate. Schizocarp 10 mm across, globose, glochidiate.

*Fl. & Fr.*-December-February

D i s t. Common in dry and semi-evergreen forests

Panchankalitiode, KKS 11677

#### BOMBACACEAE

1. Leaves digitately compound; fruit elliptic-oblong, not spiny

: **Bombax**

1. Leaves simple; fruit globose; spiny

: **Cullenia**

#### BOMBAX L.

**Bombax ceiba** L, *Sp. Pl.* 511. 1753; Nicols., *Taxon* 28: 370. 1979; Robyns in *Rev. Handb. Fl. Ceylon* 1: 64: 1980. *B. malabarica* DC.. *Prodr.* 1: 479. 1824; Wight, *Ill.* t. 29. 1840; *Fl. Brit.*

India 1: 349. 1874; Fl. Pres. Madras 99. 1915. *Salmalia malabarica* (DC.) Schott & Endl. Melet. Bot. 35. 1832.

Large trees. Leaflets 18 x 5 cm, elliptic, caudate-acuminate; nerves 12-15 pairs; petiolule 2-3 cm long; petiole to 20 cm long. Flowers solitary or 2-5 together; sepals 3 x 3 cm, campanulate densely villous within; petals 10 x 3.5 cm, reddish, stellate hairy outside; filaments 5.5 cm long, minutely hairy.

*Fl. & Fr.* January-May

D i s t. Occasional in moist deciduous forests

Palapetty, KKS 15800

### CULLENIA Wight

**Cullenia exarillata** Robyns, Bull. Jard. Bot. Nat. Belg. 40: 249. 1970. *C. excelsa* auct. mult., non Wight, Ic. tt. 1701, 1762. 1851: Fl. Brit. India 1: 350. 1874; Fl. Pres. Madras 101. 1915.

Large trees; young branchlets and underside densely covered with peltate scales. Leaves alternate, 16 x 6 cm, oblong, nerves not visible, shining above, brownish below. Flowers densely clustered on tubercles on old branches; pedicels 3 cm long, jointed: bracteoles tubular. 1.5 cm long, 4-5-toothed at apes; petals absent: staminal tube 3 cm long, 5-lobed at apes with many stamens; ovary 5-celled: ovules 2 in each cell; style woolly, elongate. Capsule globose. 15-30 cm across, dehiscent. densely echinate.

*Fl. & Fr.* December-May

D i s t. Rare, in riparian forests at high altitude

Olikkudy, KKS 15804

## STERCULIACEAE

- |                                                                   |                     |
|-------------------------------------------------------------------|---------------------|
| 1. Flowers unisexual; petals absent                               | : <b>Sterculia</b>  |
| 1, Flowers bisexual; petals present                               | : <b>2</b>          |
| 2. Stamens indefinite, variously united, ovary more than 5 celled | : <b>Eriolaena</b>  |
| 2. Stamens 5 or 10, ovary 1 to 5 celled                           | : <b>3</b>          |
| 3. Flowers irregular; capsule twisted either to the left or right | : <b>Helicteres</b> |
| 3. Flowers regular; capsule not twisted                           | : <b>4</b>          |
| 4. Capsule prickled; prostrate herbs                              | : <b>Byttneria</b>  |
| 4. Capsule not prickled; erect herbs/subshrubs                    | : <b>5</b>          |
| 5. Stamines present                                               | : <b>Melhania</b>   |
| 5. Stamines absent                                                | : <b>6</b>          |
| 6. Styles 5, flowers pink, in terminal clusters; capsule hairy    | : <b>Melochia</b>   |
| 6. Style 1, flowers yellow, in axillary clusters; capsule smooth  | : <b>Waltheria</b>  |

### BYTTNERIA Loeffl.

**Byttneria herbacea** Rosb., Pl. Cor. t. 29. 1795; Wight, Ic. t. 488. 1841; Fl. Brit. India 1: 376. 1874; Fl. Pres. Madras 112. 1915; Matthew, Fl. TN. Carnatic 140. 1983 & Ill. Fl. Carnatic TN. t. 72. 1982.

Profusely branched prostrate herbs, stem hairy. Leaves simple, alternate, 2-3 x 1.5-2.5 cm, ovate, base cordate, margin dentate, hairy, glabrous beneath; bracts 1-3, subulate; calyx lobes basally fused, 4 mm, oblong-lanceolate; petals appendaged, 4 mm, red; staminal tube with 5 stamens and 5 staminodes: ovary pubescent. 5-celled. Fruit 0.8 mm across, globose, septical: seeds 1 in each locule, muricate.

*Fl. & Fr.* February-April

*D i s t.* Common on rocky exposed areas

Vazhathura, *KKS 15638*

#### **ERIOAENA DC.**

**Eriolaena hookcriana** Wight & Arn., Prodr. 70. 1834; Bedd., For. Man. Bot. Anal. Gen. t. 5/2. 1870; Fl. Brit. India 1: 370. 1874; Fl. Pres. Madras 110. 1915; Matthew, Fl. TN. Carnatic 141. 1983 & III. Fl. TN. Carnatic t. 73. 1982.

Small trees; branchlets pubescent. Leaves to 8-13 x 8-12 cm, ovate, orbicular, acuminated or obtuse, cordate at base. 5-7 nerved, densely stellate pubescent below; petiole 3-6 cm. Cymes axillary, 3-7 flowered; bracteoles 5, lacinate, shorter than sepals; sepals 2 x 0.5 cm, linear-lanceolate; petals 2 cm long, obovate, clawed, yellow, pubescent; stamens many, filaments united at various length; ovary sessile, 7-celled, pubescent, style 1, stigmatic lobes 7.

*Fl.* February-March

*Dist.* Occasional in disturbed forest up to 1200 m

Nellimedu, *KKS 11954*; Puthukkudy, *15660*

#### **HELICTERES L.**

**Helicteres isora** L., Sp. Pl. 963. 1753; Wight, Ic. t. 180. 1839; Fl. Brit. India 1: 365. 1874; Fl. Pres. Madras 167. 1915; Matthew, Fl. TN. Carnatic 144. 1983 & III. Fl. TN. Carnatic t. 76. 1982.

Shrubs to small trees. stellately pubescent. Leaves simple, 8-13 x 7-12 cm, obovate to orbicular. apex acuminate, base cordate, dentate, basally 5-nerved, pubescent below. Flowers axillary, solitary or fasciated; calyx tube persistent, oblique, tomentose, 5-lobed; petals unequal. colour fades from red to bluish, receptacle elongated into gynandrophore; staminal tube shortly lobed; anthers 10 in groups at the top of the column. staminodes 5; ovary ovoid, 5-celled. styles 5. Follicles spirally twisted either to the left or right, beaked.

*Fl. & Fr.* August-October

*D i s t.* Common in dry areas and cleared slopes

Ichampetty, *KKS 15785*

#### **MELHANIA Forssk.**

**Melhania incana** Heyne ex Wight & Arn., Prodr. 68. 1834; Fl. Brit. India 1: 372. 1874; Fl. Pres. Madras 113. 1915; Matthew, Fl. TN. Carnatic 146. 1983 & III. Fl. TN. Carnatic t. 79. 1982.

Subshrubs. young parts tawny pubescent. Leaves 3-5 x 1.5-2.5 cm, ovate, lanceolate. obtuse at apex, slightly cordate at base, minutely serrate; petiole 1-3 cm, pubescent, stipules linear. Cymes axillary or terminal, 1-4 flowered; bracteoles 3, linear 7 mm; sepals slightly united. 7 mm, pubescent; petals obovate, yellow; stamens 5, staminodes 5, longer than stamens, 6 mm, basally united; ovary 5-celled, style simple; stigma 5 partite. Capsule loculicidal, 1 cm long, broken from apex to base and connate basally.

*Fl. & Fr.* July-September

*D i s t.* Common in dry places

Champakkad, *KKS 15809*

#### MELOCHIA L.

**Melochia corchorifolia** L., Sp. Pl. 675. 1753; Fl. Brit. India I: 374. 1874; Fl. Pres. Madras I 10. 1915; Matthew, Fl. TN. Carnatic 147. 1983 & Ill. Fl. TN. Carnatic t. 80. 1982.

Subshrubs, branchlets terete. hollow, reddish brown, pubescent. Leaves 2-5 x 2.5-3.5 cm. ovate, lanceolate or suborbicular, obscurely 3-lobed, basally 3-5 nerved, serrate; petiole 0.5- 1.5 cm, pubescent. Flowers in terminal clusters, bracts and bracteoles present; calyx tube 5-toothed. 2 mm: petals 4 mm, pinkish: stamens 5, united below: ovary 5-celled, strigose, styles 5. united at base. Capsule subglobose, hairy, loculicidal; seed 1 in each cell. angular.

*Fl. & Fr.* June-August

*Dis t.* Common in dry areas as a weed

Chinnar. *KKS 15770*

#### STERCULIA L.

- |                                                  |                     |
|--------------------------------------------------|---------------------|
| 1. Leaves simple                                 | : <b>S. guttata</b> |
| 1., Leaves lobed or digitate                     | : 2                 |
| 2. Leaves lobed, follicle small with stiff hairs | : <b>S. urens</b>   |
| 2. Leaves digitate, follicle large, glabrous     | : <b>S. foetida</b> |

**Sterculia foetida** L., Sp. Pl. 1008. 1753; Wight, Ic. t. 181. 1839; Fl. Brit. India 1: 354. 1874; Fl. Pres. Madras 105. 1915; Matthew, Fl. TN. Carnatic 152. 1983 & Ill. Fl. TN. Carnatic t. 82. 1982.

Deciduous trees. Leaves digitate; leaflets 7-9, 10-13 x 3-5 cm. elliptic. acuminate, glabrous. Racemes terminal or axillary: flowers unisexual, dioecious or polygamous. Follicle to 12 cm. boat shaped, 5-lobed, glabrous, woody; seeds many, ellipsoid, smooth.

*Fr.* November-February

*D i s t.* Rare, along the sides of the ravines in rocky areas

Churullipetty, *KKS 11856*

**Sterculia guttata** Roxb. ex DC., Prodr. 1: 482. 1824; Wight, Ic. t. 487. 1841; Bedd., Fl. Syiv. t. 105. 1871; Fl. Brit. India 1: 355. 1874; Fl. Pres. Madras 106. 1915; Matthew, Fl. TN. Carnatic 152. 1983 & Fur. Ill. Fl. TN. Carnatic t. 54. 1988.



Medium trees. Leaves simple, 12-20 x 6-13 cm, ovate, or oblong, glabrous above, reddish-brown tomentose below, apex acute or acuminate, base truncate-cordate, coriaceous; petiole reddish, tomentose. Racemes terminal. to 15 cm, tomentose; flowers have foul smell; calyx with reddish-brown hairs inside; stamens 10, small, tube gibbous at the top in to a protuberance. Follicle to 12 cm, boat shaped, 3-5 lobed, woody; seeds many.

*Fl. & Fr.* August-December

*D i s t.* Common along the stream sides

Palapetty, *KKS* 1.5842

***Sterculia urens*** Roxb., *Pl. Cor. t.* 34. 1795; *Fl. Brit. India* 1: 355. 1874; *Fl. Pres. Madras* 106. 1915; Matthew, *Fl. TN. Carnatic* 153. 1983 & *Fur. III. Fl. TN. Carnatic t.* 55. 1988.

Medium trees, bark smooth. Leaves palmately 5-lobed, to 25 x 25 cm, lobes acutinate at the apex, basally 7-nerved, velvety beneath; petiole to 15 cm, bracts 6 mm. Panicles to 35 cm long, glandular hairy, flowers 8 mm across, brownish. Follicle 8 cm across, boat shaped, 4-5 lobed. with reddish brown stiff hairs; seeds many, black.

*Fl. & Fr.* November-February

*D i s t.* Occasional in moist deciduous forests

Mulangampetty, *KKS* 11889; Gellimala, 1597.5

#### WALTHERIA L.

***Waltheria indica*** L., *Sp. Pl.* 673. 1753; *Fl. Brit. India* 1: 374. 1874; *Fl. Pres. Madras* 111. 1915; Matthew. *Fl. TN. Carnatic* 154. 1983 & *III. Fl. TN. Carnatic t.* 83. 1982.

Subshrubs. Leaves 3-5 x 1.5-3.5 cm. ovate-oblong, obtuse at apex. more tomentose below; petiole 1.5 cm long; stipules linear. Flowers in axillary clusters, yellow; sepals basally fused. 4 x 2 mm, stellate hairy; petals 5 x 1.5 mm, clawed, with hairs at the tip, yellow; stamens united below into a tube surrounding the style; ovary sessile, globose, 1-celled, 2-ovuled: stigma fimbriate. Capsule 2 x 2 mm, glabrous. enclosed in calyx, dark brown; 1-seeded.

*Fl. & Fr.* November-January

*Dist.* Common in disturbed low level areas

Chinnar, *KKS* 11516

#### TILIACEAE

- |                                                   |                     |
|---------------------------------------------------|---------------------|
| 1. Capsule echinate or bristly                    | : <i>Triumfetta</i> |
| 1. Capsule not so                                 | : <b>2</b>          |
| 2. Capsule elongate; petals eglandular            | : <i>Corchorus</i>  |
| 2. Capsule globose; often lobed; petals glandular | : <i>Grewia</i>     |

#### CORCHORUS L.

- |                                  |                      |
|----------------------------------|----------------------|
| 1. Capsule 6-angled and 3-winged | : <i>C. aestuans</i> |
| 1. Capsule terete                | : <i>C. tridens</i>  |

***Corchorus aestuans*** L. *Syst. Nat.* (ed. 10) 1079. 1759; Sant.. *Fl. Khandala* (ed. 3) 27. 1967; Matthew. *Fl. TN. Carnatic* 157. 1983 & *Fur. III. Fl. TN. Carnatic t.* 57. 1988; Robyns & Meijer

in Rev. Handb. Fl. Ceylon 7: 423. 1991. *C. acutangulus* Lain., Encycl. 2: 104. 1786; Fl. Brit. India 1: 398. 1874; Fl. Pres. Madras 121. 1915.

Woody pubescent herbs. Leaves alternate. 3.5 x 2 cm, ovate, acute at apes, base slightly cordate, membranous, minutely and closely crenate, sparsely strigose above and below, 3-4 nerved, basal teeth prolonged into long hairs; petiole 0.5 cm; stipules lanceolate, 5 mm. pubescent. Cymes axillary. 1-3 flowered; flowers yellow, 7 mm across, 5-merous; bracts and bracteoles 3 mm. linear; stamens many. Capsule 2.5 cm long, oblong, 3 toothed at apex. glabrous; seeds many, 1.5 mm, disc shaped.

*Fl & Fr.* October-February

*D i s t.* Common in dry forest areas

Champakkad. *KKS* //774

**Corchorus tridens** L., Mant. Pl. 566. 1771: Fl. Brit. India 1: 398. 1874; Fl. Pres. Madras 121. 1915; Matthew. Fl. TN. Carnatic 160. 1983 & Fur. Ill. Fl. TN. Carnatic t. 58. 1988.

Woody glabrous herbs. Leaves 4.5 x 0.8 cm, oblong, elliptic, crenate, membranous, apex obtuse. lower teeth prolonged into hairs, puberulus below; petiole 0.5 cm, stipules linear. to 6 mm. Cymes axillary; peduncles to 3 mm: bracts and bracteoles 5 mm; sepals 4, 4 mm. linear. glabrous; petals 5 mm, obovate. yellow; stamens 10; ovary 2 mm, oblong, style 1 mm. stigma trifid. Capsule 3 x 0.2 cm, terete, glabrous, 3-toothed at apex; many seeded.

*Fl. & Fr.* July-November

*D i s t.* Occasional in dry areas

Palapetty, *KKS* 15838; Chinnar, 15761

#### GREWIA L.

1. Leaves basally 3-nerved	: 4
1..Leaves basally 5-nerved	: 2
2. Leaves glabrous	: <i>G. tiliifolia</i>
2. Leaves pubescent	: 3
3. Stipules ovate	: <i>G. villosa</i>
3. Stipules lanceolate	: <i>G. orbiculata</i>
4. Cymes leaf opposed	: <i>G. obtusa</i>
4. Cymes axillary	: 5
5. Peduncles longer than the petiole	: 6
5. Peduncles shorter or as long as the petiole	: 8
6. Flowers polygamous	: <i>G. hirsuta</i>
6. Flowers bisexual	: 7
7. Leaf base unequally cordate	: <i>G. damine</i>
7. Leaf base rounded	: <i>G. oppositifolia</i>
8. Stipule twice as long as the petiole; petals 2-fid at apex	: <i>G. flavescens</i>
8. Stipules shorter than the petiole; petals obtuse at apex	: <i>G. abutilifolia</i>

**Grewia abutilifolia** Juss. in Ann. Mus. Natl. Hist. Nat 4: 02. 1804: Fl. Brit. India 1: 390. 1874: Matthew, Fl. TN, Carnatic 163. 1983 & Fur. Ill. Fl. TN. Carnatic t. 61. 1988. *G. aspera* Roxb., Fl. Ind. 2: 591. 1832: Fl. Pres. Madras 119. 1915.

Large shrubs, branchlets tomentose. Leaves to 13 x 9 cm. broadly ovate to rounded, scabrous above, densely ferruginous, tomentose below, base truncate to subcordate, margins obscurely lobed at apes; petiole to 2 cm: stipules to 1 cm, lanceolate. Flowers many, white. turns to yellow. peduncles 0.5 cm, stout, tomentose; sepals 1.5 cm, oblong-lanceolate, pubescent; petals 5 mm, tomentose; stamens unequal; torus 1.5 mm; ovary 4 mm, tomentose; style 1 cm: stigma capitate.

*Fl.* April-July

*D i s t.* Occasional in moist deciduous forests

Vanchikulam, *KKS 15657*

**Grewia damine** Gaertn. Fruct. 2. 1791; *Fl. Pres. Madras* 118. 1915; Matthew, *Fl. TN. Carnatic* 166. 1983 & *Fur. III. Fl. Carnatic t. 63.* 1988. *G. salvifolia* Heyne ex Roth, *Nov. Pl. Sp.* 329. 1821; *Fl. Brit. India* 1: 386. 1874 p.p.

Shrubs. branchlets dark gray. young ones pubescent. Leaves 4.5 x 2 cm, ovate, elliptic. apex acute to acuminated, base cordate. margins finely serrate, glabrous above, finely tomentose below, base slightly oblique; petiole 7 mm, pubescent; stipules lanceolate, as long as the petiole. Flowers many, peduncles 3-5, axillary, 1.2 cm; bracts and bracteoles 1 cm, lanceolate: pedicels to 0.5 cm; sepals 7 x 1.5 mm, oblong, pubescent; petals 2 mm. oblong, entire. with a gland at base; stamens indefinite. unequal to 5 mm; torus 2 mm; ovary 4 mm, ovate. pubescent.

*Fl.* July-September

*D i s t.* Occasional in dry low land areas

Churullipetty, *KKS 15836*

**Grewia flavescens** Juss. in *Ann. Mus.-Nat. Hist. Nat.* 4: 91. 1804; *Fl. Pres. Madras* 119. 1915; Matthew, *Fl. TN. Carnatic* 170. 1983 & *Fur. III. Fl. TN. Carnatic t. 65.* 1988. *G. carpinifolia* sensu Mast. in *Fl. Brit. India* 1: 387. 1874, non Juss. 1804.

Shrubs; branchlets pubescent. Leaves 9 x 4 cm, elliptic, stellately pubescent above. tomentose below, margins finely serrate. apex acute, base obtuse. truncate, transverse nerves parallel, somewhat broader above the middle, then abruptly acute; petiole to 0.5 cm; stipules to 1 cm, linear, pubescent. Flowers axillary, peduncles many in the axils, as long as the petiole; bracts ovate, puberulous; sepals 1.3 cm, oblong, acute; petals 1 cm, with a gland at the base; stamens many, to 10 mm: torus to 2 mm; ovary 2 mm, hirsute, style 1.5 cm.

*Fl.* November-March

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS 11585*

**Grewia hirsuta** Vahl. *Symb. Bot.* 1: 34. 1790; Wight, *Icon. t. 76.* 1836; *Fl. Brit. India* 1: 391. 1874; *Fl. Pres. Madras* 119. 1915; Matthew, *Fl. TN. Carnatic* 170. 1983 & *Fur. III. Fl. TN. Carnatic t. 66.* 1988

Undershrubs, branchlets tawny pubescent. Leaves 6 x 2.5 cm, elliptic-lanceolate, finely serrate, obtuse apex oblique. puberulous above, densely tomentose below: petiole to 5 mm, tomentose. Cymes axillary. peduncles 1-3. to 1 cm. tomentose; buds globose. tomentose; bracts

and bracteoles 3 mm, laticolate; sepals 6 mm, oblong, tomentose; petals 2 mm. ovate. pubescent below : staminal filaments pubescent at base.

Fl. Julie-October

D i s t. Rare, in moist deciduous forests

Chinnar, NS 5898; Ichampetty, KKS 15747

**Grewia obtusa** Wall. ex Dunn in Gamble, Fl. Pres. Madras 117. 1915. *G. bracteata* auct. non Heyne ex Roth. 1821; Wight & Arn., Prodr. 76. 1834; Fl. Brit. India 1: 384. 1874 p.p; Matthew, Fl. TN. Carnatic 164. 1983 & Fur. III. Fl. TN. Carnatic t. 62. 1988.

Shrubs, branchlets dark. lenticellate, young ones brown tomentose. Leaves 13 x 5 cm, ovate-elliptic, apex obtuse. base obtuse, secondary nerves arched, glabrous, with hairy domatia in the nerve axils, margins finely serrate: petiole to 1.5 cm; stipules lanceolate, tomentose. Cymes leaf opposed, many flowered. white. golden tomentose; buds oblong, golden tomentose; peduncles to 1 cm; bracts 7 mm, linear; sepals 2 x 0.5 cm, oblong, curved when mature; petals 0.5 cm: torus 3 mm: filaments unequal. to 1.5 cm, white; ovary 4 mm, hirsute, style 1.2 cm; stigma capitate, laciniate.

Fl. April-July

D i s t. Occasional in dry deciduous forests

Alampetty, NS 5887; Mulangampetty, KKS 15673

**Grewia oppositifolia** Buch. – Ham. ex Roxb. Fl. Ind. 2:583.1832; Mast. in Hook. f. Fl. Brit. India 1: 384. 1874. *G. emarginata* Wight & Arn. Prodr.79.1834; Mast. in Hook. f. Fl. Brit. India 1: 384. 1874; Fl. Pres. Madras 117. 1915.

Small trees; branchlets tomentose. Leaves alternate, to 6 x 4.5 cm, ovate-elliptic. obtusely acute, base rounded, finely serrate. scabrous above, spreading tomentose below, basally 3 nerved: petiole 1 cm, pubescent. Cymes axillary or leaf opposed: peduncles 1 or 2, to 3 cm. pubescent: flowers many on the peduncles, white; pedicels 1 cm: bracts 10 x 2 cm lanceolate: sepals 0 x 2 cm. lanceolate. pubescent: petals 6 x 3 cm, lanceolate, glandular at base; filaments to 8 mm; torus to 3 mm, hairy; ovary 3 mm, hairy, style 10 mm. stigma capitate, laciniate. Fruit slightly 4-lobed, 8 mm across, with long hairs.

Fl. & Fr. October - December

Dist. Common in dry deciduous forests

Chinnar, KKS 11626

**Grewia orbiculata** Rottl. in Ges. Naturf. Freunde Berlin Neue Schriften 4: 205. 1803; Fl. Brit. India 1: 386. 1874; Matthew, Fl. TN. Carnatic 171. 1983 & Fur. III. Fl. TN. Carnatic t. 67. 1988. *G. rotundifolia* Juss. in Ann. Mus. Natl. Hist. Nat. 4: 92. 1804; Wight, Ic. t. 45. 1838; Fl. Pres. Madras 118. 1915.

Shrubs: branchlets tomentose. Leaves 5 cm across, orbicular, base cordate. margins minutely serrate, basally, 5-nerved. glabrous above, thinly pubescent below; petiole to 1 cm. stipules to 1 cm, lanceolate. pubescent. Cymes axillary, many in the axils, peduncles to 1.5 cm; pedicels 8

mm; sepals 8 x 2 mm, oblong, pubescent; petals 4 x 2 mm, gland surrounded by hairs; torus elonged to 2 mm; filaments to 1.5 mm; ovary hirsute, style 5 mm, stigma capitate.

*Fl.* February-April

*D i s t.* Occasional in moist deciduous forests

Palapetty, *KKS 15522*

***Grewia tiliifolia*** Vahl, *Symb. Bot.* 1: 35. 1790; Bedd., *Fl. Sylv.* t. 108. 1871; *Fl. Brit. India* 1: 386. 1874, "tiliaefolia", Dunn. in Gamble, *Fl. Pres. Madras* 118. 1915; Matthew, *Fl. TN. Carnatic* 173. 1983 & Fur. III. *Fl. 'T'. Carnatic* t. 70. 1988.

Large shrubs. Leaves 10 cm across, orbicular, apex obtuse, cordate at base, margins crenate, subcoriaceous, glabrous; petiole to 3.5 cm, stipules to 1 cm; lanceolate, with downward ear-like prolongation at the base. Cymes axillary, peduncles many, to 1.5 cm, tomentose; bracts 2.5 mm, pedicels to 1 cm; sepals 8 x 3 mm, oblong, obtuse at apex, pubescent; petals 4 mm, sparsely pubescent; stamens to 5 mm; ovary 2 mm, hirsute, stigma laciniate.

*Fl.* February-May

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 15610*

***Grewia villosa*** Willd. in *Ges. Naturf. Freunde Berlin Neue Schriften* 4: 205. 1803; *Fl. Brit. India* 1: 388. 1874; *Fl. Pres. Madras* 119. 1915; Matthew, *Fl. TN. Carnatic* 174. 1983 & Fur. III. *Fl. TN. Carnatic* t. 71. 1988.

Large shrubs. branchlets villous. Leaves 8 x 9.5 cm. orbicular, transverse. nervules concentric, margins serrate. villosus, membranous, apex rounded. base cordate. pubescent: petiole to 2.5 cm. Cymes axillary, 1-3, peduncles to 1 cm, stout, stipules 8 mm, ovate, pubescent, pedicels to 1 cm. Fruit 1.5 cm across, light red, entire or somewhat 4-lobed. rind fibrous.

*Fr.* November-December

*D i s t.* Occasional in dry deciduous forests

Thayanankkudy, *KKS 11884*

#### TRIUMFETTA L.

***Triumfetta pilosa*** Roth, *Nov. Pl. Sp.* 223. 1821; *Fl. Brit. India* 1: 394. 1874; *Fl. Pres. Madras* 120. 1915; Matthew, *Fl. TN. Carnatic* 176. 1983 & III. *Fl. TN. Carnatic* t. 87. 1982.

Subshrubs; branchlets tomentose. Leaves 12 x 4.5 cm, ovate-elliptic, apex acute, base obtuse, puberulus above, densely white, tomentose below, crenate, basally 3-nerved, to slightly cordate; petiole to 2 cm, stipule lanceolate, 6 mm, pubescent. Cymes axillary, leaf opposed. ca. 5-flowered. yellow; bracts and bracteoles linear; sepals 9 mm, oblong, acute, long hairy; petals 8 mm, obovate; stamens 10, free, unequal, 7 mm; torus 1 mm, disc cupular, fimbriate; ovary 0.5 mm, pubescent. style 2 mm, stigma capitate. Capsule 2.5 cm across, including recurved bristles. pubescent at base.

*Fl & Fr.* November-January

D i s t. Common in moist deciduous forests

Anakurnu, *KKS 15926*; Vanchikulam, *15888*

## ELAEOCARPACEAE

### ELAEOCARPUS L.

- |                                      |                          |
|--------------------------------------|--------------------------|
| 1. Anthers awned; leaf eglandular    | : 2                      |
| 1. Anthers not awned; leaf glandular | : <b>E. glandulosus</b>  |
| 2. Lamina recurved, oblong, elliptic | : <b>E. recurvatus</b>   |
| 2. Lamina flat, obovate              | : <b>E. tuberculatus</b> |

**Elaeocarpus glandulosus** Wall. ex Merr., *J. Arnold Arbor.* 32: 194. 1951; *Fl. India* 3: 539. 1993. *E. oblongus* sensu Wight,  *Ic. t.* 48. 1838; *Fl. Brit. India* 1: 403. 1874; *Fl. Pres. Madras* 124. 1915, non Gaertn. 1788.

Large trees. Leaves to 10 x 6 cm, elliptic-oblong, coriaceous, glandular beneath. apes obtusely-acuminate; petiole to 4 cm. Racemes axillary, to 10 cm; flowers white; pedicels to 3 mm, pubescent; sepals 4 mm, ovate, acute, pubescent; petals 3 mm, fimbriate: filaments 0.5 mm; anthers 1.5 mm; ovary 2 mm, hirsute, ovate, style 1 mm.

*Fl. & Fr.* March-July

D i s t. Rare. in shola forests

Olikkudy, *KKS 17281*

**Elaeocarpus recurvatus** Corner in *Gard. Bull. Straits Settl.* 10: 319. 325. 1039; *Fl. India* 3: 549. 1993. *E. ferrugineus* (Wight) Bedd., *Fl. Sylv. t.* 112. 1871, nom. illeg.; *Fl. Brit. India* 1: 406. 1874; *Fl. Pres. Madras* 124. 1915. *Monocera ferruginea* Wight,  *Ic. t.* 1839. non Jack 1930.

Large trees. Leaves to 12 x 8 cm, obovate. elliptic, bent along the half so it is boat shaped, apex acute, base cuneate. coriaceous, tomentose below. serrate: petiole 2 cm. thick, tomentose. Racemes axillary, tomentose, to 7 cm; pedicels to 1 cm: sepals 1 cm, lanceolate, pubescent; petals 1.2 cm, fimbriate, obovate; filaments 2 mm; anthers 2 mm, oblong, hirsute, awn 1 mm; ovary hirsute, ovoid, 4 mm; style 5 mm.

*Fl.* April-August

D i s t. Common in shola forests; endemic to Peninsular India.

Pothumala, *KKS 17388*

**Elaeocarpus tuberculatus** Roxb., *Fl. India* 2: 594. 1832; Bedd., *Fl. Sylv. t.* 113. 1871; *Fl. Brit. India* 1: 404. 1874; *Fl. Pres. Madras* 124. 1915; *Fl. India* 3: 559. 1993.

Large trees, branchlets with prominent leaf scars. Leaves to 15 x 8 cm, obovate, base obtuse, coriaceous, glabrous above, ferruginous tomentose below. margins serrate; petiole 1.5 cm, stout. Racemes axillary and terminal, to 15 cm, ferruginous tomentose; pedicels to 1 cm; bracts 0.7 mm, ovate, serrate, bud 1 cm long, ovoid: sepals 1.2 cm, ovate, tomentose; petals to 1.2 cm,

lacinate, ferruginous hirsute outside: filaments 2 mm; anthers 3 mm, oblong, pubescent, awns 3 mm; ovary 4 mm, hirsute: style 2 mm; stigma capitate.

*Fl.* February-June

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17252*

## LINACEAE

### LINUM L.

**Linum mysorens** Heyne ex Benth. in Edward's Bot. Reg. 16: **sub.** t. 1326. 1830; Fl. Brit. India 1: 411. 1874, "mysorens"; Fyson, Fl. South Indian Hill St. 2: t. 44. 1932; Fl. Pres. Madras 125. 1915; Matthew, Fl. TN. Carnatic 181. **1983.**

Shrubs, branched. Leaves alternate, to 8 x 2 mm, elliptic-oblong, glabrous, sessile. Flowers axillary, solitary, sometimes in corymbs, yellow; sepals to 2 mm, elliptic-lanceolate; petals 5, to 5 mm, obovate; stamens 5, connate at the base; glands adnate to the staminal tube outside; ovary 5-celled, globose, glabrous, 2-ovuled each; styles 5, slightly connate. Capsule 5 mm across, globose, apiculate; seeds 10.

*Fl. & Fr.* February-March

*D i s t.* Common in grasslands

Olikkudy, *KKS 17217*

## ERYTHROXYLACEAE

### ERYTHROXYLUM P. Browne

**Erythroxylum monogynum** Roxb., Pl. Cor. t. 88. 1798; Fl. Brit. India 1: 414. 1874; Fl. Pres. Madras 127. 1915; Matthew, Fl. TN. Carnatic 182. 1983 & Ill. Fl. TN. Carnatic t. 91. 1982. **E. indicum** (DC.) Bedd., Fl. Sylv. t. 81. 1871. **Sethia indica** DC., Prodr. 1: 576. 1824.

Small trees. Leaves to 6 x 3 cm, obovate, obtuse, base cuneate, glaucous beneath; petiole to 1 cm, stipules intrapetiolar, 2.5 mm, ovate. Flowers axillary, white; pedicels 8 mm; sepals 1.5 mm, ovate, basally connate; petals 5 mm, oblong, with a ligule at the base, to 2 mm; stamens 10, monadelphous at base, unequal, 1.5-1.8 mm, disc cupular, 2 mm; ovary 2 mm, ellipsoid, 1-celled, 1 ovuled; style 3 parted at apex, 3 mm; stigma globose.

*Fl* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5910; KKS 11623, Champakkad, 11634*

## MALPIGHIACEAE

### HIPTAGE Caertn.

**Hiptage benghalensis** (L.) Kurz, J. Asiat. Soc. Bengal 43: 136. 1874; Jacob's in Steenis, Fl. Males I, 5: 132. 1955; Matthew, Fl. TN. Carnatic 183. 1983 & Ill. Fl. TN. *Cartlatic* t. 92. 1982;

Harriman in Rev. Handb. Fl. Ceylon 7: 395. 1991. *Banisteria benghalensis* L., Sp. Pl. 427. 1753. *Hiptage madablota* Gaertn.. Fruct. 2: 109, t. 116. 1791; Fl. Pres. Madras 128. 1915.

Climbing shrubs or small trees. branchlets terete, pubescent. Leaves opposite, 5-14 x 3-7 cm, elliptic-ovate, acuminate. coriaceous, glaucous; petiole 0.5 cm, 2 glandular at the base of lamina; thickly coriaceous. Racemes axillary and terminal, pubescent; peduncles bracteate, jointed with two bracteate pedicels: sepals 5, 7 x 3 mm, oblong, lower sepals hairy, with one calycine gland; petals 5, 2 x 1.5 cm, white, clawed, unequal, laciniate; stamens 10, united at base, one longer, disc prominent: ovary 3-lobed, style 1-2, circinate at first. Samara 2-3 winged, unequal.

*Fl. & Fr.* February-May

*D i s t.* Common along river banks

Anakunnu, *KKS 11998*; Alampetty, *11966*

## ZYGOPHYLLACEAE

### TRIBULUS L.

*Tribulus terrestris* L., Sp. Pl. 387. 1753; Fl. Brit. India 1: 423. 1874; Fl. Pres. Madras 130. 1915; Matthew, Fl. TN. Carnatic 185. 1983 & Ill. Fl. TN. Carnatic t. 93. 1982. *T. lanuginosus* L., Sp. Pl. 387. 1753; Wight, Ic. t.98. 1838.

Prostrate silky herbs. Leaves opposite, imparipinnate: leaflets opposite, 4-5 pairs, 1.5 x 0.7 cm, oblong; petiole to 7 mm, petiolule 1 mm, stipules 2-3 in cluster, persistent. Flowers axillary, 1 or 2, golden yellow 2 cm across: pedicels to 3 cm,; sepals 5, 5 mm, linear: petals 5, 7 x 4 mm; stamens 10, filaments dilated at base, disc 10-lobed; ovary 5-lobed, hirsute with bulbous hairs; stigmas 5. Fruit 1 cm across, globose, 5-angled. cocci 5, woody, each with a pair of divaricate spines.

*Fl. & Fr.* October-December

*D i s t.* Common in disturbed low level forest areas

Chinnar, *KKS 11532*

## OXALIDACEAE

1. Leaves trifoliate

: **Oxalis**

1. Leaves pinnate

: **Biophytum**

### BIOPHYTUM A. DC.

1. Stem unbranched

: **B. candolleianum**

2. Stem branched

: **B. intermedium**

*Biophytum candolleianum* Wight. Ill. 1: 161. t. 62. 1840: *B. sensitivum* var. *candolleiana* Edgw. & Hook. f., in Hook. f. Fl. Brit. India 1: 437. 1874; Fl. Pres. Madras 133. 1918.

Herbs, stem pubescent. Leaves crowded at apex, paripinnate, to 4 cm, rachis ending in a bristle; leaflets opposite, 10-13 pairs. to 5 x 3 mm, oblong, pubescent, midvein oblique, stipules



linear. Umbels terminal; peduncles to 7 cm, pubescent; flowers yellow, 6 mm across. Capsule enclosed in calyx, 3 mm, lanceolate; seeds rugose.

*Fl. & Fr.* March-May

*D i s t.* Common in dry deciduous forests

*KKS 15584*

**Biophytum intermedium** Wight, III. 1: 162. 1840; *Fl. Brit. India* 1: 438. 1874; *Fl. Madras* 133. 1918.

Large prostrate herbs, stem pubescent. Leaves paripinnate, to 7 cm, rachis ending in a bristle, pubescent; leaflets opposite, 13-15 pairs, 1 x 0.4 cm, oblong-obovate, aristate, strigose. Umbels terminal; flowers 4 mm across, yellow. Capsule oblong.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in shola forests

Olikkudy, *KKS 17260*

### OXALIS L.

**Oxalis corniculata** L., *Sp. Pl.* 435. 1753; *Wight, Ic. t.* 18. 1838; *Fl. Brit. India* 1: 436. 1874; *Fl. Pres. Madras* 132. 1915.

Diffuse herbs, branches rooting at lower nodes. Leaves digitately 3-foliolate, 1.5 x 1.7 cm, obcordate, apex emarginate, base cuneate, pilose; petiole to 2.5 cm. Pseudo-umbels axillary; flowers 8 mm across. Capsule to 1.5 cm long, oblong.

*Fl. & Fr.* Throughout the year

*D i s t.* Very common in open areas

Churullipetty, *KKS 15631*

## BALSAMINACEAE

### IMPATIENS L.

- |                                                       |                         |
|-------------------------------------------------------|-------------------------|
| 1. Epiphytic herbs                                    | : 1 <b>parasitica</b>   |
| 1. Terrestrial herbs or shrubs                        | : 2                     |
| 2. Leaves opposite or whorled                         | : 3                     |
| 2. Leaves alternate                                   | : 5                     |
| 3. Leaves whorled                                     | : 1 <b>verticillata</b> |
| 3. Leaves opposite                                    | : 4                     |
| 4. Flowers sessile, axillary, solitary or in clusters | : 1 <b>tomentosa</b>    |
| 4. Flowers in peduncled umbels                        | : 1 <b>goughii</b>      |
| 5. Flowers without peduncles, solitary or clustered   | : 6                     |
| 5. Flower with peduncles. umbels or racemes           | : 7                     |
| 6. Fruit densely tomentose; flowers pink, herbs       | : 1 <b>trichocarpa</b>  |
| 6. Fruit sparsely pubescent; flowers white, shrubs    | : 1 <b>hensloviana</b>  |
| 7. Flowers in umbels or sub-umbels                    | : 1 <b>fruticosa</b>    |
| 7. Flowers in racemes                                 | : 8                     |
| 8. Leaves long petiolate. plant pubescent             | : 1 <b>maculata</b>     |
| 8. Leaves subsessile, plant glabrous                  | : 1 <b>tangachee</b>    |

linear. Umbels terminal; peduncles to 7 cm, pubescent; flowers yellow, 6 mm across. Capsule enclosed in calyx, 3 mm, lanceolate; seeds rugose.

*FZ & Fr.* March-May

D i s t. Common in dry deciduous forests

*KKS 15584*

**Biophytum intermedium** Wight, Ill. 1: 162. 1840; Fl. Brit. India 1: 438. 1874; Fl. Madras 133. 1918.

Large prostrate herbs, stem pubescent. Leaves paripinnate, to 7 cm, rachis ending in a bristle, pubescent; leaflets opposite, 13-15 pairs, 1 x 0.4 cm, oblong-obovate, aristate, strigose. Umbels terminal; flowers 4 mm across, yellow. Capsule oblong.

*FZ & Fr.* Throughout the year

D i s t. Common in shola forests

Olikkudy, *KKS 17260*

#### OXALIS L.

**Oxalis corniculata** L., Sp. Pl. 435. 1753; Wight, Ic. t. 18. 1838; Fl. Brit. India 1: 436. 1874; Fl. Pres. Madras 132. 1915.

Diffuse herbs, branches rooting at lower nodes. Leaves digitately 3-foliolate, 1.5 x 1.7 cm, obcordate, apex emarginate, base cuneate, pilose; petiole to 2.5 cm. Pseudo-umbels axillary; flowers 8 mm across. Capsule to 1.5 cm long, oblong.

*FZ & Fr.* Throughout the year

D i s t. Very common in open areas

Churullipetty, *KKS 15631*

/

### BALSAMINACEAE

#### IMPATIENS L.

1. Epiphytic herbs	: 1. parasitica
1. Terrestrial herbs or shrubs	: 2
2. Leaves opposite or whorled	: 3
2. Leaves alternate	: 5
3. Leaves whorled	: 1 <b>verticillata</b>
3. Leaves opposite	: 4
4. Flowers sessile, axillary, solitary or in clusters	: 1. tomentosa
4. Flowers in peduncled umbels	: 1. <b>goughii</b>
5. Flowers without peduncles, solitary or clustered	: 6
5. Flower with peduncles, umbels or racemes	: 7
6. Fruit densely tomentose; flowers pink, herbs	: 1. trichocarpa
6. Fruit sparsely pubescent; flowers white, shrubs	: 1. hensloviana
7. Flowers in umbels or sub-umbels	: 1. <b>fruticosa</b>
7. Flowers in racemes	: 8
8. Leaves long petiolate. plant pubescent	: 1 maculata
8. Leaves subsessile, plant glabrous	: 1. tangachee

**Impatiens fruticosa** Lescli. ex DC., Prodr. 1: 687. 1824; Fl. Brit. India 1: 459. 1874; Fl. Pres. Madras 143. 1915; Matthew, Fl. TN. Carnatic 197. 1983 & Ill. Fl. TN. Carnatic t. 100. 1982.

Subshrubs. Leaves to 9 x 4 cm, ovate-elliptic, acute at apex, cuneate at base, glabrous or glabrescent, serrate, stipular glands at the base of the lamina; petiole to 3.5 cm. Sub-umbel axillary; peduncle to 5 cm; flowers white, 2.5 cm across; bracts slender, to 5 mm; sepals ovate, cuspidate. Fruit 1.5 cm, ellipsoid.

*Fl. & Fr.* September-November

*D i s t.* Occasional near water courses in shola forests; endemic to Peninsular India.

Karivepinshola, *KKS 17444*

**Impatiens goughii** Wight. Ill. 1: 160. 1840 & Ic. t. 1603. 1844; Fl. Brit. India 1: 452. 1874; Fl. Pres. Madras 144. 1915. *I. anamallayensis* Bedd., Ic. t. 150. 1868-1874.

Branched slender herbs. Leaves 6 x 3 cm, elliptic, acute at apex, base cuneate, membranous, puberulus, serrate; petiole to 3 cm. Umbels axillary, peduncle to 7 cm, glabrous, slender; bracts linear; flowers pink, 8 mm across. lip 4 mm, spur 2 mm; petals 6 mm, obovate to orbicular.

*Fl.* September-November

*D i s t.* Occasional near water courses in shola forests: endemic to Peninsular India.

Karivepinshola, *KKS 17443*

**Impatiens hensloviana** Arn., Comp. Bot. Mag. 1: 322. 1836; Brit. India 1: 458. 1874; Fl. Pres. Madras 143. 1915. *I. albida* Wight, Madras J. 5: 7. 1837 & Ic. t. 743. 1844.

Shrubs, stem with prominent leafscars. Leaves to 9 x 3 cm, lanceolate, acuminate, base cuneate, serrate, with stipitate glands at the base of the lamina and petiole, pubescent: petiole to 3 cm, ebracteate. Flowers solitary, white, pedicels to 9 cm; lip to 2 cm, pubescent; spur to 1.5 cm, laterals ovate, mucronate; petals 3.5 cm, white. Capsule ellipsoid, puberulus: seeds papillose.

*Fl. & Fr.* September-November

*D i s t.* Occasional near water courses in shola forests: endemic to Peninsular India.

Olikudy, *KKS 17490*

**Impatiens maculata** Wight, Madras J. 5: 12. 1837; Brit. India 1: 465. 1874; Fl. Pres. Madras 145. 1915.

Fleshy herbs; stem with brown spots. Leaves 9 x 3.5 cm, ovate, acuminate, base obtuse, pubescent, serrate; petiole to 2 cm, pubescent. Racemes axillary, to 8 cm, peduncles to 10 cm; bracts 5 mm, ovate, bracteolate; flowers 3 cm across, pink; lip to 2 cm; spur to 2 cm; sepals 5 mm, ovate. Fruit ovoid: seeds papillate.

*Fl. & Fr.* September-November

*D i s t.* Occasional near water courses in shola forests; endemic to Peninsular India.

Olikudy, *KKS 17491*

*Impatiens parasitica* Bedd., Ic. t. 140. 1868-1874; Fl. Pres. Madras 139. 1915. *Impatiens jerdoniae* var. *parasitica* (Bedd.) Hook. f., Fl. Brit. India 1:460. 1874.

Epiphytic herbs, stem fleshy with prominent leafscars, wrinkled. Leaves clustered at apex, to 4 x 2.5 cm, ovate crenate, acute at apex, rounded at the base; petiole to 2 cm. Cymes 2-4-flowered, axillary; flowers 2 cm long, scarlet; spur striate, broad, obtuse; sepals green, acute; wings 2-lobed, lower lobe larger, flat, enter into the spur of the lip, red; standard green.

*Fl.* September-October

*D i s t.* Common in shola forests; endemic to Peninsular India.

Pothumala, *KKS 17345*

*Impatiens tangachee* Bedd. in Madras J. Lit. Sci. ser. 2. 20: 66. 1859; Fl. Brit. India 1:467. 1875; Fl. Pres. Madras 145. 1915.

Shrubs. Leaves to 11 x 2.5 cm, elliptic, acute, base cuneate, glabrous, serrate with prolonged bristles, green above and pale beneath, subsessile. Racemes axillary; peduncle to 12 cm; bracts 5 mm, ovate; flowers pink, irregular; sepals 3, lip 1 cm, saccate, spurred, to 2.5 cm, lateral 4 mm, oblong, acute; petals obovate, orbicular, 1 and 2 cm long; filaments 1 mm, free; ovary ovoid, 4 mm, stigma sessile.

*Fl.* December-February

*D i s t.* Occasional in wet rocky areas in shola forests; endemic to Peninsular India.

Olippara, *KKS 17238*

*Impatiens tomentosa* Heyne ex Wight & Arn., Prodr. 139. 1834; Wight, Ic. t. 749. 1844; Fl. Brit. India 1:449. 1874; Fl. Pres. Madras 141. 1915.

Herbs, mostly solitary, stem reddish, tomentose. Leaves 6 x 1.5 cm, oblong or lanceolate, acute at apex, truncate to cordate at base, margin distantly serrate, pubescent. Flower axillary, solitary, white, 1 cm across; pedicels to 1.5 cm, tomentose; sepals pubescent; lip 7 mm, saccate; spur to 7 mm, curved, pubescent. Capsule to 8 mm, ovoid; seeds glabrous, black, shining.

*Fl. & Fr.* March-May

*D i s t.* Common in wet rocky areas at about 1500 m; endemic to Peninsular India.

Iruttalakkudy, *KKS 15625*

*Impatiens trichocarpa* Hook.f. in Hooker's Icon Pl. t. 2914. 1913; Fl. Pres. Madras 142. 1915.

Many branched herbs. Leaves alternate, to 4 x 1 cm, elliptic, young ones pubescent, apex acute, base cuneate. margins serrate; petiole to 1 cm. with stalked glands, reddish. Flowers one to many in the leaf axils; pedicels pubescent, 2 cm; flowers pink, to 2 cm across, lip spurred, spur to 2 cm, pubescent, lip saccate, pubescent. Capsule tomentose, ovoid, 8 mm; seeds many, hirtellate.

*FZ & Fr.* January-March

*D i s t.* Rare in dry rocky crevices.

Palapetty, *KKS 11948*

**Impatiens verticillata** Wight, Madras J. 5: 15. 1837; Fl. Brit. India 1: 452. 1864; Fl. Pres. Madras 144. 1915.

Herbs, fleshy. Leaves 8 x 1.5 cm, elliptic, acute at apex, base cuneate; dentate, glabrous; petiole to 0.8 cm, stipules 2, 5 mm, linear. Cymes axillary, peduncles to 3 cm; flowers red, irregular: lip to 1 cm, saccate, spur to 4 cm, wings 2, 1 cm, falcate; anterior petal 1.5 cm, obovate. wings 2, 2-lobed, 1.5 cm, obovate, clawed; anthers sessile; ovary 2 mm, 5-celled.

Fl. March-May

D i s t. Occasional on wet rocks along streams; endemic to Peninsular India.

Karimutty, KKS 15566

## RUTACEAE

- |                                                                            |                        |
|----------------------------------------------------------------------------|------------------------|
| 1. Stamens 5, prickly stragglers                                           | : <b>Toddalia</b>      |
| 1. Stamens more than 5, shrubs or trees                                    | : 2                    |
| 2. Stamens 20 or more                                                      | : <b>Citrus</b>        |
| 2. Stamens 8 or 10                                                         | : 3                    |
| 3. Stamens 10                                                              | : 4                    |
| 3. Stamens 8                                                               | : 6                    |
| 4. Armed trees; leaves 3-foliolate; petiole winged                         | : <b>Pleiospermium</b> |
| 4. Unarmed trees, leaves pinnately compound; petiole not winged            | : 5                    |
| 5. Petals clawed, less than 5 mm; leaflets less than or equal to 2 cm long | : <b>Chloroxylon</b>   |
| 5. Petals not clawed, more than 15 mm, leaflets more than 6 cm long        | : <b>Murraya</b>       |
| 6. Armed trees, petals glabrous                                            | : <b>Atalantia</b>     |
| 6. Unarmed trees, petals pubescent                                         | : 7                    |
| 7. Leaves simple                                                           | : <b>Acronychia</b>    |
| 7. Leaves compound                                                         | : <b>Clausena</b>      |

## ACRONYCHIA J. R. & G. Forst.

**Acronychia pedunculata** (L.) Miq., Fl. Ind. Bot. Suppl. 532. 1861. *Jambolifera pedunculata* L., Sp. Pl. 349. 1753. *Acronychia laurifolia* Blume, Cat. Gew. Buitenz. 63. 1823 & Bijdr. 245. 1825; Fl. Brit. India 1: 498. 1875; Fl. Pres. Madras 152. 1915.

Medium trees. Leaves subopposite. 8-14 x 7-9 cm, elliptic, ovate, obtusely acuminate, glabrous, nerves prominent on both sides; petiole to 3 cm long. Corymbs axillary and terminal. peduncles 10-12 cm; flowers polygamous; calyx 4-lobed: petals 5 mm long, with white hairs inside: anthers alternately long and short; ovary 4-celled, ovules 2 in each cell, stigma 4 grooved, Capsule 1 cm across, globose.

Fl. & Fr. July-November

D i s t. Common in semi-evergreen forests and along shola margins

Samplampetty, KKS 15892

## ATALANTIA Corr. nom. cons.

- |                                                      |                         |
|------------------------------------------------------|-------------------------|
| 1. Inflorescence racemose, more than 3 cm            | : <b>A. racemosa</b>    |
| 1. Inflorescence cymose or corymbs. less than 2.5 cm | : <b>A. rnonophylla</b> |

**Atalantia monophylla** (Roxb.) DC., Prodr. 1: 535. 1824; Fl. Brit. India 1: 511. 1875; Fl. Pres. Madras 159. 1915; Matthew. Fl. TN. Carnatic 200. 1983 & Fur. Ill. Fl. TN. Carnatic t. 76. 1988. **Limonia monophylla** Roxb., Fl. Cor. t. 1: 60. t. 83. 1795, non L., 1771.

Small trees, spines straight, axillary, 1.5 cm. Leaves to 6 x 3 cm long, elliptic, lanceolate, apex emarginate. Corymbs axillary, to 1.5 cm, pedicels 1 cm long, pubescent; flowers white; calyx 4-lobed; petals 4, 9 x 4 mm; ovary 4-celled. Berry 3 cm across, globose.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5914; KKS 11633*

**Atalantia racemosa** Wight & Arn., Prodr. 91. 1834; Fl. Brit. India 1: 512. 1875; Fl. Pres. Madras 159. 1915; Matthew, Fl. TN. Carnatic 201. 1983 & Ill. Fl. TN. Carnatic t. 102. 1982. **Sclerostylis parviflora** Wight, Ic. t. 71. 1838.

Small trees. Leaves 6.5-12 x 3-7 cm, ovate-lanceolate, crenate, apex emarginate, coriaceous: petiole to 1 cm. Racemes axillary, to 6 cm; pedicels 0.5 cm; flowers white; calyx lobes 4, 2 mm; petals 4, 6 x 3 cm; ovary 2-celled, ovules 2 per cell, style 2 mm.

*Fl.* February-May

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 11971; Thayanankkudy, 11880*

#### CHLOROXYLON DC.

**Chloroxylon swietenia** DC., Prodr. 1: 625. 1824; Wight. & Arn., Prodr. Fl. Ind. 123. 1834; Bedd., Fl. Sylv. t. 11. 1869; Fl. Brit. India 1: 569. 1875; Fl. Pres. Madras 152. 1915; Matthew. Fl. TN. Carnatic 201. 1983 & Ill. Fl. TN. Carnatic tt. 103 & 964d. 1982.

Medium sized trees, bark fissured, dark brown; branchlets and rachis pubescent. Leaves pinnate; leaflets alternate, 2 x 0.7 cm, oblong, oblique, mid-vein of leaflets nearer to the lower margin. Panicles axillary or terminal; flowers white; calyx 5-lobed, 1-1.5 mm; petals 5, 4 x 2 mm, clawed. gland dotted on the outer surface, disc 10-lobed; stamens 10, inserted between the lobes; ovary 3-celled, 3-lobed, ovules 4-8 per cell. Capsules 2.5 x 1 cm, oblong, loculicidal; seeds winged apically.

*Fl. & Fr.* February-May

*D i s t.* Common along the slopes in dry deciduous forests

Gellimala, *KKS 11984*

#### CITRUS L.

**Citrus limon** (L.) Burm. f., Fl. Ind. 173. 1768. **C. medica** L. var. **limon** L., Sp. Pl. 782. 1753. **C. medica** L. var. **limonum** (Risso) Hook. f., Fl. Brit. India 1: 515. 1875; Fl. Pres. Madras 161. 1915. **C. limonum** Risso in Ann. Mus. Natl. Hist. Nat. 20: 201. 1813.

Small armed trees. Leaves 4-6 x 2-3 cm, ovate-lanceolate. apex obtuse, coriaceous, dentate; petiole 1 cm. Flowers axillary, in clusters, cymes or solitary, white; calyx cupular. 3-5-fid; petals 4-8, 7 x 2.5 mm; stamens 20 or more, filaments unequal. variously fused; ovary many

celled, 4-8 ovules in each cell, style 1 mm, stigma capitate. Berry globose, fleshy, rind leathery and the juice is acrid.

*Fl. & Fr.* February May

*D i s t.* Cultivated earlier, now runs wild

Ichampetty, *KKS 15576*

#### CLAUSENA Burm. f

1. Leaflets serrate, acuminate; flowers 4-merous : **C. dentata**

1. Leaflets entire, acute; flowers 5-merous : **C. indica**

**Clausena dentata** (Willd.) M. Roem., Syn. Hesper. 1: 44. 1846; Matthew, Fl. TN. Carnatic 203. 1983 & Ill. Fl. TN. Carnatic t. 105. 1982. **C. willdenowii** Wight & Arn., Prodr. 96. 1834; Wight, Ic. t. 14. 1838; Fl. Brit. India 1: 506. 1875; Fl. Pres. Madras 155. 1915.

Medium trees; young branchlets pubescent, Leaves odd pinnate, to 15 cm; leaflets opposite, 5 x 2.5 cm, ovate, elliptic, acuminate, base oblique, dentate. Racemes axillary, to 9 cm; pedicels 0.5 cm; bracts 2 mm; flowers white, 4-merous; calyx lobes 1 mm, ovate, pubescent; petals 4 x 2 mm, concave; stamens 8, free, filaments dialated below, unequal; anthers 2 mm; ovary 4 partite, style apical, furrowed, stigma 4-angled. Berry 8 mm across, globose.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15518*

**Clausena indica** (Dalz.) Oliver in J. Linn. Soc. Bot. 5: 36. 1861; Fl. Brit. India 1: 505. 1875; Fl. Pres. Madras 155. 1915. **Piptostylis indica** Dalz. in Hook.'s J. Bot. Kew Gard. Misc. 3: 33. t. 2. 1851.

Small trees. Leaves odd pinnate, leaflets 7-11, to 8 x 5 cm, elliptic, acute or obtuse, oblique at base, reticulations obscure. Panicles to 10 cm across, terminal or subterminal; flowers sessile, 3 mm across, white; sepals ovate, acute, ciliate; petals ovate. Berry 8 mm across, globose, dark blue.

*Fl. & Fr.* July-August

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17331*

#### GLYCOSMIS Corr. Serr.

**Glycosmis mauritiana** (Lam.) Tanaka in Bot. Not. 1928: 159. 1928; Matthew, Fl. TN. Carnatic 205. 1983 & Ill. Fl. TN. Carnatic t. 107. 1982. **Limonia pentaphylla** auct. non Retz. 1789; Roxb., Pl. Cor. t. 84. 1798. **Glycosmis pentaphylla** sensu Narayanaswami in Rec, Bot, Surv. India 14: 12. 1941 excl. syn. **Limonia pentaphylla** Retz.

Shrubs. Leaves imparipinnate, to 15 cm; leaflets 3-5, subopposite, to 10 x 4 cm. ovate-elliptic, apex obtuse, base cuneate, coriaceous, nerves 5-8 pairs; petiolule to 0.5 cm. Racemes axillary, to 3 cm, pubescent; flowers white; sepals imbricate, 3 mm, obovate, pubescent; petals

5 x 4 mm, obovate, filaments 2.5 and 4 mm, anthers 1 mm, elliptic, glandular at apex; ovary 2 mm, clavoid. Berry 1 cm across, subglobose; seed 1.

*Fl. & Fr.* November-February

*D i s t.* Common along the sides of ravines

Chinnar, *KKS 11507, 11849*

#### **MURRAYA Koenig ex L. *nom. cons.***

**Murraya paniculata** (L.) Jack. in Malayan Misc. 1: 31. 1820; Matthew, *Fl. TN. Carnatic* 210. 1983 & Ill. *Fl. TN. Carnatic* t. 109. 1982. *Chalcas paniculata* L., *Mant. Pl.* 563. 1767. *Murraya exotica* L., *Mant. Pl.* 563. 1771; Wight,  *Ic. t.* 96. 1838; *Fl. Brit. India* 1: 502. 1875; *Fl. Pres. Madras* 155. 1915.

Small trees, bark pale white. Leaves imparipinnate, 18 cm; leaflets 5-7, alternate, to 7.5 x 3.5 cm, elliptic-ovate, acuminate at apex, glabrous. Flowers axillary, few, white; sepals 1 mm; petals 20 x 6 mm, elliptic to ovate-elliptic, membranous; stamens 10. free, alternately short and long, 6 and 8 mm; anther tips emarginate; ovary 3 mm, stigma 2-lobed. Fruit 15 x 7 mm, ovoid, red.

*Fl. & Fr.* February-May

*D i s t.* Common along ravines and gully sides

Alampetty, *KKS 11972*

#### **PLEIOSPERMIUM Swingle**

**Pleiospermium alatum** (Wall. ex Wight & Arn.) Swingle in *J. Wash. Acad. Sci.* 6: 427. 1916; Matthew, *Fl. TN. Carnatic* 212. 1983 & Ill. *Fl. TN. Carnatic* t. 112. 1982. *Limonia alata* Wall. ex Wight & Arn., *Prodr.* 92. 1834; *Fl. Brit. India* 1: 508. 1875; *Fl. Pres. Madras* 157. 1915.

Armed medium sized trees. Leaves trifoliolate; leaflets to 6.5 x 4 cm, obovate, apex slightly emarginate, margins more or less entire. Panicles axillary or terminal; flowers white; calyx tube campanulate, lobes 2.5 mm, pubescent, glandular; petals 4-5 x 2 mm, oblong; stamens 10, 4.5 mm long; ovary 5-celled. 2 ovuled in each cell, stigma capitate. Berry 2 cm across, globose.

*Fl. & Fr.* February-May

*D i s t.* Rare on the dry plains

Chinnar, *KKS 15614*

#### **TODDALIA Juss. *nom. cum.***

**Toddalia asiatica** (L.) Lam. var. **gracilis** Gamble, *Fl. Pres. Madras* 151. 1915; Matthew, *Fl. TN. Carnatic* 214. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 82. 1988.

Stragglers, stem and petiole with recurved prickles. Leaves trifoliolate, to 8 cm long; leaflets 5 x 2 cm, elliptic, acuminate, serrate. membranous, cuneate, sessile. Panicles or racemes axillary and terminal; flowers unisexual, 5-merous. white; male flowers 4 mm across; sepals 1 mm; petals 3 x 1.5 mm, glandular; stamens 5. 3 mm; pistillode present; female flowers - ovary 4 or 5-celled, ovules 2 per cell. stigma capitate. Berry distinctly 4-lobed, orange red.



*Fl. & Fr.* December-February

*D i s t.* Common in scrubjungles and denuded forest areas

Alampetty, *KKS 11798*

## SIMAROUBACEAE

### *AILANTHUS* Desf. *nom. cons.*

*Ailanthus excelsa* Roxb., *Pl. Cor.* t. 23. 1795; Wight, *Ill.* 1: t. 67. 1840; *Fl. Brit. India* 1: 518. 1875; *Fl. Pres. Madras* 163. 1915; Matthew. *Fl. TN. Carnatic* 217. 1983 & *Ill. Fl. TN. Carnatic* t. 115. 1982.

Medium trees. Leaves pari or imparipinnate, to 1 m long; leaflets alternate to subopposite, 8-14 pairs, 15 x 8 cm, ovate, lanceolate, acute, base unequal, truncate, widely dentate along the lower half, densely tomentose on the lower side, thinly on the upper side; petiole to 3 cm. Panicles subterminal; flowers polygamous, pedicels 0.8 cm; sepals 5, 1 mm, ovate, pubescent: petals 5; stamens 10, inserted at the base of the 10-lobed disc, filaments 1 mm; anthers oblong, 2 mm.

*Fl.* December-April

*D i s t.* Planted in the plains

Chinnar, *KKS 11838*

## OCHNACEAE

### OCHNA L.

*Ochna obtusata* DC. in *Ann., Mus. Natl. Hist. Nat.* 17: 411. t. 11. 1811; Matthew, *Fl. TN. Carnatic* 221. 1983 & *Ill. Fl. TN. Carnatic* t. 117. 1982. *O. squarrosa* auct. non L. 1753; Wight. *Ill.* 1: t. 69. 1840; *Fl. Brit. India* 1: 523. 1875; *Fl. Pres. Madras* 165. 1915.

Small deciduous trees, bark rough: branchlets with more or less concentric layers of leafscars. Leaves 5-12 x 2.5-4 cm, lanceolate, crenate, subcoriaceous, glabrous, stipules 2. Umbels axillary or terminal; flowers yellow, pedicels 2.5 cm; sepals 5, 1.5-0.7 cm, ovate; petals 5, 2 x 0.5 cm, obovate; stamens many, filaments as long as anthers, disc lobed; ovary 10-lobed, 2 mm, style 1.5 cm, thick. Drupe 3-10-lobed, to 1 cm.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15517*

## BURSERACEAE

- |                                             |                     |
|---------------------------------------------|---------------------|
| 1. Flowers 3-merous                         | : <i>Canarium</i>   |
| 1. Flowers 4 or 5-merous                    | : 2                 |
| 2. Flowers 4-merous                         | : <i>Commiphora</i> |
| 2. Flowers 5-merous                         | : 3                 |
| 3. Stigma 3-lobed, <i>style</i> grooved     | : <i>Boswellia</i>  |
| 3. Stigma 5-lobed, <i>style</i> not grooved | : <i>Garuga</i>     |

### BOSWELLIA Roxb. ex Colebr.

**Boswellia serrata** Roxb. ex Coleb. in Asiat. Res. 9: 379. t. 5. 1807; Fl. Brit. India 1: 528. 1875; Matthew, Fl. TN. Carnatic 223. 1983 & Ill. Fl. TN. Carnatic t. 118. 1982. **B. glabra** Roxb., Pl. Cor. t. 207. 1811; Fl. Pres. Madras 168. 1915. **B. serrata** Roxb. var. **glabra** (Roxb.) Bennett in Hook. f., Fl. Brit. India 1: 528. 1875.

Medium trees, bark white, peeling off in thin papery flakes, yields white gum-resin; branchlets pubescent. Leaves imparipinnate, apically clustered, 18 x 6 cm; leaflets 10-15 pairs, opposite to subopposite, 3-5 x 0.75-1.5 cm, oblong, lanceolate, apex acute, base oblique, glabrous, rusty below, crenate, sessile. Racemes axillary, 10-15 cm; bracts subulate, pedicel jointed; calyx tube broadly campanulate, lobes 5, 1 mm, triangular; petals 5, 7 x 4 mm, white; stamens 10, free, filaments alternately longer and shorter; ovary 3-celled, ovoid, ovules 2 per cell, style grooved, stigma 3-lobed. Drupe trigonous, septical.

*Fl. & Fr.* January-April

D i s t. Common in dry deciduous forests

Gellimala, KKS 15977

### CANARIUM L.

**Canarium strictum** Roxb.. Fl. Ind. 3: 138. 1832; Bedd., Fl. Sylv. t. 128. 1871; Fl. Brit. India 1: 534. 1875; Fl. Pres. Madras 172. 1915; Leenh., Blumea 9: 414. 1959; Matthew, Fl. TN. Carnatic 225. 1983 & Ill. Fl. TN. Carnatic tt. 120 & 965a. 1982.

Large evergreen trees; young branchlets and leaves densely rusty tomentose. Leaves imparipinnate, rachis to 30 cm; leaflets 7-9, opposite, to 18 x 6 cm, oblong, elliptic, apex shortly obtusely acuminate, base obtuse. inequilateral, serrate, semicoriaceous, densely tomentose below; petiole to 0.5 cm. Panicles axillary, to 25 cm; flowers polygamo-dioecious; bracts 2 mm, ovate, densely tomentose, pedicels to 2 mm; calyx lobes 5 mm, ovate, densely tomentose; petals to 1 cm, oblong; stamens 6, staminal tube 3 mm, filaments 0.6 mm. Drupe 4 x 1.5 cm, ellipsoid. tapering at both ends, 5-3-angled, black when mature; seeds 1-3.

*Fl. & Fr.* December-April

D i s t. Occasional in shola forests

Olikudy, KKS 17225

### COMMIPHORA Jacq.

- |                                                       |                        |
|-------------------------------------------------------|------------------------|
| 1. Flowers in axillary clusters; leaflets serrate     | : <b>C. berryi</b>     |
| 1. Flowers in dichasial cymes; leaflets entire        | : <b>2</b>             |
| 2. Leaflets pubescent, subsessile, obtusely acuminate | : <b>C. pubescence</b> |
| 2. Leaflets glabrous, petiolate, caudate acuminate    | : <b>C. caudata</b>    |

**Commiphora berryi** (Arn.) Engl. in DC., Monog. Phan. 4: 17. 1883; El. Pres. Madras 170. 1915; Matthew, Fl. TN. Carnatic 226. 1983. **Balsamodendron berryi** Am. in Ann. Nat. Hist. ser. 1. 3: 86. 1839; Bedd., Fl. Sylv. t. 126. 1871; Fl. Brit. India 1: 529. 1875.

Armed shrubs or trees, bark reddish, peeling off; branchlets ending in spines. Leaves alternate or in groups, trifoliate, terminal one 1.5-2 x 1 cm, ovate-suborbicular, glabrous, apex obtuse; petiole 1-2 cm. Flowers in axillary clusters; stamens 8, yellow, alternately longer and shorter. Capsule 1 x 0.7 cm, oblong or ovoid; seeds 2.

*FZ & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Thayanankkudy, *KKS 15675*; Sivapura, 11926

**Commiphora caudata** (Wight & Arn.) Engl. in DC. Monog. Phan. 4: 27. 1883; Fl. Pres. Madras 171. 1915; Matthew, Fl. TN. Carnatic 227. 1983 & Ill. Fl. TN. Carnatic t. 121. 1982. **Protium caudatum** Wight & Arn., Prodr. 176. 1834; Bedd., Fl. Sylv. t. 125. 1871; Fl. Brit. India 1: 530. 1875.

Armed trees, bark green, peeling off in thin scales. Leaves 3-7-foliate, rachis 6-15 cm; leaflets opposite, 6 x 4.5 cm, ovate, oblong or elliptic, glabrous; petiole to 6 cm. Flowers polygamous, bisexual flowers - sepals 4, ovate; petals 4, 4 mm, cream, reflexed; stamens 8, 1 and 2 mm; ovary ovoid, ovules per cell, stigma 2-lobed. Drupe 1.5 x 1 cm, globose.

*FZ & Fr.* February-June

*D i s t.* Common in dry deciduous forests

Muthuvanala, *KKS 15549*; Chengamperu, 11728

**Commiphora pubescens** (Wight & Arn.) Engl. in DC. Monog. Phan. 4: 21. 1883; Fl. Pres. Madras 171. 1915. **Protium pubescens** Wight & Arn., Prodr. 176. 1834; Fl. Brit. India 1: 530. 1875.

Medium trees, bark peeling, reddish. Leaves to 17 cm; leaflets 5-7, to 8 x 4.5 cm, ovate, elliptic, apex obtusely acuminate, base obtuse, pubescent, especially on the nerves beneath; petiole to 8 cm, petiolule to 0.5 cm, slightly pubescent. Cymes axillary, dichotomously branched. Fruit 1 cm across, ovoid.

*Fr.* November-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11728*

#### **GARUGA Roxb.**

**Garuga floribunda** Decne., Nouv. Ann. Mus. Hist. Nat. 3: 477. 1834, var. **gamblei** (W. Smith) Kalkman, Blumea 7: 466. 1953; Matthew, Fl. TN. Carnatic 228. 1983 & Fur. Ill. Fl. TN. Carnatic t. 84. 1988. **G. gamblei** King ex. W. Smith, Rec. Bot. Surv. Ind. 4: 262. 1911; Fl. Pres. Madras 169. 1915.

Medium trees, bark white with dark spots. Leaves apically clustered, to 30 cm; leaflets subopposite, 7 x 2-2.5 cm, oblong-lanceolate, base cuneate, oblique, serrate, glabrous. Panicle axillary, to 25 cm; flowers polygamous, bisexual flowers - calyx campanulate. lobes 5, 1.5 mm. ovate, tomentose; petals 4 x 2 mm, oblong, acute, yellow turns to white, disc 10-lobed, crenate;

stamens 10, filaments 1.5 and 2 mm; anthers versatile; ovary pubescent, 5-celled, ovules 2 per cell, style, 2.5 mm, pubescent, stigma 5-lobed. Drupe 1.5 x 1 cm, globose, 4-lobed.

*Fl. & Fr.* February-June

*D i s t.* Common in dry deciduous forests

Anakunnu, *KKS 11996*

## MELIACEAE

1. Flowers 3-merous	: <b>Aphanamixis</b>
1. Flowers 5-merous	: <b>2</b>
2. Stamens 5	: <b>Aglaia</b>
2. Stamens 10	: <b>3</b>
3. Leaves bi or tripinnate	: <b>Melia</b>
3. Leaves one pinnate	: <b>4</b>
4. Leaves imparipinnate; seeds not winged	: <b>5</b>
4. Leaves paripinnate; seeds winged at the base	: <b>Chukrasia</b>
5. Leaflets entire	: <b>6</b>
5. Leaflets serrate	: <b>7</b>
6. Leaves trifoliate	: <b>Walsura</b>
6. Leaves 7-11 foliate	: <b>Trichilia</b>
7. Stigma 3-lobed; leaflets serrate through out	: <b>Azadirachta</b>
7. Stigma turbinate; leaflets entire along the lower half and serrate above	: <b>Cipadessa</b>

### AGLAIA Lour. *nom. cons.*

*Aglaia elaeagnoidea* (Juss.) Benth., Fl. Austral. 1: 383. 1863. *Aglaia roxburghiana* (Wight & Arn.) Miq. in Ann. Mus. Bot. Ludguno-Batavum 4: 41. 1868; Fl. Brit. India 1: 555. 1875; Fl. Pres. Madras 180. 1915. *Milnea roxburghiana* Wight & Arn., Prodr. 119. 1834; Wight. Ic. t. 166. 1839.

Medium trees, bark red; branchlets covered with brownish scales. Leaves imparipinnate, 18-20 cm: leaflets 5 pairs. opposite. 8-12 x 3-3.5 cm, elliptic-obovate. apex acuminate. base crenate, scaly on both surface, densely so below. Panicles axillary, to 11 cm; flowers polygamodioecious, yellow; calyx campanulate, scaly; petals 5, 2 x 1 mm; staminal tube 1.5 mm, entire at apex; anthers included.

*Fl.* February-May

*D i s t.* Rare in shola forests: endemic to Peninsular India.

Pothumala, *KKS 17957*

### APHANAMIXIS Blume

*Aphanamixis polystachya* (Wall.) Parker in Indian For. 57: 486. 1931; Matthew, Fl. TN. Carnatic 233. 1983 & Fur. III. Fl. TN. Carnatic t. S5. 1988. *Aglaia polystachya* Wall. in Roxb., Fl. Ind. 2: 429. 1824. *Amoora rohituka* (Roxb.) Wight & Arn. in Wight, Cat 24. 1833 & Prodr. 119. 1834; Bedd., Fl. Sylv. t. 132. 1871; Fl. Brit. India 1: 559. 1875; Fl. Pres. Madras 181. 1915.

Medium trees; branchlets pendent. Leaves imparipinnate, to 75 cm; leaflets 9-15, opposite, 20 x 6 cm, elliptic, obovate, acuminate, base slightly oblique, glabrous, coriaceous; petiole to 9 cm. Panicles axillary, equal to or longer than the leaves; flowers polygamo-dioecious, male flowers - calyx lobes imbricate, 2 mm, puberulus; petals 4 mm, orbicular, concave; staminal tube as long as the petals; stamens 6.

*Fl.* February-May

*D i s t.* Common along the borders of shola forests

Olikkudy, *KKS 17337*

#### **AZADIRACHTA A. Juss.**

***Azadirachta indica* A. Juss.** in Mem. Mus. Natl. Hist. Nat. 19: 221. t. 2. f. 5. 1830; Wight, Ic. t. 17. 1838; Fl. Pres. Madras 177. 1915; Matthew, Fl. TN. Carnatic 234. 1983 & Ill. Fl. TN. Carnatic t. 125. 1982. *Melia azadirachta* L., Sp. Pl. 385. 1753; Fl. Brit. India I: 544. 1875.

Medium trees. Leaves imparipinnate, 15-25 cm; leaflets 7 pairs, subopposite or opposite, 5-8 x 2-2.5 cm, acuminate, base oblique, serrate, glabrous; petiolule to 2 cm. Panicle axillary, to 17 cm, pedicels 0.5 cm; flowers bisexual; calyx lobes 5, ovate, ciliate; petals 5 x 1.5 mm, oblong, narrowed at base, pubescent; staminal tube 10-lobed, to 4 mm, glabrous; anthers slightly exserted; ovary 3-celled, ovules 2 per cell, stigma 3-lobed. Drupe 1.5 x 0.5 cm, oblong.

*Fl. & Fr.* March-June

*D i s t.* Occasional in dry deciduous forests

Champakkad. *KKS 15693*

#### **CHUKRASIA A. Juss.**

***Chukrasia tabularis* A. Juss.** in Mem. Mus. Natl. Hist. Nat. 19: 251. t. 22. 1830; Bedd., Fl. Sylv. t. 9. 1869; Fl. Brit. India I: 568. 1875; Fl. Pres. Madras 186. 1915; Matthew, Fl. TN. Carnatic 235. 1983 & Ill. Fl. TN. Carnatic t. 126. 1982.

Medium trees; branchlets lenticellate. Leaves paripinnate, 25-30 cm. leaflets 5 pairs, subopposite, 6-11 x 4.5-5 cm, lanceolate, ovate, apex long acuminate, base unequal; petiole 5 cm, petiolule to 1 cm. Panicles terminal, to 15 cm, peduncles to 5 cm, rusty, pedicel 3 mm; calyx lobes 5, ovate, pubescent; petals 1.2 x 0.5 cm, oblong, spatulate, creamy-white, pubescent; staminal tube terete, 8 mm; anthers 2 mm, exserted; ovary 4-celled. many ovuled, stigma capitate. Capsule 4.5 x 3 cm, ovoid; seeds many, 1 x 0.5 cm, winged at base.

*Fl. & Fr.* April-November

*D i s t.* Common in shola forests

Olikudy, *KKS 17207, 17314*; Kombakkayam, *15688*

#### **CIPADESSA Blume**

***Cipadessa baccifera* (Rotli) Miq.** in Ann. Mus. Bot. Lugduna-Batavum 4: 6. 1868; Fl. Pres. Madras 176. 1915; Matthew, Fl. TN. Carnatic 235. 1983 & Ill. Fl. TN. Carnatic t. 127. 1982.

*Melia baccifera* Roth, Nov. Pl. Sp. 215. 1821. *Cipadessa fruticosa* Blume, Bijdr. 162. 1825; Fl. Brit. India 1: 545. 1875.

Large shrubs to small trees; branchlets lenticellate. Leaves imparipinnate, to 20 cm long; leaflets 4-5 pairs, 6-10 x 3-4 cm, ovate, lanceolate, acuminate, base oblique, lower half-entire, upper serrate, glabrous, hairy below; petiolule 0.5 cm. Corymbs axillary, 15-30 cm; flowers white; calyx lobes 5, pubescent; petals 4 x 1.5 mm, lanceolate; stamens 10, 3 mm. apex two-fid; anthers inserted between the lobes; ovary 5-celled, glabrous, stigma turbinate. Capsule 5-celled, 4 x 5 mm.

*Fl. & Fr.* February-April

D i s t. Occasional in moist deciduous forests

Chinnakurukku, *KKS 11989*

### MELIA L.

*Melia dubia* Cav., Diss. 7: 364. 1789; Fl. Brit. India 1: 545. 1875; Matthew, Fl. TN. Carnatic 237. 1983. *M. composita* Willd., Sp. Pl. 2: 509. 1799; Bedd., Fl. Sylv. t. 12. 1869; Fl. Pres. Madras 176. 1915.

Large trees; branchlets lenticellate. Leaves 3 pinnate, to 40 cm **long**, secondary rachis 3 pairs; leaflets 2-5 pairs, opposite, 5-8 x 2-3 cm, ovate, lanceolate, apex acuminate, base cordate, glabrous, serrate; petiole to 10 cm, petiolule to 1 cm. Panicles axillary, to **18** cm; flowers white; calyx lobes 1.5-2 mm, ovate, pubescent; petals 7 x 1 mm, obovate; staminal tube 6 mm; anther esserted; ovary 5-celled, 1 mm, stigma capitate. Drupe 2 x 1 cm, globose.

*Fl. & Fr.* February-April

D i s t. Common in moist deciduous forests

Palapctty. *KKS 15504*

### TRICHILIA P. Browne

*Trichilia connaroides* (Wight & Arn.) Benth. Acta Bot. Neerl. 11: 13. 1962; Matthew, Fl. TN. Carnatic 241. 1983 & Ill. Fl. TN. Carnatic t. 132. 1982. *Zanthoxylum connaroides* Wight & Arn., Prodr. Fl. Ind. 148. 1834. *Heynea trijuga* Roxb. ex Sims in Curtis, Bot. Mag. t. 1738. 1815; Roxb., Pl. Cor. t. 260. 1820; Fl. Brit. India 1: 565. 1875; Fl. Pres. Madras 183. 1915.

Medium to large trees; branchlets hollow. Leaves imparipinnate, to 30 cm; leaflets opposite, 9-11 x 5-6 cm, ovate-lanceolate, apex acuminate, base oblique, glabrous, glaucous below; petiole 8-10 cm, petiolule 2 cm. Panicles axillary and terminal, peduncles to 15 cm; flowers bisexual, white; calyx lobes 5, ovate, pubescent; petals 4 x 1 mm, oblong; staminal tube 3 mm, free above, lobes bifid; ovary 2 mm. globose, 2-celled, ovules 2 per cell. stigma capitate, 2-3 toothed. Capsule 8-9 mm, globose, 2 valved; seed solitary, arillate.

*Fl. & Fr.* January-April

D i s t. Common in shola forests

Olikudy, *KKS 17227, 17280*

### WALSURA Roxb.

**Walsura trifolia** (A. Juss.) Harms in Engl. & Prantl, Pflanzenf. ed. 2. 19 b: 119, 177. 1940; Matthew, Fl. TN. Carnatic 242. 1983 & Ill. Fl. TN. Carnatic t. 133. 1982. *Heynea trifolia* A. Juss. in Mem. Mus. Natl. Hist. Nat. 19: 235. 1830. *Walsura piscida* Roxb., Fl. Ind. 2: 387. 1832; Wight, Ill. 1: t. 55. 1840; Fl. Brit. India 1: 564. 1872; Fl. Pres. Madras 183. 1915.

Small tress, bark brittle; branchlets pubescent. Leaves trifoliate, leaflets 4-8 x 3-4.5 cm, oblong, ovate-lanceolate, apex obtuse or emarginate, glossy below. Corymbs axillary or terminal; flowers white; calyx lobes 5, 1 mm, ovate, pubescent; petals 5. 3 mm, oblong, lanceolate; staminal tube pubescent, deeply lobed, lobes bifid; anthers between the teeth, exserted; ovary 2-celled, pubescent, stigma turbinate. Berry 2 x 1 cm, globose; seeds solitary.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11850*

### OPILIACEAE

1. Petals united; flowers in spikes

: **Cansjera**

1. Petals free; flowers in racemes

: **Opilia**

### CANSJERA Juss.

**Cansjera rheedii** Gmel., Syst. 1: 280. 1791; Wight, Ic. t. 1861. 1852; Fl. Brit. India 1: 582. 1875; Fl. Pres. Madras 193. 1915; Matthew, Fl. TN. Carnatic 248. 1983 & Ill. Fl. TN. Carnatic t. 137. 1982.

Climbing shrubs, spinescent at base, young parts pubescent. Leaves to 8 x 3 cm, ovate-lanceolate, acuminate, base acute, subcoriaceous, glabrous; petiole to 1 cm. Spike axillary, 1-5 together, to 2 cm, pubescent; bracts ovate, minute; calyx 4-lobed, minute; corolla urceolate. lobes 4 mm, ovate, reflexed; anthers oblong, disc 5-lobed, glandular; ovary 2 mm, ovoid, style 1 mm, stigma globose. 4-lobed, ovule pendulous.

*Fl.* July-September

*D i s t.* Occasional in dry deciduous forests

Panikkankadavu, *KKS 15792*; Alampetty, 11790

### OPILIA Roxb.

**Opilia amentacea** Roxb., Pl. Cor. t. 158. 1802; Fl. Brit. India 1: 583. 1875; Fl. Pres. Madras 192. 1915; Matthew, Fl. TN. Carnatic 249. 1983 & Ill. Fl. TN. Carnatic t. 138. 1982.

Climbing shrubs, branchlets lenticellate, brown tomentose. Leaves 9 x 3 cm, ovate. acute, base obtuse or acute, coriaceous; petiole to 8 mm. Racemes axillary, 1-5 together, to 3 cm; flowers in groups of 2 or 3, pedicels 2 mm: sepals 5, minute; petals 2 mm, oblong, recurved; stamens opposite to the petals, filaments 2 mm; anthers 0.5 mm, glands 5, fleshy club shaped. alternating with the stamens; ovary 1-celled, 1.5 mm, oblong, style minute, ovule pendulous.

*Fl.* February-April

*D i s t.* Occasional in dry deciduous forests

Churullipetty, *KKS 17339*

## ICACINACEAE

### GOMPHANDRA Wall. ex Lindl.

*Gomphandra coriacea* Wight, Ill. 1:103. 1840; Bedd., Ic. t. 61. 1868-1874; Fl. Pres. Madras 195. 1915; Sleumer, Blumea 17:206. 1969. *G. polymorpha* Wight, Ill. 1:103. 1840 p.p. & Ic. tt. 953, 954. 1843; Fl. Brit. India 1:586. 1875.

Small trees. Leaves to 9 x 4 cm, elliptic-lanceolate, acute, base obtuse, subcoriaceous, nerves 4-6; petiole to 1.5 cm. Cymes lateral, leaf opposed, to 1.5 cm; flowers polygamodioecious, white; calyx lobes 5, to 1 mm, ovate; petals connate, campanulate. lobes 4 mm, obovate, mucronate; stamens 5, often united, filaments 3 mm; anthers pendulous, hairy at the back, pistillode reduced.

*Fl.* October-December

*D i s t.* Common in shola forests

Olikkudy, *KKS 17495*

## AQUIFOLIACEAE

### ILEX L.

*Ilex malabarica* Bedd., Fl. Sylv. t. 143. 1871; Fl. Brit. India 1: 600. 1875; Fl. Pres. Madras 200. 1915.

Large trees, dioecious, bark smooth, white. Leaves to 12 x 4 cm, elliptic, apex acute, base cuneate. glabrous, glossy, coriaceous, nerves obscure, mid-vein impressed above; petiole to 1 cm. Flowers in axillary fascicles, white. pedicels to 3 mm; calyx 6-lobed, 1.5 mm, ovate, pubescent; petals 6, 4 mm, oblong, connate at the base; stamens 6, filaments 3 mm; anther 1 mm, oblong, pistillode present. Fruit 6-celled, 5 mm across, globose, red, tipped with persistent stigma.

*Fl. & Fr.* June-September

*D i s t.* Common in semi-evergreen forests; endemic to Peninsular India.

Karimutty, *KKS 15781*; Ichampetty, *15656*

## CELASTRACEAE

- |                                           |                   |
|-------------------------------------------|-------------------|
| 1. Leaves opposite                        | : 3               |
| 1. Leaves alternate                       | : 2               |
| 2. Cymes axillary, clustered, small trees | : <b>Maytenus</b> |
| 2. Panicles terminal, climbing shrubs     | : Celastrus       |
| 3. Petals connate with the disc           | : Microtropis     |
| 3. Petals free, not connate with the disc | : 4               |
| 4. Fruit a capsule                        | : Euonymus        |
| 4. Fruit a drupe                          | : Cassine         |

### CASSINE L.

- |                                                    |                        |
|----------------------------------------------------|------------------------|
| 1. Flowers less than 1 cm across; panicles slender | : <i>C. giauca</i>     |
| 1. Flowers more than 1 cm across; panicles stout   | : <b>C. paniculata</b> |



**Cassine glauca** (Rottb.) O. Ktze., Rev. Gen. Pl. 1: 114. 1891; Matthew, Fl. TN. Carnatic 254. 1983. *Elaeodendron glaucum* (Vahl) Pers., Syn. 1: 241. 1806; Fl. Brit. India 1: 623. 1875 p.p.; Fl. Pres. Madras 211. 1918. *E. roxburghii* Wight & Arn., Prodr. 157. 1834; Wight, Ill. 1: t. 71. 1840.

Trees, bark exudes watery sap when cut, blaze reddish. Leaves to 8 x 5.5 cm, broadly ovate-elliptic, apex and base acute, crenate, subcoriaceous; petiole to 1.5 cm. Cymes dichasial, axillary, to 5 cm; flowers greenish; bracts to 1 cm, ovate; pedicel 3 mm; calyx lobes 1 mm, ovate; petals 5, 3 mm, oblong; stamens 5, inserted on the disc; filaments 5 mm; anthers subglobose; ovary embedded in disc; style 1 mm, stout. Drupe 1 cm long, oblong.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15178*

**Cassine paniculata** (Wight & Arn.) Lohr.-Callen in Adansonia ser. 2. 15: 220. 1976. *Elaeodendron paniculatum* Wight & Arn., Prodr. 157. 1834; Fl. Pres. Madras 212. 1918. *E. glaucum* sensu Lawson in Hook. f., Fl. Brit. India 1: 623. 1875.

Large trees, ultimate branchlets trichotomous. Leaves 11 x 4 cm, oblong, elliptic, apex obtuse, base cuneate, crenate, coriaceous; petiole to 2 cm. Cymes dichasial, axillary, to 8 cm; flowers hermaphrodite sometimes polygamous; bracts 1 mm, ovate, bracteoles present; sepals 1.5 x 2 mm, broadly ovate, basally connate; petals 6 mm, oblong, margins recurved; stamens 5, inserted on the disc, filaments 3 mm; anthers globose; ovary embedded in the disc; style 1 mm, thick; stigma capitate.

*Fl.* March-June

*D i s t.* Rare in shola forests

Olikudy, *KKS 17324*

#### CELASTRUS L.

**Celastrus paniculatus** Willd., Sp. Pl. 1: 1125. 1797; Wight, Ic. t. 158. 18839; Fl. Brit. India 1: 617. 1875; Fl. Pres. Madras 208. 1918; Matthew, Fl. TN. Carnatic 255. 1983 & Ill. Fl. TN. Carnatic t. 142. 1982.

Climbing shrubs, branchlets lenticellate. Leaves 9.5 x 6 cm, broadly ovate, apex acute, base rounded, serrate, membranous. glabrous above, pubescent below; petiole to 1 cm, stipule minute, deciduous. Cymes paniced, terminal, to 20 cm; flowers polygamous, greenish-white; bracts 1 mm, ovate; pedicels to 5 mm; sepals 2 mm, ovate, membranous; petals 3 mm, obovate. membranous; filaments very short; anthers 2 mm, inserted on the disc; pistillode small.

*Fl.* March-May

*D i s t.* Occasional in disturbed in moist deciduous forests

Olikudy, *KKS 17315*

#### EUONYMUS L.

**Euonymus dichotomous** Heyne ex Roxb., Fl. Ind. 2: 40. 1824; Fl. Brit. India 1: 609. 1875; Fl. Pres. Madras 203. 1918.

Small trees, branchlets terete, glabrous, slender. Leaves to 7 x 3 cm, elliptic, ovate. apex obtuse. base cuneate, obscurely serrate towards upper half, pale greenish beneath when dry; petiole to 8 mm. Cymes dichasial, axillary, to 5 cm; flowers red, peduncle and pedicels slender; bracts minute, ovate; sepals connate at the base, 2 mm, orbicular; petals 3 mm, orbicular; stamens inserted on the disc; ovary 3-5-celled, 2-ovuled each, style to 0.5 mm.

*Fl.* March-May

*D i s t.* Occasional in semi-evergreen forests

Karimutty, *KKS 15561*

#### MAYTENUS Molina.

*Maytenus ovatus* (Wall. ex Wight & Arn.) Loes. in Engl. & Prantl, *Pflanzenf.*, ed. 2. 20b: 140. 1942; Matthew, *Fl. TN. Carnatic* 260. 1983 & Fur. Ill. *Fl. TN. Carnatic* t. 90. 1988. *Celastrus ovatus* Wall. ex Wight & Arn., *Prodr.* 159. 1834. *Gymnosporia ovata* (Wall. ex Wight & Arn.) Lawson in Hook. f., *Fl. Brit. India* 1: 619. 1875; Fyson, *Fl. South Indian Hill St.* 2: t. 89. 1932; *Fl. Pres. Madras* 210. 1918.

Small trees, spines axillary, mostly confined to the basal portion. Leaves to 8 x 6 cm, broadly ovate, obtuse or emarginate, base cuneate, crenate, thinly coriaceous. nerves indistinct: petiole to 1 cm. Cymes axillary, clustered, 2.5 cm; bracts 1 mm, ovate; pedicels slender, 3 mm; sepals 1 mm, ovate; petals 3.5 mm, obovate, spreading; stamens 0.8 mm, inserted on the disc; ovary 1.5 mm, ovoid; style 0.7 mm, stout; stigma 3-fid, recurved; ovary 3-celled, ovules 2 in each cell. Fruit to 1.5 cm, obovoid, deliiscent, 3-lobed at apex.

*Fl. & Fr.* December-March

*D i s t.* Occasional along the sides of stream

Manala, *KKS 11910; 11729*

#### MICROTROPIS Wall. ex Meissn. *nom. cons.*

*Microtropis ramiflora* Wight,  *Ic. t.* 977. 1845; *Fl. Brit. India* 1: 614. 1875; *Fl. Pres. Madras* 207. 1918.

Large trees; branchlets dark brown. Leaves to 8 x 4 cm, elliptic, obovate. apex obtuse, recurved, coriaceous, rugulose above: petiole 3-5 mm, stout. Flowers axillary, in clusters of *ca.* 6, sessile, polygamous; sepals imbricate, 1 mm, ovate, unequal; petals connate at the base with the back of the disc, 3 mm, obovate, membranous; stamens inserted on the disc; ovary obscurely 2-3-celled, 2 mm, ovoid, style to 0.5 mm, stigma minutely 2-4-lobed.

*Fl.* March-June

*D i s t.* Common in shola forests

Pothumala, *KKS 17341*

#### HIPPOCRATEACEAE

1. Leaves coriaceous, disc prominent, base of filaments clasping the disc : *Loeseneriella*  
1. Leaves chartaceous. disc obscure, base of filaments slender : *Reissantia*

### LOESENERIELLA A. C. Sm.

1. Petals clawed; leaves acuminate at apex : **L. arnottiana**  
1. Petals triangular; leaves obtuse at apex : **L. obtusifolia**

**Loeseneriella arnottiana** (Wight) A. C. Smith, J. Arnold Arbor. 16: 174. 1945. *Hippocratea arnottiana* Wight, Ill. 1: 133, t. 46. f. 47. 1840; Fl. Brit. India 1: 624. 1875; Fl. Pres. Madras 213. 1918.

Stragglers. Leaves 8-12 x 4-6 cm, coarsely coriaceous, elliptic, ovate, acuminate, stipules small. Panicles of cymes axillary or terminal; sepals 1 x 1.5 mm, ovate; petals 3-4 x 3-4 mm, obovate, clawed; stamens inserted on the disk; ovary enclosed in the disc, 3-celled, ovule 2-10 in each cell. Fruit 7 x 2 cm, oblong, 3 winged.

*Fl. & Fr.* February-May

*D i s t.* Common along the ravines

Kombakkayam, *KKS 15719*; Alampetty, *11979*

**Loeseneriella obtusifolia** (Roxb.) A. C. Smith, Amer. J. Bot. 28: 440. 1941; Matthew, Fl. TN. Carnatic 262. 1983 & Ill. Fl. TN. Carnatic t. 147. 1982. *Hippocratea obtusifolia* Rosb., Fl. Ind. 1: 166. 1820; Fl. Brit. India 1: 623. 1875; Fl. Pres. Madras 213. 1918.

Stragglers, branchlets grey. Leaves 3-6 x 2-4 cm, ovate-lanceolate or elliptic-oblong, apex obtuse or rounded, coarsely crenate, coriaceous. Panicles axillary or terminal, to 25 cm long; sepals 5, 1.5 mm, acuminate; petals 3.5 x 3 mm, greenish, spreading, coriaceous; stamens inserted on the disc, disc angular.

*Fl.* January-May

*D i s t.* Common along the ravines

Sivapura. *KKS 11925*

### REISSANTIA Halle

**Reissantia indica** (Willd.) Halle in Mem. Inst. Franc. Afrique Noire 64: 85. 1962; Matthew. Fl. TN. Carnatic 264. 1983 & Fur. Ill. Fl. TN. Carnatic t. 92. 1988. *Hippocratea indica* Willd. Sp. Pl. 1: 193. 1797; Roxb., Pl. Cor. t. 130. 1798; Fl. Brit. India 1: 625. 1875; Fl. Pres. Madras 213. 1918.

Climbing shrubs. Leaves 4-4.5 x 3-3.5 cm, obovate, acute, chartaceous, serrate. Cymes paniced; flowers yellow; sepals 0.3 mm, ovate; petals 1 mm, oblong, imbricate, papillose; filaments slender, 0.5 mm; ovary 3-celled, ovules 2 in each cell; stigma simple.

*Fl.* May-September

*D i s t.* Common along the ravines

Chinnar, *NS 5913*; Chinnathoovanam, *KKS 15708*

### RHAMNACEAE

1. Leaves basally 3-5 nerved, mostly armed : **Ziziphus**  
1. Leaves penninerved, unarmed : **Ventilago**

### VENTILAGO Gaertn.

*Ventilago madraspatana* Gaertn., Fruct. 1: 223. t. 49. f. 2. 1788; Wight, Ic. t. 163. 1839; Fl. Brit. India 1: 631. 1875; Fl. Pres. Madras 218. 1918; Matthew, Fl. TN. Carnatic 269. 1983 & Ill. Fl. TN. Carnatic t. 153. 1982.

Climbing shrubs; young branchlets black when dry. Leaves to 8 x 3.5 cm. ovate-elliptic, apex and base obtuse, crenate along the lower half, coriaceous; petiole to 1 cm. Panicles axillary and terminal, to 15 cm long, grey pubescent; pedicels to 3 mm, pubescent; calyx tube obconic, 1 mm, lobes to 2 mm, triangular; petals 1 mm, obovate; stamens 5, opposite to the petals, filaments 1 mm, disc flattened, 5-angled; ovary half inferior, pubescent, style 0.5 mm, stigma shortly bifid.

Fl. December-March

D i s t. Occasional in moist deciduous forests

Alampetty, KKS 15710

### ZIZIPHUS Mill.

- |                                       |                        |
|---------------------------------------|------------------------|
| 1. Petals absent; leaves 5-nerved     | : <i>Z. rugosa</i>     |
| 1. Petals present; leaves 3-nerved    | : 2                    |
| 2. Styles 2, disc 10-lobed            | : 3                    |
| 2. Styles 3, disc 5-lobed             | : <i>Z. xylopyrus</i>  |
| 3. Small trees; leaf apex rounded     | : <i>Z. mauritiana</i> |
| 3. Straggling shrubs; leaf apex acute | : <i>Z. oenoplia</i>   |

*Ziziphus mauritiana* Lam., Encycl. 3: 319. 1789; Matthew, Fl. TN. Carnatic 271. 1983 & Fur. Ill. Fl. TN. Carnatic t. 93. 1988. *Z. jujuba* (L.) Gaertn. Fruct. 1: 203. 1788, non Mill. 1768; Wight, Ic. t. 99. 1838; Fl. Brit. India 1: 632. 1875; Fl. Pres. Madras 219. 1918.

f Armed small trees; young branches, leaves and flowers with white tomentum. Leaves 2.5-5 x 1.5-3 cm, ovate, elliptic, apex rounded, base slightly oblique, coarsely crenate, basally 3-nerved, tomentose beneath. Flowers in fascicles, sessile; calyx lobes 1 mm, ovate; petals 1 mm, concave, margin strongly curved, disc of 10 grooved lobes.

Fl. February-April

D i s t. Common in dry deciduous forests

Chinnar, KKS 15543

*Ziziphus oenoplia* (L.) Mill., Gard. Dict. ed. 8. n. 3. 1768; Fl. Brit. India 1: 634. 1875; Fl. Pres. Madras 220. 1918; Matthew, Fl. TN. Carnatic 272. 1983 & Fur. Ill. Fl. TN. Carnatic t. 94. 1988. *Rhamnus oenoplia* L., Sp. Pl. 194. 1753.

Large prickly scandent shrubs; branchlets tomentose. Leaves 5 x 3 cm, ovate, lanceolate, acute, oblique, densely golden tomentose beneath, sparsely above, margins ciliate, 3-nerved. Flowers in axillary fascicles: calyx lobes 1 mm, triangular, hairy outside; petals 1 mm, obovate, clawed, greenish, filaments 0.7 mm; anthers 0.5 mm, disc 10-lobed, pitted. Drupe 5 mm across, globose.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11501*

**Ziziphus rugosa** Lam., *Encycl.* 3: 319. 1789; Wight,  *Ic. t.* 339. 1840; *Fl. Brit. India* 1: 636. 1875; *Fl. Pres. Madras* 221. 1918; Matthew, *Fl. TN. Carnatic* 273. 1983 & *Fur. Ill. Fl. TN. Carnatic t.* 95. 1988.

Large prickly scandent shrubs, branchlets and panicles with golden tomentum. Leaves 8-12 x 5-8 cm, ovate, elliptic, apex rounded, basally 5-nerved, glabrous above and pubescent below. Panicles terminal, to 30 cm long; sepals 3 x 2 mm, pubescent outside; styles 2, united below the middle, disc 5-lobed, hairy. Drupe 6 mm long, ovoid, white.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Palapetty, *KKS 15513*

**Ziziphus xylopyrus** (Retz.) Willd., *Sp. Pl.* 1: 104. 1798; *Fl. Brit. India* 1: 636. 1875; *Fl. Pres. Madras* 221. 1918; Matthew, *Fl. TN. Carnatic* 273. 1983 & *Fur. Ill. Fl. TN. Carnatic t.* 96. 1988. *Rhamnus xylopyrus* Retz., *Obs. Bot.* 2: 11. 1781.

Small unarmed trees; young branches pubescent. Leaves 6-8 x 3-4 cm, ovate, oblong, apex truncate, apiculate, crenate, glabrous above, tomentose below. Cymes axillary, pubescent; calyx 5-lobed, 1.5 mm, radiating; petals 2 mm, spathulate; disc 5-lobed. Drupe woody.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Samplampetty, *KKS 15637*

## VITACEAE

- |                                        |                       |
|----------------------------------------|-----------------------|
| 1. Tendrils on the peduncles           | : <b>Ampelocissus</b> |
| 1. Tendrils not on the peduncles       | : <b>2</b>            |
| 2. Leaves simple                       | : <b>Cissus</b>       |
| 2. Leaves digitately or pedately lobed | : <b>3</b>            |
| 3. Flowers unisexual; stigma 4-lobed   | : <b>Tetrastigma</b>  |
| 3. Flowers bisexual; stigma indistinct | : <b>Cayratia</b>     |

### **AMPELOCISSUS** Planch. *nom. cons.*

**Ampelocissus tomentosa** (Heyne ex Roth) Planch. in *Vigne Amer. Vitic. Europe* 8: 375. 1884; *Fl. Pres. Madras* 230. 1918; Matthew, *Fl. TN. Carnatic* 277. 1983 & *Ill. Fl. TN. Carnatic* 1. 185. 1982. *Vitis tomentosa* Heyne ex Roth, *Nov. Pl. Sp.* 157. 1821; Wight, *Ill. l: t.* 57. 1840; *Fl. Brit. India* 1: 650. 1875.

Scandent shrubs; branchlets and leaves densely woolly. Leaves 15 x 15 cm, broadly ovate, 3-5-lobed, lobes acute, base cordate, serrate, densely floccose beneath, basally 5-nerved, tendrils branched; petiole to 6 cm, floccose. Cymes many branched. peduncles to 7 cm; flowers

5-merous, reddish; calyx lobes 1 mm, triangular, woolly; petals 2 mm, ovate. glabrous, disc prominent; stamens 5; ovary conical, stigma sessile.

*Fl.* October-January

*D i s t.* Occasional in moist deciduous forests

Mavelipuram, *KKS 15912*

#### CAYRATIA A. Juss. *nom. cons.*

*Cayratia pedata* (Lam.) Juss. ex Gagnep. var. *glabra* Gamble, *Fl. Pres. Madras* 236. 1918.

Large climbing shrubs, puberulus. tendrils, opposite to the petiole. Leaves pedately lobed; leaflets to 20 x 7 cm, elliptic, acuminate, base oblique, acute to obtuse, serrate, puberulus on both sides; petiole to 8 cm. Cymes paniced, axillary, to 10 cm; bracts 0.5 cm, ovate, pubescent. Berry 8 mm across, globose, 3-parted at apex, white, with persistent style; seeds 3, hemispheric.

*Fl. & Fr.* September-December

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17478*

#### CISSUS L.

- |                                       |                            |
|---------------------------------------|----------------------------|
| 1. Stem 4-winged                      | : <i>C. quadrangularis</i> |
| 1. Stem terete                        | : 2                        |
| 2. Leaves 3-5-lobed, tomentose below  | : <i>C. vitifolia</i>      |
| 2. Leaves simple, glabrous below      | : 3                        |
| 3. Petals hooded; erect shrubs        | : <i>C. pallida</i>        |
| 3. Petals not hooded; scandent shrubs | : <i>C. repens</i>         |

*Cissus pallida* (Wight & Arn.) Planch. in DC., *Monog. Phan.* 5: 477. 1887; *Fl. Pres. Madras* 234. 1918; Matthew, *Fl. TN. Carnatic* 281. 1983 & *Fur. III. Fl. TN. Carnatic t.* 101. 1988. *Vitis pallida* Wight & Arn., *Prodr.* 125. 1834; *Fl. Brit. India* 1: 647. 1875.

Shrubs; tendrils simple. Leaves 9 x 10 cm, broadly ovate, apex acute, base cordate, margins glandular, dentate. basally 5-nerved, membranous; petiole to 6 cm, stipules 5 mm, ovate, cauducous. Cymes axillary, leaf opposed, 3 x 6 cm; peduncles to 3 cm, puberulus; bracts 5 mm, ovate. pedicels to 5 mm; calyx truncate, 4-lobed, 1.5 mm; petals 4 mm, hooded. brown outside, white inside; stamens 4, filaments 2 mm, disc prominent, 4-lobed; ovary embedded. style 1 mm, stout.

*Fl.* April-June

*D i s t.* Occasional near ravines

Ichampetty, *KKS 15653*

*Cissus quadrangularis* L., *Mant. Pl.* 39. 1767; *Fl. Pres. Madras* 233. 1918; Matthew, *Fl. TN. Carnatic* 282. 1983 & *Fur. III. Fl. TN. Carnatic t.* 102. 1988. *Vitis quadrangularis* (L.) Wall. ex Wight. *Cat.* 26. 1833 & in Wight & Arn. *Prodr.* 125. 1834; Wight, *Fl. Brit. India* 1: 645. 1875.

Scandent shrubs, fleshy, stem 4-angled and winged, tendrils leaf opposed, mature branches leafless. Leaves to 4 x 3 cm, ovate, obtuse, obscurely crenate, fleshy; petiole to 2 cm, stipule 1.5 mm, ovate. Corymbs leaf opposed, to 4 cm, peduncles to 2 cm, pedicels 5 mm; calyx truncate, 2 mm; petals 5, 4 mm, oblong, hooded at apex, disc 4-lobed; stamens 4, subsessile, included; ovary 1 mm, globose, style 0.5 mm. Berry 6 mm, globose, apiculate.

*Fl. & Fr.* March-July

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15701*; Falapetty, *15526*

**Cissus repens** Lam., *Encycl.* 1: 31. 1783; *Fl. Pres. Madras* 233. 1918; Matthew, *Fl. TN. Carnatic* 282. 1983 & *Fur. III. Fl. TN. Carnatic t.* 103. 1988. **Vitis repens** (Lam) Wight & Arn. in *Wight, Cat.* 58. 1833 & *Prodr.* 125. 1834; *Fl. Brit. India* 1: 646. 1872.

Scandent shrubs, tendrils leaf opposed. Leaves 10 x 6 cm, ovate, acuminate, base deeply cordate, serrate, basally 5-nerved, membranous; petiole to 3 cm, stipules ovate. Umbels compound, opposite to leaves; peduncles to 8 cm; pedicels slender; calyx truncate, petals 4, 2.5 mm, ovate; stamens 4, to 1 mm. Berry 8 x 4 mm, ovoid, pointed at apex.

*Fl. & Fr.* March-May

*D i s t.* Occasional in moist deciduous forests

Samplampetty. *KKS 15611*

**Cissus vitifolia** L., *Sp. Pl.* 117. 1753; *Fl. Pres. Madras* 234. 1918; Matthew, *Fl. TN. Carnatic* 284. 1983 & *Fur. III. Fl. TN. Carnatic t.* 104. 1988. **Vitis linnaei** Wall. ex Wight & Arn., *Prodr.* 126. 1834; *Fl. Brit. India* 1: 649. 1875.

Climbing shrubs; branchlets pubescent, tendril leaf opposed. Leaves 3-5-lobed. 7 x 5 cm, ovate, apex acute, base truncate to cordate, serrate, glabrous or puberulus above, tomentose below, coriaceous; petiole to 2 cm, stipules 1.5 mm, ovate. Cymes paniced, axillary, pubescent; peduncles to 5 cm; pedicels to 5 mm, pubescent; calyx tube obscurely 4-lobed; petals 4, 1.5 mm, ovate, yellow, disc 4-lobed; stamens 4; ovary 2-celled, 0.5 mm.

*Fl.* April-September

*D i s t.* Occasional in dry deciduous forests

Alampetty, *NS 5901*; Champakkad, *KKS 15702*

#### **TETRASTIGMA (Miq.) Planch.**

1. Branches angled

: **T. sulcatum**

1. Branches terete

: **T. leucostaphylum**

**Tetrastigma leucostaphylum** (Dennst.) Alston in *Taxon* 26: 539. 1977; Matthew, *Fl. TN. Carnatic* 285. 1983 & *III. Fl. TN. Carnatic t.* 151. 1982. **Cissus leucostaphyla** Dennst. *Schluess. Hort. Ind. Malab.* 17, 19, 33. 1818. **Tetrastigma muricatum** (Wall. ex Wight & Arn.) Gamble, *Fl. Pres. Madras* 229. 1918. **Vitis muricata** Wall. ex Wight & Arn., *Prodr.* 128. 1834; *Wiglit, l.*

t. 740. 1844. *V. lanceolaria* sensu Lawson in Hook. f., Fl. Brit. India 1: 660. 1875 p. p., non Wall. 1831-32.

Woody scandent vines; branchlets muricate, tendrils leaf opposed. Leaves 5-foliolate; leaflets 10 x 5 cm, apex acute, serrate, coriaceous; petiole to 8 cm, petiolule to 2.5 cm. Cymes paniced, to 2 cm, pedicels to 2 mm; flowers polygamo-dioecious, female flowers - 3 mm across. Berry 2 cm across, globose, glabrous, muricate; seeds 4, oblong, apex 2-lobed, 1 cm.

*Fl. & Fr.* September-October

*D i s t.* Occasional in shola forests; endemic to Peninsular India.

Olikkudy, *KKS 17449*

**Tetrastigma sulcatum** (Laws.) Gamble, Fl. Madras 229. 1918; Matthew, Fl. TN, Carnatic 286. 1983 & Fur. Ill. Fl. TN. Carnatic t. 106. 1988. *Vitis sulcata* Laws. in Hook. f., Fl. Brit. India 1: 661. 1875.

Climbing shrubs; branches angled. Leaves 5-foliolate; leaflets 8 x 4 cm, elliptic, apex acute, base cuneate, serrate; petiole to 6 cm, petiolule to 1.5 cm. Cymes to 2 cm, peduncles to 1 cm; bracts 1.5 mm, ovate; calyx truncate, 0.5 cm; petals 1.5mm; disc pitted; ovary 1 mm, style 1 mm.

*Fl.* March-June

*D i s t.* Occasional in moist deciduous forests; endemic to Peninsular India.

Karimutty, *KKS 15564*

## SAPINDACEAE

1. Climbers	: <b>Cardiospermum</b>
1. Shrubs or trees	: <b>2</b>
2. Petals absent	: <b>3</b>
2/ Petals present	: <b>4</b>
3. Leaves simple; shrubs	: <b>Dodonaea</b>
3. Leaves paripinnate; trees	: <b>Schleichera</b>
4. Petals 4; leaves trifoliolate	: <b>Allophylus</b>
4. Petals 5; leaves pinnate	: <b>5</b>
5. Petals clawed with 2 scales	: <b>Lepisanthes</b>
5. Petals not clawed	: <b>6</b>
6. Drupe smooth	: <b>Sapindus</b>
6. Drupe tubercled	: <b>Dirnocarpus</b>

## ALLOPHYLUS L.

1. Thyrsus branched	: <b>A. concanicus</b>
1. Thyrsus unbranched	: <b>2</b>
2. Leaves tomentose beneath, thyrsus smaller than leaves	: <b>A. serratus</b>
2. Leaves glabrous or puberulus below the nerves, thyrsus as long as or longer than the leaves	: <b>A. cobbe</b>

**Allophylus cobbe** (L.) Raeusch, Nomencl. ed. 3. 108. 1897; Mukerjee, Indian Forester 98: 495. 1973. *A. serrulatus* Radlk. in Rec. Bot. Surv. India 3: 341. 1907; Fl. Pres. Madras 246. 1918.



Shrub; branchlets lenticellate. Leaflets to 12 x 6 cm, elliptic, apex acute, mucronate, base cuneate, margins widely serrulate, glabrous except the nerves beneath; petiole to 6 cm, puberulus. Thyrsus axillary, to 18 cm, tomentose; flowers clustered, 1.5 mm across, white. Fruit 3 mm across, globose, black.

*Fl. & Fr.* July-December

*D i s t.* Occasional in moist deciduous forests

Mangavada, *KKS 15959*

***Allophylus concanicus*** Radlk. in Sitzungsber. Math.-Phys. Cl. Koenigl. Bayer. Akad. Wiss. Muenchen 20. 230. 1890; *Fl. Pres. Madras* 246. 1918; Mukerjee, *Indian Forester* 98: 496. 1973.

Scandent shrubs. Leaves to 25 cm; leaflets to 18 x 6 cm, elliptic-lanceolate, apex obtusely acuminate, base obtuse, inequilateral, obscurely serrate towards apex; petiole to 8 cm, petiolule to 1 cm. Thyrsus axillary, to 20 cm, branched, pubescent; flowers white; pedicels to 1 cm; sepals 1.5 mm, broadly ovate; petals 1 mm, obovate, pubescent above the claw, glandular: stamens to 2 cm, pistillode minute.

*Fl. & Fr.* October-December

*D i s t.* Frequent in shola forests

Olikkudy, *KKS 17483*

***Allophylus serratus*** (Rosb.) Kurz in *J. Asiat. Soc. Bengal* 44: 185. 1876; *Fl. Pres. Madras* 246. 1918; Mukerjee. *Indian Forester* 98: 494. 1973; Matthew, *Fl. TN. Carnatic* 290. 1983 & III. *Fl. TN. Carnatic* t. 161. 1982. ***Ornitrophe serrata*** Roxb., *Pl. Cor.* t. 61. 1796. *A. cobbe* forma ***serratus*** (Rosb.) Liern in Hook. f., *Fl. Brit. India* 1: 673. 1875.

♂ Shrubs, branchlets hoary tomentose. Leaves to 17 cm; leaflets to 8 x 5 cm, laterals smaller, elliptic-obovate, apex acute, base obtuse or rounded, broadly crenate, densely tomentose; petiole 5-9 cm, petiolule 0.5 mm. Thyrsus axillary, to 7 cm, pubescent: sepals 1.5 and 2 mm, obovate: petals 1.5 mm, glandular: stamens 2 mm; ovary glabrous, stigmas 2.

*Fl.* October-November

*D i s t.* Occasional in moist deciduous forests

Mangavada, *KKS 15891*

#### CARDIOSPERMUM L.

1. Leaflets pubescent; capsule not winged

: ***C. canescens***

1. Leaflets glabrescent; capsule winged

: ***C. helicacabum***

***Cardiospermum canescens*** Wall., *Pl. Asiat. Rar.* 1: 14. t. 14. 1829; Wight,  *Ic. t.* 74. 1838; *Fl. Brit. India* 1: 670. 1875; *Fl. Pres. Madras* 244. 1918. ***C. helicacabum*** var. ***luridum*** (Blume) Adelb. *Blumea* 6: 322. 1948; Matthew, *Fl. TN. Carnatic* 292. 1983 & III. *Fl. TN. Carnatic* t. 162. 1982.

Climbing herbs; branchlets pubescent. Leaves 2-ternate; leaflets lobed. terminal 5 x 2.5 cm, acuminate, mucronate, sparsely hairy above and pubescent below; petiole 4 cm, petiolule 1.5-2 cm. Racemes axillary; flowers white; sepals 2 + 2, outer 1 mm, inner 2.5 mm, obovate; petals 2 + 2, 3 mm, upper ones oblong-obovate, basal scale to 2 mm, lower ones 2.5 mm, basal scale 1 mm; stamens 8, filaments subequal, pilose. Capsule 3.5 x 3 cm. inflated, not winged, tomentose.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11504*

**Cardiospermum halicacabum** L., Sp. Pl. 366. 1753; Wight, Ic. t. 508. 1841; Fl. Brit. India 1: 670. 1875; Fl. Pres. Madras 344. 1918. *C. helicacabum* var. *microcarpum* (Kunth) Blume, Rumphia 3: 185. 1847; Matthew, Fl. TN. Carnatic 292. 1983 & Fur. III. Fl. TN. Carnatic t. 107. 1988.

Climbing herbs; branchlets glabrescent. Leaves 2-ternate; leaflets dissected. 3.5 x 1.5 cm, apex acute, apiculate, glabrescent; petiole to 3 cm long. Racemes axillary, peduncle to 10 cm long, basal branches with tendril, pedicels to 2 mm; flowers white, polygamous; sepals 2 + 2, outer 1 mm, inner 2.5 mm; petals 2 + 2, upper 3.5 mm, basal scales 2 mm, lower ones 3.5 mm, basal scale 1 mm; stamens 8, densely pilose; ovary 3-celled, 2 mm, oblong, pubescent. ovule 1 per cell, stigma sharply 3-lobed, sessile. Capsule 3-lobed, 1.5 x 2 cm, winged at angles, pubescent.

*Fl. & Fr.* June-August

*D i s t.* Common in moist deciduous forests

Karimutty, *KKS 15731*

#### **DIMOCARPUS** Lour.

**Dimocarpus longan** Lour., Fl. Cochinch. 233. 1790; Matthew, Fl. TN. Carnatic 393. 1983 & III. Fl. TN. Carnatic t. 163. 1982. *Euphoria longana* Lam., Encycl. 3: 574. 1792, *nom illeg*; Bcdd., Fl. Sylv. I. 156. 1871. *Nephelium longana* (Lam.) Camp. in Mem. Mus. Hist. Nat. 18: 30. 1829; Fl. Brit. India 1: 688. 1875; Fl. Pres. Madras 252. 1918.

Large trees. Leaves paripinnate, to 40 cm long; leaflets 4-10 pairs, subopposite, oblong-elliptic, apex obtuse and apiculate, nerves *ca.* 15 pairs; petiole to 10 cm, petiolule 0.5 cm. Panicles axillary and terminal, shorter than leaves; flowers polygamous, white. male flowers - calyx lobes 5, 3 mm, ovate-oblong, pubescent inside; petals 5, 2 mm, oblong, densely pubescent inside; stamens 8, filaments 1 mm, hairy; anthers 1 mm, disc lobed, villous. pistillode minute. Fruit 1.5 cm across, globose, tubercled, red.

*Fl. & Fr.* February-August

*D i s t.* Occasional on the margins of shola forests

Olikudy, *KKS 17264*

## DODONAEA Mill.

**Dodonaea angustifolia** L. f., Suppl. Pl. 218. 1757; Matthew, Fl. TN. Carnatic 294. 1983 & Ill. Fl. TN. Carnatic t. 164. 1982. *D. viscosa* (L.) Jacq., Enum. Pl. Carib. 19. 1760; Fl. Brit. India 1: 697. 1875; Fl. Pres. Madras 253. 1918. *Ptelea viscosa* L., Sp. Pl. 118. 1753.

Shrubs. Leaves 6-10 x 3-4 cm, elliptic, apex acute, base cuneate, glabrous, gland dotted; petiole to 5 mm. Racemes axillary or terminal, 2-4 cm; flowers polygamous; sepals 4-5, 2 mm. oblong, ciliate, petals absent; ovary 1 mm, hirsute, style 1 mm, 3-angled, united. Capsule 1.5 cm across, 3-winged.

Fl. & Fr. October-February

D i s t. Common in dry deciduous forests

Alampetty, KKS 11796

## LEPISANTHES Blume

1. Leaflets 2; inflorescence panicle

: **C. senegalensis**

1. Leaflets 4-10; inflorescence raceme

: **C. tetraphylla**

**Lepisanthes senegalensis** (Juss. ex Poir.) Leenh. in Blumea 17: 8.5. 1969; Matthew. Fl. TN. Carnatic 298. 1983. *Sapindus senegalensis* Juss. ex Poir. in Lam., Encycl. 6: 666. 1805. *Sapindus bifoliatus* (Thw.) Hiern. in Hook. f., Fl. Brit. India 1: 684. 1875. *Nephelium bifoliolatum* Thw., Enum. Pl. Zeyl. 57. 1858; Bedd., Ic. t. 289. 1868-1874 [Fig. 2].

Small trees. Leaflets to 11 x 2 cm, elliptic-oblong, apex obtuse or emarginate, coriaceous, nerves faint. Panicles terminal, rarely axillary; flowers polygamo-dioecious, irregular, male flowers-sepals 5, 2 + 3, 2 mm, ovate, dissimilar; petals 5, 3 mm, obovate, ciliate, with a rim of hairs at the base; stamens 7-8, 2 mm, disc unilateral, female flowers-ovary 3-celled, style 2 mm.

Fl. February-May

D i s t. Rare in dry deciduous forests

Palapetty, KKS 15525

**Lepisanthes tetraphylla** (Vahl) Radlk., Sitzungsber. Math.-Phys. Bayer. Akad. **Wis.** Munchen 8: 276. 1878; Fl. Pres. Madras 247. 1918; Leenh., Blumea 17: 63. 1969; Matthew. Fl. TN. Carnatic 296. 1983 & Ill. Fl. TN. Carnatic t. 166. 1982. *Hemigyrosa canescens* Blume, Rumphia 3: 166. 1847; Bedd., Fl. Sylv. South India t. 151. 1871; Fl. Brit. India 1: 671. 1875.

Medium trees. Leaves paripinnate; leaflets to 17 x 3.5 cm, oblongelliptic, apex obtuse or emarginate, coriaceous; petiole to 2 cm long, petiolule 0.5 mm. Racemes axillary, mostly in groups from the axils of fallen leaves, 8-10 cm long, pubescent; flowers polygamous; pedicels 3 mm, male flowers-sepals 5, imbricate, dissimilar 2 + 3, concave, 3 x 4 mm, obovate; petals 5, 6 x 5 mm, obovate, lacerate. 2 appendaged at the apex of claw, disc unilateral; stamens 8, unilaterally attached to the disc.

Fl. February-June

D i s t. Common along the sides of water courses

Chinnar, KKS 15536

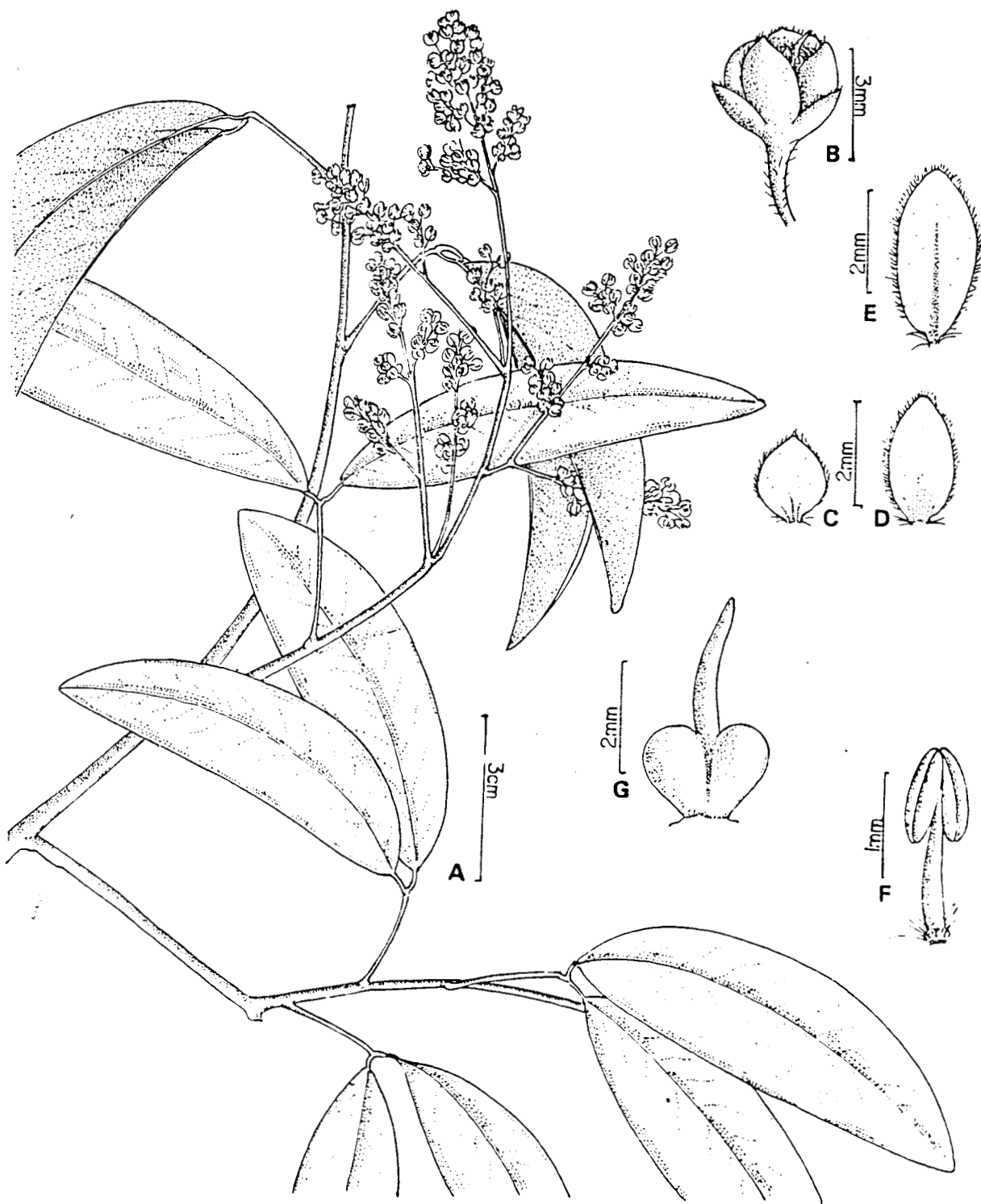


Fig. 2. *Lepisanthes senegalensis* (Juss. ex Poir.) Leenh. A. flowering twig, B. flower, C & D. sepals, E. petal, F. stamen, G. pistil.

## SAPINDUS L.

*Sapindus emarginata* Vahl, Symb. Bot. 3: 54. 1794; Bedd., Fl. Sylv. t. 154. 1871; Fl. Pres. Madras 250. 1918; Matthew, Fl. TN. Carnatic 299. 1983 & Ill. Fl. TN. Carnatic t. 167. 1982. *S. trifolius* sensu Hiern in Hook. f., Fl. Brit. India 1: 682. 1875 p. p.; non L. 1753.

Small to medium trees. Leaves paripinnate; leaflets 3 pairs, 10 x 4 cm, oblong, elliptic, apex emarginate, pubescent below, coriaceous; petiole to 5 cm, petiolule 5 mm. Panicles terminal, to 10 cm long; flowers polygamous, white; pedicels 2 mm, pubescent; sepals 5, 2-seriate, 3-4 mm, ovate-oblong; petals 5, 3 x 1.5 mm, obovate, pubescent outside, inside with a row of hairs; stamens 8, 2 mm, filaments pubescent; ovary 2-4-celled, pubescent, style 1 mm. Drupe 2 cm long, ovoid.

Fl. & Fr. November-March

D i s t. Common in dry deciduous forests

Churullipetty, KKS 11639

## SCHLEICHERA Willd. *riom. cons.*

*Schleichera oleosa* (Lour.) Oken, Allg. Naturgesch. 3(2): 1341. 1841; Matthew, Fl. TN. Carnatic 299. 1983 & Ill. Fl. TN. Carnatic t. 168 & 966c. 1982. *Pistacia oleosa* Lour., Fl. Cochinch. 2: 615. 1790. *Schleichera trijuga* Willd., Sp. Pl. 4: 1096. 1805; Bedd., Fl. Sylv. t. 119. 1871; Fl. Brit. India 1: 681. 1875; Fl. Pres. Madras 248. 1915.

Large trees. Leaves paripinnate, to 25 cm long; leaflets 3 pairs, opposite or subopposite, to 12 x 5 cm, elliptic-oblong, apex acute or obtuse, base unequal; petiole to 5 cm. Panicles axillary, to 10 cm long; flowers clustered, polygamo-dioecious, male flowers-sepals 1.5 mm, oblong; petals absent; stamens 5-8, 4 mm long, exserted. Fruit 1 x 0.6 cm, ovoid, beaked with persistent stigma.

Fl & Fr. February-August

D i s t. Occasional in moist deciduous forests

Alampetty, KKS 11973; Karimutty, 15778

## SABIACEAE

### MELIOSMA Blume

- |                              |                                               |
|------------------------------|-----------------------------------------------|
| 1. Leaves pinnate, tomentose | : <i>M. pinnata</i> ssp. <i>arnottiana</i>    |
| 1. Leaves simple, glabrous   | : <i>M. simplicifolia</i> ssp. <i>pungens</i> |

*Meliosma pinnata* (Roxb.) Maxim. ssp. *arnottiana* (Wight) Beus., Blumea 19: 499. 1971. *Millingtonia arnottiana* Wight, Ill. t. 53. 1840. *Meliosma arnottiana* (Wight) Walp., Repert. 1: 23. 1842; Bedd., Fl. Sylv. t. 160. 1871; Fl. Brit. India 2: 6. 1876; Fl. Pres. Madras 256. 1918.

Medium trees; branchlets brown villous, prominently lenticellate. Leaflets 9-11, to 10 x 4 cm, lanceolate, acuminate, chartaceous, glabrous above and tawny tomentose beneath; petiole densely tomentose. Flowers in large terminal and axillary tomentose panicles. bracteoles

scaploid; sepals ciliate along margins; petals creamy-white, the outer 3, orbicular and larger, the inner 2 shorter ones bifid; ovary tomentose.

*Fl.* May-June

*D i s t.* Occasional in semi-evergreen forests

Ollavayal, *KKS 18261*

**Meliosma simplicifolia** (Roxb.) Walp. ssp. **pungens** (Wall. ex Wight & Arn.) Beus. in *Blumea* 19: 466. 1971; Matthew, *Fl. TN. Carnatic* 302. 1983 & *Ill. Fl. TN. Carnatic* t. 169. 1982. *Meliosma wightii* Planch. ex Brandis, *For. Fl.* 116. 1874; *Fl. Brit. India* 2: 4. 1876; *Fl. Pres. Madras* 256. 1918.

Small to medium trees, branchlets lenticellate. Leaves to 25 x 9 cm, elliptic-obovate. apex acute, base cuneate, margins more or less entire, coriaceous, nerves ca. 13 pairs, impressed above, raised below; petiole to 3 cm. pubescent when young. Panicles axillary and terminal. to 20 cm, pubescent. bracteoles 6; sepals 6, connate, 1.5 mm. ovate, ciliate; petals 3, 2.5 mm, ovate, concave; stamens 5, fertile 2, filaments 0.5 mm; anthers globose, sterile ones bifid at apex. Drupe 1-celled, 5 mm across. globose, crustaceous.

*Fl. & Fr.* May-September

*D i s t.* Common in shola forests

Ollavayal, *KKS 17414*

## ANACARDIACEAE

- |                              |                     |
|------------------------------|---------------------|
| 1. Petals 5                  | : 2                 |
| 1. Petals 4                  | : 3                 |
| 2. Leaves 3-foliolate        | : <b>Rhus</b>       |
| 2. Leaves simple             | : <b>Buchanania</b> |
| 3. Leaves pinnate; stamens 8 | : <b>Lanea</b>      |
| 3. Leaves simple; stamens 4  | : <b>Nothopegia</b> |

## BUCHANANIA Spreng.

**Buchanania lanzan** Spreng. in *J. Bot. (Schr.)* 2: 234. 1800; *Fl. Pres. Madras* 258. 1918; Matthew, *Fl. TN. Carnatic* 306. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 110. 1988. **B. latifolia** Roxb., *Fl. India* 2: 385. 1832; Bedd., *Fl. Sylv. t.* 165. 1871; *Fl. Brit. India* 2: 23. 1876.

Small trees. Leaves 13 x 15 cm. broadly oblong, obtuse at apex, pubescent when young, nerves ca. 18 pairs; petiole 1.5 cm, thick. Panicles terminal and axillary, to 20 cm long, pubescent; sepals 1 mm; petals 2 mm, apex acute; stamens 10, disc prominent; ovary one perfect, villous. Drupe 1 cm across, black.

*Fl. & Fr.* Deceniber-April

*D i s t.* Common in disturbed moist deciduous forests

Karumpara, *KKS 11804*

## LANNEA A. Rich.

**Lanea coromandelica** (Houtt.) Merr., *J. Arnold Arbor.* 19: 353. 1938; Matthew, *Fl. TN. Carnatic* 307. 1983 & *Ill. Fl. TN. Carnatic* t. 172. 1982. **Dialium coromandelicum** Houtt., *Nat.*

Hist. ser. 2: 2: 39. t. 5. f. 2. 1774. *Odina wodier* Roxb., Fl. India 2: 293. 1832; Wight, Ic. t. 60. 1838; Fl. Brit. India 2: 29. 1876; Fl. Pres. Madras 263. 1918.

Medium trees; branchlets pubescent. Leaves clustered at apex, pinnate; leaflets 3-4 pairs opposite, 5-8 x 3-4 cm, acuminate, young ones pubescent. Panicles axillary or terminal; flowers polygamous, pale yellow, clustered distantly on the axis; calyx 4-lobed, 1 mm; petals 3 x 2 mm oblong; stamens 8. 3 mm long, unequal, styles 4 radiate. Drupe 1 x 0.7 cm, ovoid.

*Fl. & Fr.* February-May

*D i s t.* Occasional in dry deciduous forests

Kurukku, *KKS 1198*

### MANGIFERA L.

*Mangifera indica* L., Sp. Pl. 200. 1753; Bedd., Fl. Sylv. t. 162. 1781; Fl. Brit. India 2: 13. 1876; Fl. Pres. Madras 259. 1918.

Medium to large trees. Leaves to 25 x 6 cm, lanceolate-oblong, apex acute, base cuneate, subcoriaceous, nerves ca. 25 pairs; petiole to 6 cm. Panicles terminal, to 30 cm, puberulous; flowers white, polygamo-monoecious; pedicels 2 mm; bracts 1 mm, ovate; sepals 5, 3 mm, elliptic, imbricate; petals 5. 3.5 mm, elliptic-oblong; fertile stamens one. 3.5 mm, sterile reduced; disc 5-lobed. Drupe ovoid, ellipsoid.

*Fl. & Fr.* April-July

*D i s t.* Common along river the sides

Churullipetty, *KKS 11870, 15971*

### NOTHOPEGIA Blume

*Nothopegia beddomei* Gamble, Fl. Pres. Madras 265. 1918; Matthew, Fl. TN. Carnatic 309. 1983 & Ill. Fl. TN. Carnatic t. 174. 1982. *N. colebrookeana* sensu Bedd., Fl. Sylv. t. 164. 1871 non (Wight) Blume 1851; Fl. Brit. India 2: 40. 1876 p.p.

Small trees. Leaves to 15 x 3.5 cm, elliptic-lanceolate, apex acuminate, base **cuneate**; petiole 0.8 cm. Racemes axillary, 1-2 cm; flowers polygamous, tetramerous, greenish white, bisexual flowers - calyx lobes 1 mm; petals 3 x 1.5 mm, oblong; stamens 1 mm, inserted at the four angles **of the** disc; ovary 1 mm long, globose, stigma capitate. Drupe 8 mm across, globose.

*Fl. & Fr.* March-August

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS 1560*

### RHUS L.

*Rhus mysorensis* G. Don. Gen. Syst. 2: 74. 1832; Heyne ex Wight & Arn., Prodr. 172. 1834; Fl. Brit. India 2: 9. 1876; Fl. Pres. Madras 264. 1918; Matthew, Fl. TN. Carnatic 310. 1983 & Ill. Fl. TN. Carnatic t. 175. 1982.

Small armed trees; branchlets pubescent. Terminal leaflets 4 x 2.5 cm, lateral ones 2 x 1.5 cm emarginate, margins broadly sinuate, sparsely pubescent, sessile; petiole 2.5 cm, pubescent

Racemes axillary and terminal, 5-6 cm long; flowers polygamous, white, pedicels 2-3 mm, female flowers-sepals 5, 0.5 mm, pubescent; petals 1.5 mm, ovate; ovary one celled, styles 3, lateral, stigma globose. Drupe 5 mm across, ovoid, compressed.

*Fl. & Fr.* August-December

D i s t. Occasional in dry deciduous forests

Churullipetty, *KKS* 11664

## MORINGACEAE

### MORINGA Adans.

**Moringa pterygosperma** Gaertn., *Fruct.* 2: 314. 1791; *Fl. Brit. India* 2: 45. 1876. *M. oleifera* auct. non Lam. 1785; *Bedd., Fl. Sylv.* t.80. 1871; *Fl. Pres. Madras* 269. 1918; *Matthew, Fl. TN. Carnatic* 314. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 111. 1988.

Small tree; branchlets lenticellate. Leaves 3-pinnate, to 50 cm, tomentose, pinnae and pinnules opposite, rachis thickened; leaflets to 2 x 1 cm, oblong, obtuse at apex, pubescent; petiolule to 1 mm. Panicles axillary, tomentose; flowers white, pedicels to 1.5 cm; calyx lobes 1.5 cm, oblong, reflexed, pubescent outside; petals 1.5 x 0.5 cm, spatulate, unequal; fertile stamens 5, filaments 1 cm; anthers one celled, intervened by 5 or 7 staminodes; ovary 1-celled, 3-valved, to 5 mm, ovoid, tomentose, style 8 mm, stigma perforated. Pod to 50 cm, 9-ribbed; seeds winged.

*Fl. & Fr.* January-May

D i s t. Occasional in dry deciduous forests

Chinnar, *KKS* 11923

## PAPILIONACEAE

- |                                                                                 |                     |
|---------------------------------------------------------------------------------|---------------------|
| 1. Twiners                                                                      | : 2                 |
| 1. Herbs, shrubs or trees                                                       | : 14                |
| 2. Stamens monadelphous                                                         | : 3                 |
| 2. Stamens diadelphous (9+1)                                                    | : 6                 |
| 3. Stamens 9                                                                    | : 4                 |
| 3. Stamens 10                                                                   | : 5                 |
| 4. Leaflets opposite                                                            | : Abrus             |
| 4. Leaflets alternate or subopposite                                            | : Dalbergia (p.p.)  |
| 5. Leaves trifoliolate                                                          | : Canavalia         |
| 5. Leaves 5 or more foliate                                                     | : Derris            |
| 6. Stamens subequal                                                             | : 7                 |
| 6. Stamens uniform                                                              | : 8                 |
| 7. Standard petal as half long as the keel and wings; fruit with irritant hairs | : Mucuna            |
| 7. Standard petal as long as the keel and wings; fruit without irritant hairs   | : Rhynchosia (p.p.) |
| 8. Pod twisted, encased in calyx tubes; bracts ovate, imbricate                 | : Uraria            |
| 8. Pod not encased in calyx tube                                                | : 9                 |
| 9. Style bearded below the stigma                                               | : 10                |
| 9. Style not bearded below the stigma                                           | : 11                |



10. Stigma oblique	: Vigna
10. Stigma terminal	: Dolichos
11. Flowers in axillary clusters or solitary	: Galactia
11. Flowers in racemes	: 12
12. Pod depressed outside between the seeds	: Atylosia (p.p.)
12. Pod not depressed outside between the seeds	: 13
13. Pod deflexed; petals not clawed; flowers white, spotted with pink	: Neonotonia
13. Pod not deflexed; petals not clawed; flowers yellowish or reddish yellow	: Dunbaria
14. Stamens monadelphous	: 17
14. Stamens diadelphous (9+1) or (5+5)	: 15
15. Stamens isodiadelphous	: 16
15. Stamens diadelphous (9+1)	: 24
16. Herbs, pod articulated	: Smithia
16. Trees, pod not articulated	: Dalbergia (p.p.)
17. Leaf margin hairy	: Goniogyna
17. Leaf margin glabrous	: 18
18. Leaves simple 2-3 foliate	: 19
18. Leaves 5 or more foliate	: 21
19. Leaves digitately 2 foliate; prostrate herbs	: Zornia
19. Leaves simple or trifoliate	: 20
20. Pod inflated; stamens alternately short and long	: Crotalaria
20. Pod not turgid; stamens uniform	: Rothia
21. Leaflets alternate	: 22
21. Leaflets opposite or subopposite	: 23
22. Pod winged, circular	: Pterocarpus
22. Pod not winged	: Dalbergia (p.p.)
23. Leaflets silky pubescent below, alternate, filaments dilated towards the base	: Mundulea
23. Leaflets not silky pubescent; filaments not so	: Pongamia
24. Pod turgid	: 25
24. Pod not turgid	: 27
25. Leaves simple	: Alysicarpus
25. Leaves 3-foliate	: 26
26. Leaves digitately 3-foliate	: Flemingia
26. Leaves pinnately 3-foliate	: Rhynchosia (p.p.)
27. Leaves parallel veined	: Tephrosia
27. Leaves reticulately veined	: 28
28. Trees	: 29
28. Herbs or shrubs	: 30
29. Standard more or less equal to the other petals	: Butea
29. Standard twice or more than twice as long as on the other petals	: Erythrina
30. Pod terete, hairs centrifixed	: Indigofera
30. Pod flat, not terete	: 31
31. Pod viscid pubescent, sticky; leaflets crenate	: Pseudarthria
31. Pods not sticky, leaflets entire	: 32
32. Leaflets gland dotted	: Atylosia (p.p.)
32. Leaflets not gland dotted	: Desmodium

### ABRUS Adans.

*Abrus precatorius* L., Syst. Nat. (ed. 12) 2: 472. 1767; Fl. Brit. India 2: 175. 1876; Fl. Pres. Madras 349. 1918; Bret., Blumea 10: 617. 1960; Matthew, Fl. TN. Carnatic 333. 1983 & Ill. Fl. TN. Carnatic t. 179. 1982. *Glycine abrus* L., Sp. Pl. 753. 1753.

Woody twiners. Leaves paripinnate, to 13 cm, rachis ending in a bristle; leaflets 10-13 pairs, 2.5 x 0.7 cm, oblong, obtuse at the apex, apiculate, stipules linear, 2.5 mm. Racemes axillary and terminal, to 10 cm; flowers white, clustered at the swollen nodes; calyx campanulate, 2 mm, lobes obscure; standard petal 1 x 0.5 cm, obovate, keel 7 mm long; filaments 2 and 3 mm, sheath 7 mm; ovary pubescent, 8 mm, style 2 mm, stigma capitate. Pod 3 x 1.5 cm, oblong, winged on one side, wrinkled, pilose, tipped with persistent style; seeds ca. 5, red with black blotch.

*Fl. & Fr.* January-April

*D i s t.* Occasional in dry deciduous forests

Champakkad, *KKS* 11918

### ALYSICARPUS Neck. ex Desv. *nom. cons.*

- |                                                     |                            |
|-----------------------------------------------------|----------------------------|
| 1. Articles of lomentum rugose, included in calyx   | : <b>A. rugosus</b>        |
| 1. Articles of lomentum smooth, exserted from calyx | : <b>2</b>                 |
| 2. Articles of lomentum downy pilose                | : <b>A. monilifer</b>      |
| 2. Articles of lomentum glabrous                    | : <b>A. bupleurifolius</b> |

*Alysicarpus bupleurifolius* (L.) DC., Prodr. 2: 352. 1825, var. *bupleurifolius* : Baker in Hook. f., Fl. Brit. India 2: 158. 1876; Fl. Pres. Madras 338. 1918; Matthew, Fl. TN. Carnatic 336. 1983. *Hedysarum bupleurifolium* L., Sp. Pl. 745. 1753.

Small prostrate herbs. Leaves 1-2.5 x 0.8-1 cm, oblong-elliptic, apex acute, mucronate, base cordate, erect pilose beneath; petiole to 3 mm, stipules to 8 mm. Racemes to 8 cm. Pod 1-3 jointed, 7 mm, glabrous. smooth, with an apical triangular cap; fruiting calyx tube 1 mm. upper lobes 8 x 2.5, ciliate, others 6 x 1 mm, ciliate, tomentose.

*Fl. & Fr.* September-November

*D i s t.* Common in grasslands

Paradipolla, *KKS* 17434

*Alysicarpus monilifer* (L.) DC., Prodr. 2: 353. 1825; Fl. Brit. India 2: 157. 1876; Fl. Pres. Madras 338. 1918; Matthew, Fl. TN. Carnatic 336. 1983 & Fur. Ill, Fl. TN. Carnatic t. 113. 1988. *Hedysarum monilifer* L., Mant. Pl. 1: 102. 1767.

Erect herbs, stems pilose. Leaves 2-8 x 1.3-2.5 cm, ovate-oblong, apex acute, apiculate, base cordate, except the bulbous base hairs below the midrib; petiole to 1.5 cm. stipules ovate-acuminate, 1.5 cm. Racemes terminal, to 6 cm. Pod 4-6 jointed, 1-1.5 cm, articles subglobose, turgid, downy with minute hooked hairs, apiculate; fruiting calyx 4 mm, pilose.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS* 15932; Mavelipuram, 15909

**Alysicarpus rugosus** (Willd.) DC., Prodr. 2: 353. 1825; Fl. Brit. India 2: 159. 1876; Fl. Pres. Madras 338. 1918; Matthew, Fl. TN. Carnatic 338. 1983 & Ill. Fl. TN. Carnatic t. 181. 1982.  
**Hedysarum rugosum** Willd., Sp. Pl. 3: 1172. 1803.

Erect herbs, sparsely ciliate. Leaves 2.5-7.5 x 1-1.5 cm, oblong-elliptic, apex acute, mucronate, base cordate, erect pilose below; petiole to 1 cm, stipules 2, 1.1 cm, elliptic, acuminate, membranous. Racemes axillary and terminal, 6-7 cm, congested, peduncles 3 mm; bracts 7 x 4 mm, ovate; calyx deeply 4-lobed, upper 2 cleft, tube 2 mm, lobes 4.5 and 5.5 mm; standard petal 4.5 x 2.5 mm. wing 4 x 0.5 mm, keels 4 mm; staminal sheath 4 mm. Pod usually 1-3 jointed, to 6 mm, transversally rugose, apex with triangular cap; fruiting calyx 1.1 x 0.2 cm;  
*Fl. & Fr.* December-February

D i s t. Occasional in moist deciduous forests

Kathitheetimala, KKS 11833

#### ATYLOSIA Wight & Arn.

1. Erect trees; pod ferruginously tomentose

: **A. trinervia**

1. Twiners; pod grey pubescent

: **A. albicans**

**Atylosia albicans** (Wight & Arn.) Benth. in Miq. Pl. Jungh. 243. 1852; Fl. Brit. India 2: 215. 1876; Fl. Pres. Madras 369. 1918; Matthew, Fl. TN. Carnatic 341. 1983 & Ill. Fl. TN. Carnatic t. 182. 1982 - Plate 20a. **Cantharospermum albicans** Wight & Arn., Prodr. 256. 1834 p.p.

Twiners; branchlets white-canescens. Leaflets 3-4.5 x 2-4 cm, obovate, apex rounded, base obtuse, grey pubescent below, nerves ca. 4 pairs, laterals oblique; petiole to 2-4 cm, petiolule 2 mm. pubescent, stipules 3 mm. Racemes lax, to 4 mm; bracts 3 mm; calyx tube 3 mm. lobes 1.5 mm. triangular, pubescent: petals persistent, yellow. Pod 3.5 x 1 cm, transversally, flattened. grey pubescent, strongly mucronate.

*Fl. & Fr.* December-March

D i s t. Rare in dry deciduous forests

Thayanankkudy, KKS 15970

**Atylosia trinervia** (DC.) Gamble var. **major** (Wight & Arn.) Prain in J. Asiat. Soc. Bengal 66: 45. 1897; Fl. Pres. Madras 368. 1918. **A. major** Wight & Arn., Prodr. 247. 1834.

Shrubs, densely golden brown pubescent. Leaflets to 6 x 2.2 cm, elliptic, apes obtuse. mucronate, base obtuse, pubescent above and tomentose below, glabrous above when mature. basally tri-nerved, lateral oblique at the base, ovate, elliptic, smaller; petiole 1.5 cm, petiolule 2 mm, tomentose, stipules 8 mm, triangular, acuminate. Racemes 1-2 flowered, pubescent: calyx tube 5 mm, lower teeth 7 mm, lanceolate, tomentose; petals yellow, standard petals 2 x 0.9 cm. obovate, circular, clawed: wings 15 mm, obovate; keels clawed: staminal tube 14 mm; ovary 5 mm, densely pubescent. Pod 3-4 seeded, 3 x 1.2 cm, oblong, constricted, densely pubescent.

*Fl. & Fr.* April-July

D i s t. Occasional in shola forests on the outer margins

Pothumala, KKS 17350

### BUTEA Roxb. ex Willd.

**Butea monosperma** (Lam.) Taub. in Engl. & Prantl, Pflanzenf. 3(3): 366. 1894; Matthew, Fl. TN. Carnatic 344. 1983 & Ill. Fl. TN. Carnatic t. 184. 1982. *Erythrina monosperma* Lam., Encycl. 1: 391. 1785. *Butea frondosa* Koen. ex Roxb. in Asiat. Res. 3: 369. 1792; Fl. Brit. India 2: 194. 1876; Fl. Pres. Madras 357. 1918.

Deciduous trees; branchlets densely tomentose. Terminal leaflets 14 x 15 cm. rhomboid-obovate, emarginate at apex, pubescent on both sides when young, lateral leaflets 15 x 14 cm, oblique, obovate-oblong; petiole to 12 cm, petiolule 0.5 cm, jointed. Panicles axillary or terminal, cauliflorous; bracts 9 mm, lanceolate, tomentose, pedicels 2 cm, tomentose; flowers bright red; calyx tube 1 cm, campanulate, tomentose, upper two connate, teeth 3 mm; standard petal 5 x 2.5 cm, lanceolate, clawed, 8 mm; wings falcate, 4.5 x 1.5 cm; keel united 4.5 x 3 cm, curved, tomentose outside; staminal tube 6 cm, hairy at the base; anthers 3 mm. oblong; ovary 2.5 cm, style 4.5 cm, pubescent. Pod 16 x 5 cm, flat, tomentose.

*Fl. & Fr.* February-July

*D i s t.* Very rare in dry deciduous forests

Chinnar, *KKS 15537*

### CANAVALIA DC. *nom. cons.*

**Canavalia mollis** Wight & Arn., Prodr. 253. 1834; Matthew, Fl. TN. Carnatic 348. 1983. *Canavalia ensiformis* DC. var. *mollis* (Wight & Arn.) Baker in Hook. f., Fl. Brit. India 2: 196. 1876. *C. virosa* (Roxb.) Wight & Arn. var. *mollis* (Wight & Arn.) Gamble, Fl. Pres. Madras 359. 1918.

Stout twiners. Leaflets 8 x 5 cm, ovate, acute at the apex, pubescent below. glabrous above, thinly coriaceous; petiole 0.5 cm, stipule deciduous. Racemes axillary, 10-20 flowered, nodes swollen; calyx upper 2 lobed. lower 3-lobed, 8 mm long, campanulate, thinly pubescent: corolla 3 cm long, blue or white. Pod to 15 x 3 cm, oblong, glabrous. 3-keeled: seeds 8-15.

*FZ & Fr.* February-April

*D i s t.* Occasional in moist deciduous forests

Ichampetty, *K. S. 15985*

### CROTALARIA L.

- |                                                             |                         |
|-------------------------------------------------------------|-------------------------|
| 1. Leaves trifoliate                                        | : 2                     |
| 1. Leaves simple                                            | : 3                     |
| 2. Pod globose, less 5 mm long; herbs                       | : <i>C. medicaginea</i> |
| 2. Pod oblong, more than 3.5 cm; shrubs                     | : <i>C. pallida</i>     |
| 3. Stipule decurrent as a persistent wing to the branchlets | : <i>C. scabrella</i>   |
| 3. Stipules not decurrent as a persistent wing              | : 4                     |
| 4. Pods glabrous                                            | : 5                     |
| 4. Pods pubescent or tomentose                              | : 8                     |
| 5. Shrubs                                                   | : 6                     |
| 5. Herbs                                                    | : 7                     |
| 6. Stipule semi-lunate, seeds many                          | : <i>C. lanata</i>      |
| 6. Stipules linear, minute, seeds ca. 5                     | : <i>C. retusa</i>      |

7. Flowers in umbels, fruit globose	: <i>C. umbellata</i>
7. Flowers in racemes, fruit oblong	: <i>C. ferruginea</i>
8. Herbs	: 12
8. Subshrubs	: 9
9. Flowers blue, stipules, semi-lunate	: <i>C. verrucosa</i>
9. Flowers yellow or golden brown, stipule otherwise	: 10
10. Inflorescenceracemes	: <i>C. juncea</i>
10. Inflorescence panicles	: 11
11. Calyx margins recurved, pods golden tomentose	: <i>C. candicans</i>
11. Calyx margins not recurved; pods sparsely pubescent	: <i>C. subperfoliata</i>
12. Inflorescence in leaf opposed racemes	: <i>C. evolvuloides</i>
12. Inflorescence in terminal racemes	: <i>C. pusilla</i>

***Crotalaria candicans*** Wight & Arn., Prodr. 184. 1834; Fl. Pres. Madras 298. 1918. *C. madurensis* sensu Baker in Hook. f., Fl. Brit. India 2: 79. 1876 p.p., non Wight & Arn. 1834.

Shrubs, golden tomentose. Leaves 6.5 x 1.5 cm, oblanceolate, apex obtusely acute. base cuneate, densely tomentose; petiole 2 mm, thick. Panicles terminal, to 15 cm; bracts and bracteoles 1 cm long, orbicular, tomentose; pedicel 1 cm; calyx tube 3 mm, lobes 9 x 3 mm, lower 8 mm, tomentose; standard petal 1.5 x 1.2 cm, orbicular; wings 1 x 0.5 cm, obovate; keels 2 cm long, not twisted, staminal tube 5 mm, filaments 5 and 7 mm; ovary 3 mm, densely tomentose, style 1.2 cm, pubescent. Pod 3 x 1.2 cm, oblong, sessile, golden tomentose; seeds 10-12.

*Fl. & Fr.* February-April

*D i s t.* Rare in grasslands; endemic to Peninsular India.

Olikudy, KKS 17202

***Crotalaria evolvuloides*** Wight ex Wight & Arn., Prodr. 188. 1834; Fl. Brit. India 2: 68. 1876; Fl. Pres. Madras 292. 1918; Matthew, Fl. TN. Carnatic 364. 1983 & Fur. Ill. Fl. TN. Carnatic t. 125. 1988.

Prostrate herbs, pubescent. Leaves to 4 x 1.8 cm, elliptic-oblong or ovate. apex apiculate. base rounded, pubescent; petiole 3-4 mm. pubescent, stipules 5 mm, lanceolate. Racemes leaf opposed, 3-8 flowered; bracts 5 mm, ovate; calyx tube 2 mm, upper lobe 4 mm, lower 5 mm. lanceolate, pubescent; standard petal 8 x 6 mm, orbicular; wings 7 x 1.5 mm, oblong; keels 7 x 3 mm, ovate: staminal sheath 2 mm. filaments 6 and 3 mm, anthers dimorphic, oblong, ones 1.2 mm, ovoid ones 0.3 mm; ovary 4 mm. style 5 mm. Pod 1.5 x 1 cm, oblong, pubescent.

*Fl. & Fr.* February-April

*D i s t.* Occasional in grasslands

Chengamperu, KKS 11720: Olikudy, 17219

***Crotalaria ferruginea*** Grah. ex Benth in Hook. f., Fl. Brit. India 2: 68. 1876.

Erect branched herbs, silky pubescent. Leaves to 5.5 x 1.5 cm, oblong, obovate. apex obtuse, apiculate. base cuneate. pubescent; petiole 1 mm, stipule 0.5 cm. lanceolate, ciliate. Racemes

lax, 6-8 flowered; flowers yellow, pedicels 0.5 cm; sepals connate at the base, 1.5 cm, lanceolate, tomentose; keel sepal linear; standard petal 17 x 8 mm, orbicular; wings 10 x 5 mm, oblong, obtuse; keel united, 1.5 cm long, enclosing the stamens and pistil; anthers dimorphic, larger 3 mm, smaller 0.3 mm; ovary 4 mm, oblong, style constricted at the bend, 1.3 cm, puberulus, stigma oblique. Pod 3 x 1 cm, oblong, glabrous, shining; seeds many.

*Fl. & Fr.* December-February

*D i s t.* Rare in dry deciduous forests

Kathitheetimala, *KKS 11835*

*Crotalaria juncea* L., Sp. Pl. 714. 1753; Roxb., Pl. Cor. t. 193. 1805; Fl. Brit. India 2: 79. 1876; Fl. Pres. Madras 297. 1918; Matthew, Fl. TN. Carnatic 373. 1983 & Fur. Ill. Fl. TN. Carnatic t. 127. 1988.

Silky pubescent subshrubs; branchlets striate. Leaves to 10 x 0.6 cm, oblong, apex obtuse. mucronate, base cuneate, pubescent on both sides, sessile; stipule adpressed, lanceolate. deciduous. Racemes terminal; flowers yellow; bracts 4 mm, linear; bracteoles cauducous: calyx lobes 2 and 1.5 cm long, lanceolate, densely tomentose; standard petal 3 x 2.5 cm; wings 2 x 0.9 cm; keel 2.5 x 1 cm; staminal sheath 4 mm, filaments 8 and 16 mm; anthers dimorphic. 7 and 1 mm; ovary 1 cm, villous, style 2 cm, ovules *ca.* 15. Pod 3 x 1 cm, oblong, densely brownish tomentose.

*Fl. & Fr.* January-March

*D i s t.* Common in dry deciduous forests

Nellimedu, *KKS 11957*

*Crotalaria lanata* Bedd. in Madras J. Lit. Sci. ser. 2. 19: 178. 1858 & Ic. t. 105. 1868-1874; Fl. Brit. India 2: 77. 1876; Fl. Pres. Madras 297. 1918.

Shrubs, stems angular, pubescent. Leaves 13 x 6.5 cm, elliptic-oblong or oblanceolate, apes obtuse, apiculate, base obtuse. pubescent below, membranous; petiole 2 cm, thick, stipule 1 cm. semi-lunate. Racemes terminal. to 15 cm; bracts 1 cm, ovate, acuminate, tomentose; bracteoles 2.5 mm, ovate; calyx tube 4 mm, villous, lobes 1 cm, lanceolate. Pod glabrous. 7 x 2 cm. oblong; seeds many, 8 x 6 mm, reniform, black, shining.

*Fl. & Fr.* February-April

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17304*

*Crotalaria medicaginea* Lam., Encycl. 2: 201. 1786; Wight & Arn., Prodr. Fl. Ind. 192. 1834; Fl. Brit. India 2: 81. 1876; Fl. Pres. Madras 299. 1918. *C. neglecta* Wight & Arn., Prodr. 192. 1834; Matthew, Fl. TN. Carnatic 356. 1983 & Fur. Ill. Fl. TN. Carnatic t. 131. 1988.

Divaricately branched herbs, pubescent. Leaves to 2 cm; terminal leaflets 1.4 x 0.8 cm, lateral 1 x 0.5 cm. obovate, apex emarginate, base cuneate; petiole 0.5 cm, petiolule 1 mm, stipules 3 mm, linear. cauducous. Racemes terminal and lateral. 6-12 flowered: flowers yellow

with brown striations; bracts 2 mm; calyx tube 1.5 mm, lobes 2.5 mm, lanceolate: standard petal 7 x 5 mm, orbicular: wings 6 x 2 mm, oblong; keel 6.5 x 2 mm, spirally twisted; staminal sheath 1.5 mm, filaments 2 and 4 mm; anthers 1.5 and 0.2 mm; ovary 1.5 mm, pubescent, style 4 mm. Pod 4 mm, globose, sessile, pubescent, beaked.

*Fl. & Fr.* January-March

*D i s t.* Occasional in dry deciduous forests

Naduvanasithura, *KKS 11681*

**Crotalaria pallida** Dryand. in Ait., Hort. Kew. ed. 1. 3: 20. 1789; Matthew, Fl. TN. Carnatic 358. 1983. **C. striata** DC., Prodr. 2: 131. 1825; Fl. Brit. India 2: 84. 1876; Fl. Pres. Madras 301. 1918. **C. striata** DC. var. **acutifolia** Trimen, Handb. Fl. Ceylon 2: 19. 1894; Fl. Pres. Madras 301. 1918.

Shrubs, thinly pubescent. Terminal leaflets 10 x 3 cm; lateral 7 x 2.5 cm, elliptic. acute at the apex, base cuneate, membranous, pubescent; petiole to 5.5 cm, petiolule 3-4 cm. Racemes terminal and lateral, to 15 cm long; bracts 1 cm, linear, pubescent; calyx tube 3 mm, upper lobes 4 and lower 5 mm, lanceolate; standard petal 1.7 x 1.2 cm, orbicular; wings 1.5 x 0.8 cm; keel 1.3 x 0.5 cm, falcate, pubescent at the margins; staminal sheath 7 mm, pubescent, filaments 4 and 7 mm; anthers 2.5 and 0.5 mm; ovary 5 mm, pubescent, style 1 cm. Pod 4 x 1 cm, oblong, puberulus; seeds many.

*Fl. & Fr.* April-August

*D i s t.* Common near the water courses

Gellimala, *KKS 15707*; Chinnar, *11517*

**Crotalaria pusilla** Heyne ex Roth. Nov. Pl. Sp. 335. 1821; Fl. Brit. India 2: 70. 1876; Fl. Pres. Madras 296. 1918; Matthew, Fl. TN. Carnatic 373. 1983 & Fur. III. Fl. TN. Carnatic t. 141. 1988 [Fig. 3].

Small herbs, pubescent. Leaves 1.5 x 0.2 cm, linear-oblong. silky pubescent; petiole to 1 mm. Racemes terminal, few flowered: flowers yellow; calyx tube 0.5 mm, lobes 3 mm, hirsute. lanceolate; standard petal 3 x 1.5 mm, ovate-oblong, pubescent; wings 3 x 1 mm, oblong; keel 3.5 mm, obovate. beak spirally twisted; staminal sheath 1 mm, filaments 1 and 2.5 mm; anthers 0.5 and 0.1 mm; ovary 1 mm, globose, stiff hairy, subsessile, style 1 mm. Pod 7 x 3 mm. ovoid, strigose; seeds *ca.* 4.

*Fl. & Fr.* December-February

*D i s t.* Rare, in dry deciduous forests

Chengamperu, *KKS 11717*

**Crotalaria retusa** L., Sp. Pl. 715. 1753; Fl. Brit. India 2: 75. 1876; Fl. Pres. Madras 293. 1918; Matthew, Fl. TN. Carnatic 365. 1983 & Fur. III. Fl. TN. Carnatic t. 142. 1988.

Subshrubs, pubescent. Leaves to 8 x 2.8 cm, oblanceolate. obtuse at the apex, mucronate, base cuneate, silky pubescent beneath; petiole 2 mm, stipules linear, deciduous. Racemes

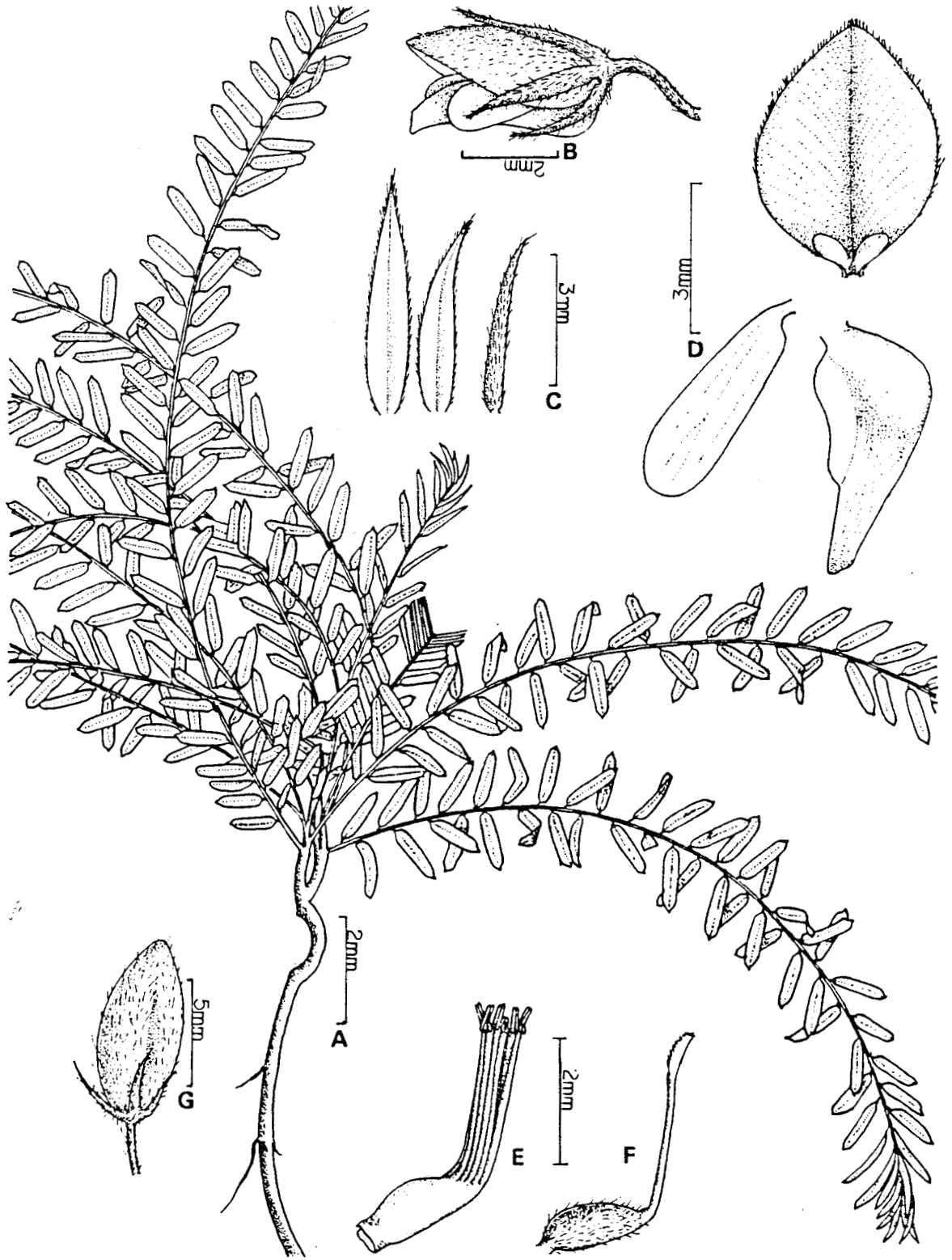


Fig. 3. *Crotalaria pusilla* Heyne ex Roth A. habit, B. flower, C. sepals, D. petals, E. stamens, F. pistil, G. fruit.



terminal, to 20 cm, pubescent; flowers yellow, 2 cm across; bracts 4 mm, linear; calyx tube 5 mm; standard petal 3 x 3 cm, orbicular; wings 2.5 x 1.2 cm, obovate; keels 3 x 1 cm, ovate, beak spirally twisted; staminal tube 1 cm; anthers 2 and 0.5 mm; ovary 1 cm, glabrous, style 1.5 cm, curved. Pod 4.5 x 1.5 cm, oblong; seeds *ca.* 5.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Karumpara, *KKS 11810*

***Crotalaria scabrella*** Wight & Arn., Prodr. 181. 1834; Fl. Pres. Madras 291. 1918. *C. rubiginosa* Willd. var. *scabrella* (Wight & Arn.) Baker in Hook. f., Fl. Brit. India 2: 70. 1876.

Shrubs, ferruginous tomentose. Leaves to 7.5 x 5 cm, obovate, apex obtuse, mucronate, base obtuse, coriaceous, densely tomentose, stipules 4 cm across at apex, decurrent, winged, triangular ovate, bimucronate. Racemes terminal or lateral, *ca.* 5-flowered; bracts 7 x 2 mm, ovate; bracteoles 1 x 0.4 cm, lanceolate; calyx tube 4 mm, lobes 1.5 cm, lanceolate; standard petal 2.5 x 1.5 cm, ovate-oblong; wing 1.6 x 0.5 cm, oblong-elliptic; keel 1.6 x 0.5 cm, ovate, beak twisted; staminal sheath 4 mm, filaments 5 and 10 mm; anthers 3 and 0.7 mm; ovary 8 mm, glabrous, stipitate. Pod 3 x 1.5 cm, oblong, glabrous.

*Fl. & Fr.* January-April

*D i s t.* Occasional in grasslands

Olikudy, *KKS 17201*

***Crotalaria subperfoliata*** Wight ex Wight & Arn., Prodr. 184. 1834; Fl. Brit. India 2: 79. 1876; Fl. Pres. Madras 298. 1918; Matthew, Fl. TN. Carnatic 377. 1983 & Fur. Ill. Fl. TN. Carnatic t. 144. 1988.

Subshrubs, pubescent. Leaves to 4.5 x 2.5 cm, obovate-oblong, apex obtuse, apiculate, base cuneate, membranous, pubescent; petiole 3 mm. Panicles terminal or lateral, many flowered; flowers yellow, pedicels 1 cm, opposite, pubescent; bracts 3 mm, ovate, acuminate; calyx tube 4 mm, lobes 7 mm, lanceolate, puberulous; standard petal 2.5 x 1.5 cm, orbicular; wings 1.5 x 0.8 cm, oblong; keels 2 x 1 cm, ovate, staminal sheath 5 mm, filaments 6 and 10 mm, anthers 4 mm and 0.6 mm; ovary 8 mm, stipitate, pubescent, style hirsute. Pod 3 x 1 cm, oblong-obovoid, stipitate, to 4 mm, sparsely pubescent; seeds 12-15.

*Fl. & Fr.* December-February

*D i s t.* Common near to wet regions in dry deciduous forests; endemic to Peninsular India.

Panchankalithode, *KKS 11672*

***Crotalaria umbellata*** Wight ex Wight & Arn., Prodr. 191. 1834; Fl. Pres. Madras 294. 1918; Matthew, Fl. TN. Carnatic 368. 1983 & Fur. Ill. Fl. TN. Carnatic t. 145. 1988.

Erect herbs, pubescent. Leaves to 2 x 0.7 cm, oblong or obovate, apex obtuse, pubescent on upper side, densely so underneath; petiole 1 mm, stipules minute. Umbels terminal and axillary, 3-6-flowered, pedicels 3 mm; bracts 2 mm, linear; calyx tube 1 mm, tomentose, lobes 4 mm,

lanceolate, upper connate, bifid, lower 3.5 mm; corolla 6 x 7 mm; staminal sheath 1 mm, filaments 2 and 4 mm; ovary 2 mm, stipitate. Pod 7 x 4 mm, subglobose, glabrous; seeds *ca.* 8, reniform.

*Fl. & Fr.* December-March

*D i s t.* Rare, along margins of shola forests

Olikudy, *KKS 17216*

**Crotalaria verrucosa** L., *Sp. Pl.* 715. 1753; Wight,  *Ic. t.* 200. 1839; *Fl. Brit. India* 2: 77. 1876; *Fl. Pres. Madras* 297. 1918; Matthew, *Fl. TN. Carnatic* 374. 1983 & *Fur. Ill. Fl. TN. Carnatic t.* 146. 1988.

Subshrubs puberulus, stem 3-angled, slightly winged. Leaves 7 x 4.2 cm. ovate-deltoid or rhomboid, apex apiculate, base cuneate, chartaceous; petiole 0.5 cm, stipules 8 mm, semi-lunate. Racemes terminal or lateral, to 15 cm long; flowers bluish-white; bracts and bracteoles 4 and 2 mm, linear; pedicels 0.4 cm, pubescent; calyx tube 3 mm, lobes 9 x 3 mm, lanceolate: standard petal 2 x 1.5 cm, ovate; wings 1.5 x 0.7 cm, obovate; keels 1.5 x 0.6 cm, beak twisted: staminal sheath 6 mm, filaments 4 and 8 mm; anthers 4 and 0.5 mm; ovary 7 mm, stipitate. pubescent; style 1 cm, pubescent. Pod 4 x 1 cm, oblong, terete, puberulus; seeds 10-15, 6 x 5 mm, bean shaped.

*Fl. & Fr.* June-September

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 15714*

#### DALBERGIA L. f.

- |                                         |                         |
|-----------------------------------------|-------------------------|
| 1. Climbing shrubs                      | : <b>D. congesta</b>    |
| 1. Trees                                | : 2                     |
| 2. Stamens isodiadelphous               | : <b>D. lanceolaria</b> |
| 2. Stamens monadelphous                 | : 3                     |
| 3. Corymbs axillary; leaflets orbicular | : <b>D. latifolia</b>   |
| 3. Panicles axillary; leaflets obovate  | : <b>D. sissoides</b>   |

**Dalbergia congesta** Graham ex Wight & Arn., *Prodr.* 265. 1834; *Fl. Brit. India* 2: 232. 1876; *Fl. Pres. Madras* 382. 1918.

Young branchlets and inflorescence tawny-pubescent, lenticellate. Leaves 10-11 cm: leaflets 5-11, upper to 5 x 2.5 cm, lower smaller, elliptic-oblong, apex obtuse; emarginate. base rounded, pubescent when young, later glabrous; petiole to 3 cm, petiolule 3 mm. Panicles axillary, to 10 cm, pubescent; flowers yellowish-white; bracts 2 mm, ovate, persistent: bracteoles 2, 2 mm, pedicel 1 mm; calyx 5 mm, campanulate, subequal; standard petal 7 x 4 mm, orbicular, emarginate, clawed; wings 3 x 2 mm, sagitate, clawed to 4 mm; keel boat shaped; staminal tube 4 mm, filaments 2 mm, alternately longer and shorter; ovary 6 mm, stipitate, glabrous, ovule 1. Pod oblong, flat, 1-seeded.

*Fl. & Fr.* December-April

*D i s t.* Common in semi-evergreen forests

Vanchikulam, *KKS 15994*

*Dalbergia lanceolaria* L. f., Suppl. Pl. 316. 1781; Fl. Brit. India 2: 235. 1876; Fl. Pres. Madras 383. 1918; Matthew, Fl. TN. Carnatic 384. 1983 & Fur. Ill. Fl. TN. Carnatic t. 148. 1988; Thoth., Rev. Dalb. India 135. 1987. *D. frondosa* Roxb., Fl. India 3: 226. 1832; Wight, Ic. t. 266. 1840.

Large trees. Leaves 15-25 cm long; leaflets 13 or 15, to 4 x 2 cm, oblong-elliptic, apex emarginate, slightly coriaceous; petiole to 2 cm; petiolule 3-5 mm, stipules small, deciduous. Panicles terminal and axillary, 5-15 cm long. Pod 8 x 2 cm, oblong-lanceolate, glabrous, stipitate, coriaceous. acute at both ends: seeds 1-3.

*Fl. & Fr.* August-February

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11642*; Chinnar, *NS 5873*

*Dalbergia latifolia* Roxb., Cor. Pl. 2: 7, t. 1798; Fl. Brit. India 2: 231. 1876; Fl. Pres. Madras 383. 1918; Matthew, Fl. TN. Carnatic 384. 1983 & Fur. Ill. Fl. TN. Carnatic t. 149. 1988; Thoth. Rev. Dalberg. India 46. 1987. *D. emarginata* Roxb., Fl. Ind. 3: 224. 1832.

Large trees. Leaves 15-25 cm: leaflets 5-7, to 10 x 10 cm orbicular, apex emarginate, subcoriaceous; petiole 7 cm, petiolule 1 cm. Corymbs axillary, arising from previous years wood, 5-15 cm; flowers white; calyx tube 4 mm, upper two connate, lateral obtuse, lower acute; standard petal 7 x 5 mm. cuneate at the base, others clawed; wings 6 x 2.5 mm, base auricled; keel 6 mm long, united, clawed: staminal sheath 4 mm, split open one side, free at the upper third; ovary 5-7 mm, stipitate.

*Fl.* July-August

*D i s t.* Common in moist deciduous forests

Karimutty, *KKS 15783*

*Dalbergia sissooides* Grah. ex Wight & Arn., Prodr. 1: 265. 1834; Fl. Brit. India 2: 231. 1870; Fl. Pres. Madras 383. 1918; Thoth. Rev. Dalberg. India 53. 1987.

Large trees. Leaves to 20 cm long; leaflets 6 x 4 cm, obovate-elliptic, membranous. apex emarginate, base obtuse; petiolule to 1 cm. Panicles axillary, from current years shoot, to 15 cm long; flowers white; pedicels 2-3 mm; bracts small; bracteoles 2, cauducous: calyx 6 mm. campanulate, upper 2 connate, subequal; standard petal 6-7 mm; staminal tube 5 mm, filaments 2 mm, alternately longer and shorter: ovary stipitate, style 2 mm.

*Fl.* February-July

*D i s t.* Common in dry deciduous forests

Champakkad. *KKS 15531*

#### **DERRIS** Lour. *nom. cons.*

1. Leaflets 9-13 pairs, to 4.5 x 2 cm

: **D. scandens**

1. Leaflets 7-9, to 9 x 4 cm

: **D. brevipes**

*Derris brevipes* (Benth.) Baker in Hook. f., Fl. Brit. India 2: 244. 1878; Fl. Pres. Madras 388. 1918; Thoth. Bull. Bot. Surv. India 3: 184. 1961. *D. heyneana* Benth. var. *brevipes* Benth. in J. Linn. Soc. 4(Suppl.): 1 10. 1860.

Woody climbers; branchlets lenticellate. Leaves to 7 cm; leaflets 5-7, to 9 x 4 cm, oblong-ovate, apex shortly acuminate, base rounded, coriaceous; petiole 0.5 cm. Panicle axillary and terminal, to 20 cm, tomentose; flowers crowded, reddish-white, pedicels 2 mm; calyx truncate, tooth obscure, pubescent outside; standard petal 1 x 0.5 cm, obovate to orbicular; wings 8 x 2 mm, oblong; keel united; staminal tube 7 mm, filaments 3 and 4 mm; ovary 5 mm, oblong, pubescent, style 5 mm, curved, stigma globose. Pod 4.5 x 2.5 cm, turgid, narrowly winged on upper suture; seeds 1 or 2.

*Fl. & Fr.* February-August

*D i s t.* Common in moist deciduous forests; endemic to Peninsular India.

Alampetty, *KKS 11961*

**Derris scandens** (Roxb.) Benth., J. Linn. Soc. Bot. 4 (Suppl.) 103. 1860; Fl. Brit. India 2: 240. 1876; Fl. Pres. Madras 387. 1918; Thoth., Bull. Bot. Surv. India 3: 177. 1962 & 13: 164. 1971 & Fasc. Fl. India 8: 27. 1982; Matthew, Fl. TN. Carnatic 388. 1983 & Ill. Fl. TN. Carnatic t. 193. 1982. *Dalbergia scandens* Roxb., Pl. Cor. t. 192. 1805; Wight, Ic. t. 275. 1840.

Woody climbers. stem terete and lenticellate. Leaves to 12 cm; leaflets 9-13, to 4.5 x 2 cm, oblong-ovate, puberulus beneath; petiolule 5 mm, stipels minute. Racemes axillary and rarely terminal, sometimes branched, to 25 cm long, nodes tumid; flowers pinkish-white; pedicels to 8 mm, pubescent; bracteoles 2 above the middle of the pedicel; calyx 3 mm, truncate, campanulate; standard petal 9 x 7 mm, ovate-orbicular; wings 9 x 2 mm, appendaged; keel 9 mm; staminal tube 7 mm, filaments 2 and 3 mm; ovary 7 mm, tomentose, style 5 mm, bent upwards, stigma globose. Pod winged on the upper suture, tapering at both ends, pubescent; seeds 1-4.

*Fl. & Fr.* June-September

*D i s t.* Common on the sides of water courses

Chinnar, *KKS 15771*

#### DESMODIUM Desv. *nom. cons.*

- |                                                       |                          |
|-------------------------------------------------------|--------------------------|
| 1. Bracts leafy                                       | : <b>D. pulchellum</b>   |
| 1. Bracts not leafy                                   | : 2                      |
| 2. Leaves simple                                      | : <b>D. velutinum</b>    |
| 2. Leaves trifoliate                                  | : 3                      |
| 3. Flowers in racemes, erect herbs                    | : 4                      |
| 3. Flowers in clusters, prostrate herbs, 2-3 flowered | : <b>D. triflorum</b>    |
| 4. Leaflets less than 3 cm long                       | : <b>D. rufescens</b>    |
| 4. Leaflets more than 5 cm long                       | : 5                      |
| 5. Branchlets terete, stipule lanceolate              | : <b>D. heterocarpon</b> |
| 5. Branchlets angular, stipule triangular             | : <b>D. pryonii</b>      |

**Desmodium heterocarpon** (L.) DC., Prodr. 2: 337. 1825; van Meeuwen, Reinwardtia 6: 251. 1962; Ohashi, Ginkgoana 1: 210. 1973; Matthew, Fl. TN. Carnatic 396. 1983; Sanj., Leg. India 155. 1992. **D. polycarpon** (Poir.) DC., Prodr. 2: 334. 1825; Wight, Ic. t. 406. 1840; Fl. Brit. India 2: 171. 1876; Fl. Pres. Madras 346. 1918.

Shrubs, pubescent. Leaflets to 6 x 3.5 cm, obovate-elliptic, apex obtuse, mucronate, white pubescent below, nerves ca. 6 pairs; petiole to 2.5 cm, pubescent, petiolule 3 mm, stipule 7 mm, lanceolate, stipels 5 mm, linear. Racemes axillary and terminal; flowers 8 mm across, pink; bracts 1 x 0.2 cm, elliptic, long acuminate, ciliate, pedicels to 3 mm; calyx tube 2 mm, upper two connate, above the half, 2.5 mm, lower longest 4 mm, ciliate, lanceolate; staminal tube 8 mm, filaments 2 mm; ovary 3 mm, pubescent, style 3 mm. Pod 3 x 0.3 cm, intended, pubescent.

*Fl. & Fr.* March-June

*D i s t.* Common in shola forests

Olikkudy, *KKS 17306*

**Desmodium pryonii** DC.. Prodr. 2: 334. 1825, "*pryonii*". *D. wightii* Graham ex Wight & Arn., Prodr. 266. 1834; *Fl. Brit. India* 2: 169. 1876; *Fl. Pres. Madras* 346. 1918; Ohashi, *Ginkgoana* 1: 190. 1973.

Herbaceous subshrubs, branchlets angular, hairy. Terminal leaflets to 10 x 5 cm, lateral to 6 x 3.5 cm, elliptic-ovate, apex acute to slightly obtuse, chartaceous, upper pubescent and densely so beneath, stipules 5 mm, triangular, acuminate, ciliate, stipule 3 mm; Racemes axillary and terminal, to 20 cm; flowers in fascicles of 2-3, pedicels 4-5 mm, ciliate; bracts 2 mm, linear; calyx 2-3 mm, hairy. Pod 2.5 x 0.3 cm, 6-9 jointed, linear, sessile, densely pubescent when young, later puberulus, upper suture nearly straight, lower constructed below the half, articles reticulately veined.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Vallavankadu, *KKS 11908*

**Desmodium pulchellum** (L.) Benth., *Fl. Hong.* 83. 1861; *Fl. Brit. India* 2: 162. 1876; *Fl. Pres. Madras* 344. 1918. *Hedysarum pulchellum* L., *Sp. Pl.* 747. 1753. *Dicernta pulchellum* (L.) DC. in *Ann. Sci. Nat. (Paris)* 4: 236. 1825 & Prodr. 2: 339. 1825; Wight, *l.c.* t. 418. 1841. *Phyllodium pulchellum* (L.) Desv., *J. Bot. (Desvaux)* (ser. 2) 1: 124. t. 5. f. 24. 1813; Ohashi, *Ginkgoana* 1: 276. 1973; Matthew, *Fl. TN. Carnatic* 440. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 187. 1988.

Subshrubs, adpressed pubescent. Terminal leaflets to 9 x 4 cm, elliptic, laterals 3 x 2.5 cm, ovate-elliptic, apex obtuse, mucronate, margins crenate, pubescent above and densely so beneath; stipule 3 mm, ovate, stipel 2 mm, linear. Racemes axillary and terminal, to 25 cm; flowers solitary or in fascicles at the axils of leafy bracts, yellow; bracts 2-foliolate. 1.5 cm across, orbicular, pubescent. mucronate; calyx tube 2 mm, lobe 2 mm, unequal, pubescent; corolla 5 mm long; staminal tube 4 mm, vexillary free, above the middle; ovary 2 mm, pubescent. style 3 mm. Pod 8 mm, ciliate along the margins, articles as broad as long tipped with style; seeds 1-2.

*Fl. & Fr.* November-January

*D i s t.* Common in moist deciduous forests

Alampetty, *KKS 11795*

**Desmodium rufescens** DC., Ann. Sci. Nat. (Paris) 4: 101. 1825. **Dododia hamosa** Roxb., Fl. Ind. 3: 367. 1832. **Uraria hamosa** (Roxb.) Sw. ex Wight & Arn., Prodr. 222. 1834; Wight, Ic. t. 284. 1840; Fl. Brit. India 2: 156. 1876; Fl. Pres. Madras 336. 1918.

Shrubs, branchlets densely silky pubescent, terete. Leaflets to 2.5 x 2 cm, obovate, apex rounded, mucronate, base obtuse, silky pubescent below, nerves ca. 6 pairs. petiole 2.5 cm, petiolule 0.5 cm, stipule 0.5 cm, ovate, pubescent, stipel 0.5 cm, linear. Racemes axillary and terminal, to 20 cm, pubescent; flowers lilac to purple; bracts 1 x 0.25 cm, lanceolate, acuminate, pubescent, densely along the margins, pedicels to 7 mm, recurved, hairy; calyx tube 3 mm, campanulate, pubescent, lobes 3 mm, lanceolate; standards petal 1.5 x 1.2 cm, orbicular, obovate: staminal sheath 1 cm; ovary 1 cm, oblong, puberulus, style 1 cm, curved. stigma conical. Pod 4 x 0.3 cm, joints straight articles quadrangular, puberulus, intended: seeds many.

*Fl. & Fr.* February-April

*D i s t.* Common in moist deciduous forests

Mavelikudy, *KKS 15996*

**Desmodium triflorum** (L.) DC., Prodr. 2: 334. 1825; Wight, Ic. t. 292. 1839; Fl. Brit. India 2: 173. 1876; Ohashi, Ginkgoana 1: 245. 1973; Matthew, Fl. TN. Carnatic 399. 1983 & Fur. Ill. Fl. TN. Carnatic t. 158. 1988. **Hedysarum triflorum** L., Sp. Pl. 249. 1753.

Prostrate herbs, rooting at lower nodes; branchlets long pilose. Leaflets to 1.5 x 1 cm, obovate, apex slightly emarginate, base cuneate, puberulus; petiole 1 cm, petiolule 2 mm. hairy, stipule 5 mm, lanceolate. acuminate. pubescent. Flowers 3-5 in a cluster, 3 mm across, pink; bracts 3 mm, ovate; pedicels to 5 mm; calyx tube 1 mm, lobes 1 and 2 mm; staminal sheath 4 mm; ovary 4 mm, style 2 mm. Pod 1.5 cm, articles 4-6, intended on lower side, hooked pubescent.

*Fl. & Fr.* January-April

*D i s t.* Common in wet rocky regions in dry deciduous forests

Churullipetty, *KKS 11875*; Alampetty, *11791*

**Desmodium velutinum** (Willd.) DC., Prodr. 2: 328. 1825; Ohashi, Ginkgoana 1: 192. 1973 Plate 30j; Matthew, Fl. TN. Carnatic 400. 1983 & Fur. Ill. Fl. TN. Carnatic t. 159. 1988. **Hedysarum velutinum** Willd., Sp. Pl. 3: 1174. 1802. **Desmodium latifolium** (Roxb. ex Ker) DC., Prodr. 2: 328. 1825; Fl. Brit. India 2: 168. 1876; Fl. Pres. Madras 346. 1918.

Subshrubs, young parts densely tomentose. Leaves to 11 x 9 cm, ovate. apex obtuse, mucronate, margins undulate, chartaceous, hirsute above, densely pubescent below; petiole to 2 cm, stipule 5 mm, ovate, stipels 2 mm. Racemes terminal and axillary, to 15 cm; flowers 3 mm across, purple; calyx 0.5 mm, 0.5-1 mm, densely pubescent; staminal sheath 4 mm; ovary sessile, style 1 mm. Pod 2 cm, intended on both margins, pubescent.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Karumpara, *KKS 11805*

## DOLICHOS L.

**Dolichos trilobus** L., Sp. Pl. 726. 1753; Verdc., Taxon 17: 173. 1968; Matthew, Fl. TN. Carnatic 401. 1983 & Fur. Ill. Fl. TN. Carnatic t. 161. 1988. **D. falcatus** Klein ex Willd., Sp. Pl. 3: 1047. 1802; Fl. Brit. India 2: 211. 1876; Fl. Pres. Madras 366. 1918.

Twiners, puberulus. Leaflets to 4 x 3 cm, obovate; terminal leaflets 3-lobed, deltoid, apex acute, apiculate. puberulus; petiole to 2 cm, petiolule 2 mm, stipule 4 mm, ovate, basifixed, stipels 1 mm. Racemes axillary and terminal; flowers violet; bracts 3 mm, ovate, bracteoles 2 mm; calyx 4 mm, campanulate, lobes upper two connate, others 2 and 3 mm; standard petal 1.5 cm across, orbicular; wings 1.2 cm long, obovate; keel united 1.5 cm; staminal sheath 9 mm, filaments 3 and 4 mm; ovary 5 mm, style 5 mm, curved, stigma capitate, terminal, with hairs around the stigma. Pod 6 x 1 cm, falcate, glabrous, apically horned.

*Fl. & Fr.* November-February

*D i s t.* Common near water courses

Mangavada, *KKS 15924*

## DUNBARIA Wight & Arn.

**Dunbaria ferruginea** Wight & Arn., Prodr. 258. 1834; Fl. Brit. India 2: 217. 1876; Fl. Pres. Madras 370. 1918; Matthew. Fl. TN. Carnatic 403. 1983 & Ill. Fl. TN. Carnatic t. 198. 1982.

Climbing shrubs, ferruginous tomentose. Terminal leaflets to 10 x 8 cm, lateral 8 x 6 cm, oblique at the base, rhomboid-ovate, apex acuminate, base oblique, slightly cordate; petiole to 5 cm, petiolule 0.3-2 cm, stipules and stipels linear, pubescent. Panicles axillary, flowers yellow; peduncles to 2 cm, pubescent: calyx tube 7 mm, pubescent, lobes 4 mm, triangular; standard petal 3 x 2 cm, orbicular, auricled; wings 2.5 x 1 cm, obliquely obovate; keels 2.5 x 1 cm. clavate; staminal sheath 2 cm. filaments 9 mm; anthers 1 mm; ovary 8 mm, ovules many. tomentose, style 2 cm, hairy, stigma oblique. Pod 4 x 1 cm, pubescent, beaked.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Kathitheetimala, *KKS 11832*

## ERYTHRINA L.

1. Calyx spathaceous; keel and wings more or less equal : **E. variegata**

1. Calyx split into 2 lobes; keel longer than the wings : **E. suberosa**

**Erythrina suberosa** Roxb., Fl. Ind. 3: 253. 1832; Bedd., Fl. Sylv. t. 87. 1871; Fl. Brit. India 2: 189. 1876; Fl. Pres. Madras 354. 1918; Matthew, Fl. TN. Carnatic 406. 1983.

Deciduous trees, armed with yellowish-white prickles. Leaves trifoliate; leaflets to 10 x 12 cm, rhomboid-ovate. coriaceous, lateral obliquely and broadly ovate, acute at apex, cordate. tomentose below; petiole to 7.5 cm, petiolule to 1 cm, pedicels to 1 cm. Racemes axillary and terminal, tomentose; flowers pink; pedicels to 6 cm; calyx 2-lipped, 8 mm, campanulate, pubescent; standard petal 3.5 x 1.2 cm, oblong; wings 7 mm long, oblong; keel 1.5 cm long.

connate; staminal sheath 2 cm, filaments 6 and 8 mm; anthers 2 mm; ovary oblong, downy pubescent 1 cm, stipitate. style 1 cm.

*Fl.* February - April

*D i s t.* Occasional in dry deciduous forests

Valakanuvam. *KKS* 15527

**Erythrina variegata** L. var. **orientalis** Merr. *Interpr. Herb. Atnb.* 276. 1917; Matthew, *Fl. TN. Carnatic* 406. 1983 & *Fur. III. Fl. TN. Carnatic t.* 162. 1988.

Deciduous trees, armed with small prickles, bark thin, smooth. Leaves trifoliolate: terminal leaflets 13.5 x 13 cm, lateral 10 x 10 cm, rhomboid-ovate, acuminate, thinly coriaceous. stellate pubescent, later glabrous, basally tri-nerved; petiole to 15 cm, petiolule 1 cm. stipules thick, gland like. Racemes dense, to 20 cm; flowers reddish; peduncles to 15 cm, stout, tomentose; pedicels 5 in a cluster, 1.5 cm; calyx 3 cm long, apically 5-toothed; standard petal 6.5 x 2.5 cm, oblong-elliptic; wings 1.5 x 1 cm, obovate; keel 1.5 x 1.7 cm, free, falcate; staminal tube 3 cm, filaments 2.5 cm; ovary 2 cm. pubescent, style 3 cm.

*Fl.* January - April

*D i s t.* Occasional in dry deciduous forests

Churullipetty. *KKS* 11859

#### **FLEMINGIA Roxb. ex Ait. nom. cons.**

**Flemingia wightiana** Graham ex Wight & Arn., *Prodr.* 242. 1834; *Fl. Pres. Madras* 379. 1918. **F. congesta** Roxb. var. **wightiana** (Graham ex Wight & Arn.) Baker in Hook, f., *Fl. Brit. India* 2: 229. 1876.

Shrubs; branchlets tawny pubescent, terete. Terminal leaflet to 10 x 4 cm, lateral to 8 x 3 cm, oblanceolate, acuminate, inequilateral, gland dotted beneath, ferruginous tomentose, tri-nerved; petiole 6 cm long, petiolule 0.5 cm. Racemes axillary, to 6 cm long; flowers brownish; calyx tube 1 mm, lobes 8 and 6 mm, lanceolate, glandular pubescent; standard petal 8 x 5 mm; wings 8 mm, oblong; keel 8 mm long; staminal tube 6 mm, filaments 2 mm; ovary 2 mm, pubescent, style glabrous. stigma capitate. Pod 1 x 0.5 cm, turgid oblong, glandular, pubescent; seeds 2, nonseptate.

*Fl. & Fr.* January - April

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS* 15987

#### **GALACTIA P. Browne**

**Galactia villosa** Wight & Arn., *Prodr.* 207. 1834; *Fl. Pres. Madras* 357. 1918; Matthew. *Fl. TN. Carnatic* 410. 1983 & *Fur. III. Fl. TN. Carnatic t.* 164. 1988. **G. tenuiflora** (Klein ex Willd.) Wight & Arn. var. **villosa** (Wight & Arn.) Baker in Hook. f., *Fl. Brit. India* 2: 192. 1876.

Twining; branchlets hirsute. Leaves pinnately trifoliolate; leaflets 5.5 x 2.5 cm. oblong-elliptic. apex obtuse, mucronate, obtuse at the base, pubescent. later glabrous on upper side; petiole 2 cm, petiolule 2 mm. stipules 4 mm. linear. Flowers <sup>leaf</sup>opposed or axillary, solitary or



in clusters, red; calyx tube 2 mm, lobes acuminate, villous, upper two connate, 3 mm, lower 4 mm; standard petal 6 x 3.5 mm, obovate, clawed; wings adnate to the keels, 5 x 2 mm; keels obtuse; staminal tube 4 mm, free portion 2 mm; ovary 5 mm, oblong, densely pubescent, many ovuled, style 3 mm, horned at the apex, stigma terminal, capitate. Pod 4 x 6 mm, straight, villous, thickened along the margins.

*Fl. & Fr.* November -February

*D i s t.* Common in moist deciduous forests.

Kathitheetimala, *KKS 11834*; Sivapura, *11933*

Note : This is a new record for Kerala. From Tamil Nadu two collection records are available.

### GONIOGYNA DC.

**Goniogyna hirta** (Willd.) Ali. in *Taxon* 16: 463. 1967; Matthew, *Fl. TN. Carnatic* 412. 1983.

**Hallia hirta** Willd., *Sp. Pl.* 3: 1169. 1802. **Heylandia latebrosa** sensu Baker in *Hook. f., Fl. Brit. India* 2: 65. 1876, non (L.) DC. 1825; *Fl. Pres. Madras* 280. 1918.

Prostrate herbs; branchlets hispid. Leaves to 1.5 x 1 cm, ovate, apex obtuse, cordate, chartaceous, with long ciliate hairs on the margins, sessile, exstipulate. Flowers axillary, solitary, yellow; pedicels to 1 cm; calyx tube 2 mm, lobes 1 and 2 mm, lanceolate, long ciliate, upper two connate above the middle; standard petal 5 x 3 mm, obovate; wings 4 x 1 mm, oblong; keel 4 mm. staminal sheath 3 mm, filaments alternately short and long; ovary 2 mm. long ciliate, style 2 mm, bent. Pod 6 x 3 mm, oblong long ciliate; seed one.

*Fl. & Fr.* September-November

*D i s t.* Common in high altitude grasslands

Olikudy, *KKS 17471*

### INDIGOFERA L.

- |                                                |                         |
|------------------------------------------------|-------------------------|
| 1. Leaves trifoliate, gland dotted             | : <b>1. glandulosa</b>  |
| 1. Leaves 5-many foliate                       | : <b>2</b>              |
| 2. Herbs                                       | : <b>3</b>              |
| 2. Shrubs                                      | : <b>4</b>              |
| 3. Plants glandular pubescent, prostrate herbs | : <b>1. colutea</b>     |
| 3. Plants pubescent, erect herbs               | : <b>1. linnaei</b>     |
| 4. Leaflets 5                                  | : <b>1. marginulata</b> |
| 4. Leaflets 9-15                               | : <b>6</b>              |
| 5. Pod densely hirsute, 4-gonous               | : <b>1. hirsuta</b>     |
| 5. Pod glabrous, ovoid                         | : <b>1. pulchella</b>   |

**Indigofera colutea** (Burm. f.) Merr. in *Philipp. J. Sci.* 19: 355. 1921; Matthew, *Fl. TN. Carnatic* 418. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 170. 1988. **Galega colutea** Burm. f., *Fl. India.* 172. 1768. **Indigofera viscosa** Lam., *Encycl.* 3: 247. 1789; Wight,  *Ic. t.* 404. 1840; *Fl. Brit. India* 2: 95. 1876; *Fl. Pres. Madras* 311. 1919.

Erect herbs. glandular pubescent, viscous. Leaves imparipinnate, 5 cm; leaflets 11-15, 8 x 4 mm, elliptic-obovate, apes obtuse, mucronate, white pilose above and below. stipule 5 mm,

linear. Racemes axillary, to 7 cm, 6-12 flowered; flowers 4 mm across, red; calyx lobes to 1.5 mm, sericeous; staminal sheath 3 mm; ovary 3 mm, hispid. Pod terete, margined, torulose, mucronate; seeds 8-14.

*Fl. & Fr.* July-September

*D i s t.* Common in moist deciduous forests

Sivapura, *KKS 15817*; Alampetty, *NS 5868*

**Indigofera glandulosa** Roxb. ex Willd. Sp. Pl. 3: 1227. 1803; Wight, Ic. t. 330. 1840; Fl. Brit. India 2: 94. 1876; Fl. Pres. Madras 309. 1918; Matthew, Fl. TN. Carnatic 420. 1983 & Fur. III. Fl. TN. Carnatic t. 172. 1988.

Subshrubs; branchlets pubescent. Leaflets to 3.5 x 1.5 cm, oblanceolate. apex obtuse or emarginate, mucronate, base cuneate, membranous, pubescent, glandular beneath, laterals little smaller; petiole to 2 cm; petiolule 1 mm, stipules linear. Racemes axillary, to 1 cm long; flowers pink; bracts linear, ciliate; calyx 5-lobed, 1.5 mm, linear, pubescent; standard petal 3 x 1.5 mm, oblong-obovate; wings 2.5 x 1 mm; keel 3 x 1 mm, ciliate; staminal tube 2 mm, filaments to 1 mm, unequal; anthers apiculate; ovary 2 mm, subsessile, hirsute, style 2 mm.

*Fl.* July-September

*D i s t.* Common in dry and moist deciduous forests

Chinnar, *KKS 11558*; Ichampetty, *15739*

**Indigofera hirsuta** L., Sp. Pl. 1753; Fl. Brit. India 2: 98. 1876; Fl. Pres. Madras 312. 1918; Matthew, Fl. TN. Carnatic 420. 1983; Sanj., Leg. India 191. 1992.

Subshrubs, brown hirsute. Leaves imparipinnate, 12 cm; leaflets 9, opposite, terminal leaflets to 4.5 x 2 cm, elliptic-oblong, apex obtuse, apiculate, base cuneate. densely hirsute. midnerve impressed: stipules 1 cm, linear, pilose, stipels 4 mm, linear. Racemes axillary, to 15 cm, dense hirsute; flowers pink; calyx tube 0.5 mm, lobes 4 and 3.5 mm. linear, hirsute. setaceous; corolla 4 x 5 mm, pink; staminal tube 4 mm; ovary 2 mm, sessile. Pod 1.8 cm, 4-gonous, reflexed, densely hirsute, straight, reflexed: seeds 5-6, obovoid.

*Fl. & Fr.* September-November

*D i s t.* Common in moist deciduous forests

Alampetty, *KKS 11797, 15873*

**Indigofera linnaei** Ali, Bot. Notis. 3: 549. 1958; Matthew, Fl. TN. Carnatic 421. 1983 & Fur. III. Fl. TN. Carnatic t. 174. 1988; Sanj., Leg. India 192. 1992. ***1. enueaphylla*** L., Mant. 2: 272. 1771, *nom. illeg.*; Wight, Ic. t. 403. 1840; Fl. Brit. India 2: 94. 1876; Fl. Pres. Madras 309. 1918.

Prostrate herbs. branches adpressed, pubescent. Leaves imparipinnate, to 2 cm long; leaflets 9-11 pairs, to 5 x 2 mm, obovate. opposite, pubescent; petiole 2 mm, stipules 3 mm, ovate. Racemes axillary, 1 cm, sub-capitate, 1-20 flowered; flowers 2.5 mm across, pink; calyx tube 1 mm, lobes 2 mm, scabrous; staminal tube 3 mm. Pod 4 x 2 mm. ellipsoid, pubescent; seeds 2.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Alampetty NS 5880; Chinnar, KKS 15827

**Indigofera marginulata** Graham ex Wight & Arn., Prodr. 204. 1834; Fl. Brit. India 2: 97. 1876; Fl. Pres. Madras 311. 1918.

Subshrubs, branchlets clothed with adpressed hairs. Leaves imparipinnate, to 10 cm; leaflets 5, opposite, terminal leaflets larger, to 4 x 2 cm, oblong-obovate, apex obtuse, mucronate, membranous, pilose; stipules 2 mm, linear. Racemes axillary, to 10 cm; pedicels to 2 mm; flowers pink; calyx tube 1 mm, campanulate, hairy, lobes to 1.5 and 2 mm, lanceolate, unequal; staminal tube 3 mm; anthers apiculate; ovary 3 mm, oblong, style curved, 1.5 mm.

*Fl.* November-December

*D i s t.* Common in dry deciduous forests

Churullipetty, KKS 11649

**Indigofera pulchella** Graham ex Wight & Arn., Prodr. 202. 1834; Fl. Brit. India 2: 99. 1876; Fl. Pres. Madras 313. 1918.

Shrubs, branches and leaves silvery strigose. Leaves imparipinnate, to 12 cm long; leaflets 13-15, opposite to subopposite, 2 x 1.5 cm, obovate-elliptic, apex emarginate, apiculate, base cuneate, silvery strigose; petiolule to 2 mm, stipels minute. Racemes axillary, to 10 cm, dense; flowers pink; bracts 3 mm, lanceolate; calyx tube 0.5 mm, lobes 1 mm, lanceolate; standard petal 7 x 4 mm, oblong-elliptic, acute, puberulus; wings 5 mm, falcate; keel 7 x 3 mm, staminal tube 6 mm. Pod 3 cm, ovoid, mucronate.

*Fl. & Fr.* December-March

*D i s t.* Common in moist deciduous forests and in abandoned cultivated areas

Vanchikulam, KKS 15991; Nellimedu, 11966; Karimutty. 15980

#### MUCUNA Adans. *nom. cons.*

**Mucuna atropurpurea** DC., Prodr. 2: 406. 1825; Fl. Brit. India 2: 186. 1876; Fl. Pres. Madras 355. 1918; Matthew, Fl. TN. Carnatic 434. 1983.

Woody perennials. Terminal leaflet to 13 x 6 cm, laterals 10 x 5 cm, oblanceolate or elliptic-ovate, acuminate, inequilateral, sub-coriaceous, stipules 3.5 mm, lanceolate, cauducous, stipels to 2 mm. Racemes axillary, to 25 cm long; flowers dark purple, peduncles to 10 cm; pedicels 1.5 cm; bracts triangular, with brown hairs; calyx tube 1 cm, campanulate, 2-lipped, lobes 5 and 7 mm; standard petal 4 or 3.5 cm, obovate; wings 7 x 2 cm, oblong; keels 6 x 1 cm; staminal sheath 6.5 cm, filaments 1 cm, alternately shorter and longer; ovary villous, style glabrous above. Pod 7 x 3 cm, oblong, bristly, plaited, yellow brown.

*Fl. & Fr.* December-March

*D i s t.* Common along the sides of ravines

Churullipetty, KKS 11857

### MUNDULEA (DC.) Benth.

**Mundulea sericea** (Willd.) A. Cheval. in Compt. Rend. 180. 1521. 1925; Matthew, Fl. TN. Carnatic 435. 1983 & Ill. Fl. TN. Carnatic t. 208. 1982. *Cytisus sericeus* Willd., Sp. Pl. 3: 1121. 1802. **Mundulea suberosa** (DC.) Benth. in Miq., Pl. Jungh. 248. 1852; Fl. Brit. India 2: 110. 1876; Fl. Pres. Madras 314. 1918.

Small trees; branchlets pubescent. Leaves imparipinnate; leaflets opposite and subopposite, to 4.5 x 1.5 cm, elliptic. apex emarginate, base cuneate, silvery pubescent below; petiolule 2 mm, stipule 2 mm. Flowers fascicled, in pseudo-racemes, violet, pedicels 2 cm; calyx tube 5 mm, campanulate, pubescent, lobes 2 mm, triangular, upper connate; standard petal 2.5 x 1.5 cm, obovate; staminal tube 2 cm long, filaments 3 cm, alternate ones dilated at the base; ovary 2 cm, pubescent. Pod linear. pubescent. acute at apex.

*Fl. & Fr.* October-January

*D i s t.* Rare in dry deciduous forests

Chinnar, KKS 15897

### NEONOTONIA Lackey

**Neonotonia wightii** (Grah. ex Wight & Arn.) Lackey in Phytologia 37: 209. 1977; Matthew, Fl. TN. Carnatic 436. 1983 & Ill. Fl. TN. Carnatic t. 209. 1982. *Notonia wightii* Grah. ex Wight & Arn., Prodr. 208. 1834. *Glycine javanica* auct. non L. 1753; Fl. Brit. India 2: 183. 1876; Fl. Pres. Madras 351. 1918. *G. wightii* (Grah. ex Wight & Arn.) Verdc. in Taxon 15: 35. 1966.

Twining, densely pubescent. Terminal leaflets to 9 x 6 cm, ovate, laterals to 7 x 4.5 cm, ovate-oblong, obtuse at apex, apiculate, puberulus above, white pubescent below. membranous; petiolule 3 mm, tomentose, stipules ovate, stipels minute, linear. Racemes axillary, to 20 cm. dense; bracts and bracteoles 3 mm, ciliate. subulate; flowers white, spotted with pink; calyx bilabiate, lobes 1.5 and 2.5 mm. lanceolate; corolla to 2.5 mm long; staminal tube 1.5 mm; anthers uniform; ovary 1.5 mm, tomentose. Pod 2.5 x 0.5 cm, linear, relesed, densely tomentose, septate between seeds.

*Fl. & Fr.* October-February

*D i s t.* Common in moist deciduous forests

Sivapura, KKS 11938; Karimutty, 15877

### PONGAMIA Vent. *nom. cons.*

**Pongamia pinnata** (L.) Pierre, Fl. Forest. Cochinch. sub. t. 385. 1899; Thoth., Bull. Bot. Surv. India 3: 418. 1962; Matthew, Fl. TN. Carnatic 441. 1983 & Ill. Fl. TN. Carnatic t. 212. 1982. *P. glabra* Vent., Jard. Malm. 38. t. 28. 1803; Wight, Ic. t. 59. 1838; Bedd., Fl. Sylv. t. 177. 1872; Fl. Brit. India 2: 240. 1876; Fl. Pres. Madras 385. 1918. *Derris indica* (Lam.) Bennet, J. Bombay Nat. Hist. Soc. 68. 303. 1971.

Trees, branchlets lenticellate. Leaves paripinnate; leaflets 3-6 pairs, to 9 x 4.5 cm, elliptic, acuminate, nerves *ca.* 8 pairs: petiole to 1 cm, thick, stipules 2 mm, oblong. Racemes

panicled, axillary and terminal, to 15 cm; flowers pinkish-white; calyx tube 4 x 5 mm, campanulate, truncate; standard petal 1.2 x 1 cm, obovate; wings 1.2 x 0.4 cm. oblong; keel 1 x 0.3 cm, obtuse; staminal tube 8 mm, filaments 3 mm; ovary 5 mm, subsessile, pubescent, style 7 mm, incurved, stigma capitate. Pod 4 x 3 cm, obliquely oblong, woody, indeliiscent.

*Fl. & Fr.* February-June

*D i s t.* Very common along the banks of rivers

Alampetty, *NS 5896; KKS 11978*

#### **PSEUDARTHRIA Wight & Arn.**

**Pseudarthria viscida (L.)** Wight & Arn., *Prodr.* 209. 1834; Wight,  *Ic. t.* 286. 1840; *Fl. Brit. India 2:* 154. 1876; *Fl. Pres. Madras* 334. 1918; Matthew, *Fl. TN. Carnatic* 442. 1983 & *Ill. Fl. TN. Carnatic t.* 213. 1982.

Subshrubs, stem viscid pubescent. Terminal leaflets to 7 x 5 cm, obovate. rhomboid, laterals to 4 x 3 cm, puberulus above, white pubescent below; petiolule 1 mm, stipule 6 mm, linear, stipel 3 mm. Racemes axillary and terminal, to 50 cm, **lax**; flowers red: pedicels in pairs or clusters; bracts 3 mm, subulate; calyx tube 1.5 mm, campanulate, pubescent, lobes 1 mm, lanceolate; corolla 4 mm long; staminal tube 4 mm, tomentose; ovary 4 mm, oblong, tomentose, style 2 mm, stigma capitate. Pod 2 x 0.5 cm, linear, hooked, silky pubescent.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Athiyodai, *KKS 11765*

#### **PTEROCARPUS N. J. Jacq. nom. cons.**

**Pterocarpus marsupium** Roxb., *Pl. Cor. t.* 116. 1799; Bedd., *Fl. Sylv. t.* 21. 1869; *Fl. Brit. India 2:* 239. 1876; *Fl. Pres. Madras* 385. 1918; Matthew, *Fl. TN. Carnatic* 445. 1983 & *Ill. Fl. TN. Carnatic t.* 216. 1982.

Trees, bark yields reddish gum. Leaves imparipinnate; leaflets 5-7, to 9 x 6.5 cm, elliptic-oblong, apex emarginate, base obtuse, coriaceous; petiole 4 cm, petiolule to 7 mm. Panicles axillary and terminal, to 15 cm, pubescent; flowers golden yellow; calyx tube 6 mm, lobes 1 mm, obtuse, upper connate; standard petal 1.2 x 0.8 cm; wings 1 cm; keels 1 cm; filaments 5 and 7 mm, unequal; ovary 8 mm, tomentose. Pod 4 mm across, orbicular, samaroid. wings entire, coriaceous.

*Fl. & Fr.* June-October

*D i s t.* Occasional in moist deciduous forests

Kombakkayam, *KKS 15716; Alampetty, 11794*

#### **RHYNCHOSIA Lour. nom. cons.**

- |                           |                        |
|---------------------------|------------------------|
| 1. Twiners                | : 2                    |
| 1. Shrubs                 | : 3                    |
| 2. Racemes dense flowered | : <b>R. densiflora</b> |
| 2. Racemes laxly flowered | : <b>R. viscosa</b>    |

3. Flowers in racemes, not glandular pubescent : *R. rufescens*  
 3. Flowers in pairs on the peduncle, glandular pubescent : *R. cana*

**Rliynchosia cana** DC., Prodr. 2: 386. 1825; Wight & Arn., Prodr. Fl. Ind. 240. 1834; Fl. Brit. India 2: 222. 1876; Fl. Pres. Madras 374. 1918; Matthew, Fl. TN. Carnatic 448. 1983 & Fur. III. Fl. TN. Carnatic t. 190. 1988.

Subshrubs; branchlets glandular, pubescent. Terminal leaflets to 5 x 2.5 cm, laterals 3 x 1.5 cm, ovate, acute, inequilateral, pubescent; stipule 2 mm, lanceolate. Flowers axillary, in pairs, yellow; pedicels 5 mm, deflexed: bracts 1.5 mm; calyx tube 2 mm, lobes 3 and 1 mm, lanceolate, pubescent; corolla 8 mm long; staminal tube 5 mm; anthers uniform; ovary pubescent, stigma capitate. Pod 1.5 x 0.7 cm, oblong, puberulus to glabrous; seeds 1 or 2.

*Fl. & Fr.* January-April

*D i s t.* Occasional in dry deciduous forests

Nellimedu, *KKS 11947*

**Rliynchosia densiflora** (Roth) DC., Prodr. 2: 386. 1825; Fl. Brit. India 2: 226 1876; Fl. Pres. Madras 376. 1918; Verdc. in Kew Bull. 25: 72. 1971; Matthew, Fl. TN. Carnatic 449. 1983 & Fur. III. Fl. TN. Carnatic t. 192. 1988. *Glycine densiflora* Roth, Nov. Pl. Sp. 348. 1821.

Twining branchlets hirsute. Terminal leaflets to 9 x 6 cm, laterals 6.5 x 5 cm, obovate-rhomboid, acute, basally, 3-nerved, inequilateral, membranous, puberulus; petiole to 7 cm, stipule 4 mm, ovate, pubescent. Racemes axillary, to 6 cm long, many flowered; flowers yellow; bracts 8 x 3 mm, lanceolate, ciliate; calyx tube 2 mm, lobes 5 and 7 mm, lanceolate. acuminate, glandular pubescent; standard petal 1 x 0.7 cm, obovate; wings 1 x 0.3 cm; staminal tube 7 mm, filaments subequal; ovary 2 mm, pubescent, style 5 mm, stigma terminal. Pod 1.5 x 0.5 cm, oblong, flat, smooth, long pilose, gland dotted; seeds 2.

*Fl. & Fr.* January-April

*D i s t.* Occasional dry and moist deciduous forests

Chinnar, *KKS 11845*; Churullipetty, *11644*

**Rliynchosia rufescens** (Willd.) DC., Prodr. 2: 387. 1825; Fl. Brit. India 2: 220. 1876; Fl. Pres. Madras 373. 1918; Matthew, Fl. TN. Carnatic 454. 1983 & Fur. III. Fl. TN. Carnatic t. 194. 1988.

Subshrubs; branchlets scandent, pubescent. Leaflets 3.5 x 2 cm, ovate-elliptic, apes acute, basally 3-nerved, puberulus above, pubescent below, stipules linear. Racemes axillary, to 10 cm, lax; flowers yellow; bracts 3 mm, lanceolate; calyx 5-lobed, tube 3 mm, lobes 5 x 3 mm, oblong, pubescent, conceal the petals; corolla 8 mm long; staminal tube 6 mm; ovary 2 mm, pubescent, style 7 mm. Pod 1 x 8 cm, ovoid, pubescent, calyx accrescent, equal to the pod; seed 1.

*Fl. & Fr.* December-March

*D i s t.* Common in dry and moist deciduous forests

Churullipetty, *KKS 11694*

**Rhynchosia viscosa** (Roth) DC., Prodr. 2: 387. 1825; Fl. Brit. India 2: 225. 1876; Fl. Pres. Madras 375. 1918; Verdc., Kew Bull. 25: 85. 1971; Matthew, Fl. TN. Carnatic 455. 1983 & Fur. Ill. Fl. TN. Carnatic t. 196. 1988.

Climbing herbs, pubescent. Terminal leaflets to 8 x 7.5 cm, laterals to 7.5 x 6 cm, rhomboid-elliptic, unequally ovate, acuminate, hirsute; petiole to 8 cm, petiolule 3 mm, stipules 8 mm, ovate-lanceolate, pubescent. Racemes axillary, to 20 cm, pubescent; flowers reddish-yellow; pedicels 3 mm; calyx tube 3 mm, upper two connate, lobes 2 mm, triangular, hirsute, lower 6 mm; standard petal 1.5 x 1 cm, orbicular, clawed, pubescent, emarginate; wings 1 x 0.4 cm, appendaged; keel united; staminal tube 8 mm; anthers 1 mm, unequal; ovary 5 mm, pubescent, style 9 mm, basally hairy, stigma oblique. Pod acute at apex, with persistent style; seeds 2.

*Fl. & Fr.* January-April

*D i s t.* Common in moist deciduous forests

Kathitheetimala, *KKS 11820*; Ichampetty, *15986*

### **ROTHIA Pers.**

**Rothia indica** (L.) Druce in Bot. Exch. Club Soc. Brit. Isles 3: 423. 1914; Matthew, Fl. TN. Carnatic 456. 1983 & Ill. Fl. TN. Carnatic t. 219. 1982. **Trigonella indica** L., Sp. Pl. 778. 1753. **Rothia trifoliata** (Roth) Pers., Syn. 2: 302. 1807; Wight, Ic. t. 199. 1839; Fl. Brit. India 2: 63. 1876; Fl. Pres. Madras 279. 1918.

Prostrate herbs; branchlets hirsute. Leaflets to 2 x 0.8 cm, oblanceolate, apex obtuse, apiculate, hirsute; petiole 1 cm, petiolule 2 mm, stipules 3 mm, ovate. Flowers axillary, solitary or in threes, yellow; calyx tube 1.5 mm, lobes 4 x 2 mm, lanceolate, hairy; corolla 6 x 2 mm; anthers uniform; ovary 3.5 mm, subsessile, densely hirsute, ovules many, stigma capitate. Pod densely ciliate.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11519*

### **SESBANIA Scop. nom. cons.**

**Sesbania grandiflora** (L.) Poir. in Lam. Encycl. 7: 127. 1806; Fl. Brit. India 2: 115. 1876; Fl. Pres. Madras 323. 1918. **Robinia grandiflora** L. Sp. Pl. 722. 1753.

Small trees. Leaves to 20 cm; leaflets many, alternate, to 2.5 x 0.5 cm, oblong, mucronate. membranous; stipule 1.5 cm, lanceolate, cauducous. Racemes axillary, to 25 cm; flowers yellow with purple spot on the standard; pedicels 1.5 cm; bracts elliptic, membranous; calyx 5 mm, broadly campanulate; corolla 2.5 cm, long clawed; staminal tube to 1.8 cm; ovary linear, style to 2 cm. Pod to 30 x 0.5 cm, linear, septate, suture thickened.

*Fl. & Fr.* June-September

*D i s t.* Rare, near the shola forests

Ollavayal, *KKS 17420*

**SMITHIA Ait. nom. cons.**

*Smithia racemosa* Heyne ex Wight & Arn., Prodr. 221. 1834; Fl. Pres. Madras 330. 1918; Matthew, Fl. TN. Carnatic 461. 1983; Sanj., Leg. India 248. 1992. *S. blanda* Wall. ex Wight & Arn. var. *racemosa* (Heyne ex Wight & Arn.) Baker in Hook. f., Fl. Brit. India 2: 151. 1876, p.p. *S. bigemina* auct. non Dalz. : Matthew, Ill. Fl. TN. Carnatic t. 222. 1982.

Prostrate herbs with bulbous based hairs. Leaves imparipinnate; leaflets 5-9 pairs, to 1 x 0.4 cm, obovate, obtuse, mucronate, ciliate, sessile; stipule 2, basifixed, 5 mm. Racemes or corymbs axillary or terminal, to 2 cm; bracts 4 mm; calyx tube 6 mm, campanulate, bristly, 2 lipped, upper emarginate, lobes with intercostal veins, lower 4 mm, 3-dentate, black, gland-dotted, long hairy; corolla 7 mm across, yellow; staminal tube 6 mm, filaments 2 mm; ovary 3 mm. Pod 5-7 jointed, constricted, folded, enclosed in calyx, articles, orbicular, prominently nerved.

*Fl. & Fr.* September-December

*D i s t.* Common in grasslands

Karivepinshola, KKS 17462

**TEPHROSIA Pers. nom. cons.**

- |                                                                          |                         |
|--------------------------------------------------------------------------|-------------------------|
| 1. Style glabrous                                                        | : 2                     |
| 1. Style bearded                                                         | : 3                     |
| 2. Pod densely tomentose, curved: subshrubs                              | : <i>T. villosa</i>     |
| 2. Pod pubescent, straight, procumbent herbs                             | : <i>T. pumila</i>      |
| 3. Terminal leaflets larger than the lateral leaflets                    | : <i>T. pulcherrima</i> |
| 3. Leaflets essentially equal                                            | : 4                     |
| 4. Racemes interrupted; leaflets puberulus below, prostrate herbs        | : <i>T. maxima</i>      |
| 4. Racemes uninterrupted; leaflets densely tomentose below, woody shrubs | : <i>T. vogelii</i>     |

*Tephrosia maxima* Pers., Syn. 2: 329. 1807; Fl. Pres. Madras 319. 1918; Matthew, Fl. TN. Carnatic 466. 1983 & Fur. Ill. Fl. TN. Carnatic t. 202. 1988. *T. purpurea* (L.) Pers. var. *maxima* (Pers.) Baker in Hook. f., Fl. Brit. India 2: 113. 1876.

Prostrate undershrubs; branchlets puberulus. Leaflets to 3 x 1 cm, obovate, obtuse, mucronate, base cuneate; stipule 7 x 2 mm, lanceolate. Racemes axillary, to 8 cm; flowers, pink; bracts 5 x 1 mm, ovate, puberulus; calyx tube 3 mm, pubescent, lobes 3 and 5 mm, linear; standard petal 1.5 x 1 cm, orbicular-obovate, puberulus outside; wings 1.3 x 0.5 cm; keel 1.5 x 0.8 cm; staminal tube 1 cm, filaments 2 and 3 mm; ovary 8 mm, style 7 mm, bearded. Pod 6 x 0.5 cm, puberulus; seeds many.

*Fl. & Fr.* July-September

*D i s t.* Common in open rocky areas

Chenganiperu, KKS 15814

*Tephrosia pulcherrima* (Wight ex Baker) Drumm. in Gamble, Fl. Pres. Madras 319. 1918; Matthew, Fl. TN. Carnatic 468. 1983 & Fur. Ill. Fl. TN. Carnatic t. 203. 1988. *T. tinctoria* Pers. var. *pulcherrima* Wight ex Baker in Hook. f., Fl. Brit. India 2: 112. 1876.



Subshrubs, brown tomentose. Leaflets 5-7, rarely 3, terminal leaflets 6 x 1.5 cm, lower 3.5 x 1.5 cm, even smaller, oblong, obtuse at the apex, mucronate, base obtuse or rounded, thinly pubescent below; stipule 1 cm, broadly peltate, pubescent. Racemes axillary; flowers pink; peduncles to 10 cm, tomentose; bracts 2.5 mm; calyx tube 1 mm, lobes 5 mm, lanceolate; corolla 8 mm long, staminal tube 5 mm; ovary 4 mm, densely pubescent, style 3 mm, pubescent. Pod 6 x 0.4 cm, pubescent, dehiscent, continuous.

*Fl. & Fr.* January-April

D i s t. Common in dry and moist deciduous forests

Nellimedu, *KKS* 11949

**Tephrosia pumila** (Lam.) Pers., Syn. 2: 330. 1807; Matthew, Fl. TN. Carnatic 468. 1983 & Fur. Ill. Fl. TN. Carnatic t. 204. 1988. **Galega pumila** Lam., Encycl. 2: 599. 1788. **Tephrosia purpurea** (L.) Pers. var. **pumila** (Lam.) Baker in Hook. f., Fl. Brit. India 2: 113. 1876. **T. procumbens** Buch.-Ham. ex Drumm. in Gamble, Fl. Pres. Madras 318. 1918.

Procumbent pubescent herbs. Leaflets to 1.5 x 0.8 cm, obovate, mucronate, base cuneate. silky pubescent; petiolule to 1 mm, stipule 5 mm, linear, hairy. Flowers white; bracts 5 mm, linear; calyx tube 2 mm, pubescent, lobes 3 and 2 mm, linear, hairy; corolla 8 mm long; staminal tube 6 mm, filaments 2 mm; ovary 4 mm, tomentose, style 2 mm, glabrous. Pod 3 x 0.4 cm, oblong, pubescent.

*Fl. & Fr.* July-September

D i s t. Common in wet rocky areas

Mulangampetty, *KKS* 15833

**Tephrosia vogelii** Hook. f. in Hook., Niger Fl. 296. 1849; Sebastine in Bull. Bot. Surv. India 2: 3. 1960.

Subshrubs, densely villous. Leaflets 13-19, to 7 x 2 cm, oblong, apex obtuse, mucronate, mid-veins impressed. densely silky below and ciliate along the margins; petiole to 3 cm, petiolule 3 mm, stipule 1 cm, ovate. tomentose. Panicles pseudoaxillary, tomentose, to 15 cm long; flowers red; pedicels 8 mm; bracts 4 mm; calyx tube 5 mm, campanulate, lobes 3 x 2 cm, ovate; standard petal 3 x 2 cm, obovate, sericeous outside; wings 2 x 0.5 cm; keel 2.5 cm long, united, all petals clawed; staminal tube 2 cm, filaments 3 mm; anthers 1.5 mm, oblong; ovary 2 cm, densely hirsute, style 1 cm, bearded. Pod densely woolly, seeds many.

*Fl. & Fr.* October-December

D i s t. Common in moist deciduous forests

Ichampetty, *KKS* 15883

**Tephrosia villosa** (L.) Pers., Syn. 2: 329. 1807; Fl. Brit. India 2: 113. 1876; Matthew, Fl. TN. Carnatic 473. 1983 & Fur. Ill. Fl. TN. Carnatic t. 209. 1988. **Cracca villosa** L., Sp. Pl. 752. 1753. **Tephrosia hirta** (Bitch.-Ham.) Gamble, Fl. Pres. Madras 318. 1918. **Galega hirta** Buch.-Ham. in Trans. Linn. Soc. London 13: 546. 1822.

Subshrubs, ferruginous tomentose. Leaflets 11-17 pairs, to 3 x 1.5 cm, obovate, oblong, emarginate to mucronate, silky pubescent; petiolule 2 mm, stipules 5 mm, linear. Racemes spiciform, axillary and terminal, to 30 cm, interrupted, tomentose; flowers pink; bracts subulate; calyx tube 3 mm, ferruginous tomentose, lobes 5 mm, linear; standard petal 1 x 6 mm, sericeous outside; wings 1 x 0.4 cm, oblong; keel 8 x 4 mm, slightly beaked; staminal tube 6 mm, filaments 2 mm; ovary 4 mm, densely tomentose, style 5 mm. Pod 4 x 0.5 cm, densely villous, apex slightly curved.

*Fl. & Fr.* September-November

D i s t. Common on dry rocky areas upto 800 m altitude

Alampetty, *KKS 15868*

#### URARIA Desv.

**Uraria rufescens** (DC.) Schind., Repert. Spec. Nov. Regini Veg. 21: 14. 1925; van Meeuwen, Reinwardtia 5: 453. 1961; Matthew, Fl. TN. Carnatic 476. 1983; Sanj., Leg. India 268. 1992. *U. hamosa* (Roxb.) Sw. ex Wight & Arn., Prodr. 222. 1834; Wight, Ic. t. 284. 1840; Fl. Brit. India 2: 156. 1876; Fl. Pres. Madras 336. 1918.

Stragglers; branchlets pubescent. Terminal leaflet to 7 x 4 cm, lateral to 4 x 2 cm, obovate, oblong, apex obtusely acute, pubescent below, nerves ca. 8 pairs; petiole 2 mm, stipule 2 mm. Panicles terminal, to 25 cm; flowers pink; bracts 1.5 cm long, ovate, acuminate, ferruginous tomentose; pedicels 4 mm, glandular, pubescent; calyx 2 lipped, campanulate, upper 2 lobed, 1.5 mm, lower one 3 lobed, 3 mm; corolla 4 x 6 mm; staminal tube 3.5 mm; ovary stipulate, style 5 mm. Pod 4.5 mm long, with 4 or 5 joints, twisted, pubescent, encased in calyx.

*Fl. & Fr.* October-January

D i s t. Common in dry and moist deciduous forests

Ichampetty, *KKS 15880*

#### VIGNA Savi

- |                                                                      |                                           |
|----------------------------------------------------------------------|-------------------------------------------|
| 1. Leaves lobed; stipules peltate                                    | : <i>V. trilobata</i>                     |
| ■ Leaves entire; stipules basifixed                                  | : 2                                       |
| 2. Pod terete with brown hairs; leaflets <b>silky</b> pubescent      | : <i>V. vexillata</i> var. <b>wightii</b> |
| 2. Pod flat, bordered, glabrous; leaflets not <b>silky</b> pubescent | : <i>V. grahamiana</i>                    |

**Vigna grahamiana** (Wight & Arn.) Verdc. in Kew Bull. 24: 562. 1970. *Phaseolus grahamianus* Wight & Arn., Prodr. 244. 1834; Fl. Brit. India 2: 201. 1876; Fl. Pres. Madras 362. 1918.

Twiners. Leaflets 2.5-5 x 1.5-4 cm, deltoid, apex acuminate, mucronate, base broadly ovate, appressed, pubescent; stipules 5 mm, ovate, stipels 2 mm, lanceolate. Racemes axillary; flowers blue; bracts 3 mm, ovate; calyx 2-labiate, tube 4 mm, upper lip emarginate, lower 3-lobed, lobes 2 mm; standard petal 1.2 x 1.5 cm, orbicular; wings 1.5 x 0.7 cm, obovate; keel 2.5 cm, connate, spirally coiled; staminal tube 1 cm, filaments 15 mm long; ovary 1 cm, linear, style 1.5 cm, coiled, bearded, stigma oblique. Pod 12 x 0.3 cm, linear, thickened at the margins; many seeded.

*FZ & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11854*

**Vigna trilobata** (L.) Verdc., *Taxon* 17: 172. 1968 & *Kew Bull.* 24: 560. 1970; Sanj., *Leg. India* 276. 1992; Matthew, *Fl. TN. Carnatic* 479. 1983 & *Ill. Fl. TN. Carnatic* t. 227. 1982. ***Phaseolus trilobus*** auct. non L., 1753; Wight,  *Ic. t.* 94. 1838; *Fl. Brit. India* 2: 201. 1876; *Fl. Pres. Madras* 362. 1918.

Twiners, pilose. Leaflets to 3.5 x 2.5 cm, apex obtuse, acute, pilose, basally tri-nerved; petiole 7 cm long, stipule 8 mm, oblong, acute, stipels 3 mm, linear. Racemes axillary, to 15 cm; flowers yellow; bracts 7 mm, lanceolate; calyx tube 1.5 mm, campanulate, lobes 5, 0.5 mm, ovate; corolla 4 mm long; keel 6 x 2 mm, curved, produced to a beak; staminal tube to 4 mm; ovary to 5 mm, pubescent, style curved, bearded at the apex, stigma oblique. Pod 4 x 0.2 cm, terete, puberulus.

*FZ & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11740*

**Vigna vexillata** (L.) A. Rich. var. **wightii** (Benth. ex Bedd.) Babu & Sharma, *Bull. Bot. Surv. India* 27: 28. 1987; Sanj., *Leg. India* 278. 1992. ***V. wightii*** Benth. ex Bedd., *Trans. Linn. Soc. London* 25: 215. 1865; Bedd.,  *Ic. t.* 296. 1868-1874; *Fl. Brit. India* 2: 206. 1876; *Fl. Pres. Madras* 365. 1918.

Twiners, pubescent. Terminal leaflet to 8.5 x 6 cm, laterals to 7 x 4.5 cm, ovate, apex obtuse, mucronate, base rounded, oblique at the base, puberulus above, densely silky pubescent below; petiole to 7 cm, petiolule 0.5 cm, tomentose, stipule 5 mm, ovate, stipel linear. Racemes axillary, to 10 cm, 2-4 flowered; flowers light purple; bracts 2 mm, pedicels 2 mm; calyx 6 mm, campanulate, lobes 6 mm, unequal, ciliate; corolla 2.5 cm long; standard petal orbicular, clawed; keel united; staminal tube 1.5 cm, filaments 1 cm; ovary 1 cm, pubescent, style 2 cm, bearded, stigma oblique. Pod 13 x 0.8 cm, terete, pilose, acuminate at the apex; seeds 6 x 4 mm, black.

*Fl. & Fr.* February-June

*D i s t.* Common in moist deciduous and evergreen forests, especially in hilly regions

Ichampetty, *KKS 15598*; Olikkudy, *17224*; Thayanankudy, *15968*

#### **ZORNIA J. f. Gmel.**

**Zornia gibbosa** Span. in *Linnaea* 15: 192. 1841; Matthew, *Fl. TN. Carnatic* 482. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 214. 1988. ***Z. diphylla*** auct. non (L.) Pers. 1807; *Fl. Brit. India* 2: 147. 1876p.p.; *Fl. Pres. Madras* 325. 1918.

Prostrate herbs. Leaflets to 3 x 0.7 cm, lanceolate, acute, mucronate, base obtuse, black, gland-dotted; petiole 2.5 cm; stipule 1 cm long, peltate. Raceme axillary, to 6 cm, 5-12

flowered; flowers yellow; bracts 1 x 0.5 cm, ovate; calyx tube 2 mm, upper lobes 4 mm, ovate, lower longest 6 mm; standard petal 6 x 4 mm, cordate above the claw; wings 6 x 3 mm; keel 6 x 3 mm; staminal tube 4 mm, filaments alternately long and short; ovary 3.5 mm, densely pubescent. Pod 1.8 cm long, 1-6jointed, retrose, scabrid.

*Fl. & Fr.* October-January

D i s t. Common in dry deciduous forests

KKS 11570

## CAESALPINIACEAE

1. Leaves bipinnate	: 2
1. Leaves 2-lobed or ones pinnate	: 6
2. Plants armed	: 4
2. Plants unarmed	: 3
3. Pod winged on the upper suture	: Acrocarpus
3. Pod not winged	: Delonix
4. Pod apically winged; one seeded	: Pterolobium
4. Pod not apically winged, more than 2 seeded	: 5
5. Leaf rachis flattened; pod torulose, shrubs	: Parkinsonia
5. Leaf rachis terete; pod flattened, lianas	: Caesalpinia
6. Leaflets one pair or leaves lobed	: 7
6. Leaflets many	: 8
7. Petals absent; pod flat, one seeded	: Hardwickia
7. Petals present; pod many seeded	: Bauhinia
8. Fertile stamens 3, monadelphous	: Tamarindus
8. Fertile stamens 5-10, free	: Cassia

### ACROCARPUS Wight ex Arn.

**Acrocarpus fraxinifolius** Wight & Arn. in Mag. Zool. Bot. 2: 547. 1838; Wight, Ic. t. 254. 1840; Fl. Brit. India 2: 292. 1878; Fl. Pres. Madras 397. 1919.

Large trees with buttresses. Leaves bipinnate, pinnae, ca. 5 pairs, paripinnate; leaflets ca. 5 pairs, opposite, terminal to 12 x 4 cm, laterals slightly smaller; elliptic, acuminate, unequal at the base, margins crispate, subcoriaceous; petiole to 15 cm, petiolule to 5 mm. Racemes axillary; calyx 5-lobed, to 6 mm, persistent, campanulate. Pod 12 x 2 cm, oblong, to 2 cm, stipitate, upper suture winged; seeds ca. 10, 8 mm long, obovate.

*Fl. & Fr.* January-May

D i s t. Occasional in shola forests

Olikkudy, KKS 17356

### BAUHINIA L.

**Bauhinia racemosa** Lam., Encycl. 1: 390. 1785; Bedd., Fl. Sylv. t. 182. 1872; Fl. Brit. India 2: 276. 1878; Fl. Pres. Madras 406. 1919; Matthew, Fl. TN. Carnatic 485. 1983 & Ill. Fl. TN. Carnatic t. 229. 1982. *Piliostigma racemosa* (Lam.) Benth. in Miq., Pl. Jungli. 262. 1852.

Trees; young branchlets puberulent. Leaves 2-lobed, 5-7 x 7-11 cm, apex bifid, mucronate, crenate about one third of the length, 8-nerved; stipules foliaceous, caudaceous. Racemes axillary or terminal, 13 cm; flowers white; bracts and bracteoles 2-3 toothed, minute, pubescent; pedicels 1 mm; calyx spathaceous, reflexed; petals 5, 1.5 x 0.2 cm; stamens 10, filaments pilose at base; anthers pilose; ovary pubescent, ovules numerous. Pod 15 to 25 x 2 cm, oblong, turgid, apex horned.

*FZ & Fr.* December-May

*D i s t.* Common in dry and moist deciduous forests

Kuttar, *KKS 15539*

### CAESALPINIA L.

1. Plants with red glandular hairs

: **C. mimosoides**

1. Plants devoid of red glandular hairs

: **C. cucullata**

**Caesalpinia cucullata** Roxb., *Fl. India* 2: 358. 1832; Matthew, *Fl. TN. Carnatic* 490. 1983.

*Mezoneuron cucullatum* (Roxb.) Wight & Arn., *Prodr.* 283. 1834; *Fl. Brit. India* 2: 258. 1878; *Fl. Pres. Madras* 395. 1919; Matthew, *Ill. Fl. TN. Carnatic* t. 234. 1982.

Lianas. Leaves to 40 cm, pinnae 4-5 pairs, to 15 cm; leaflets to 9 x 3.5 cm, ovate, elliptic, apex acuminate, coriaceous, rachis prickled, recurved, small; petiole 5-9 cm, stipules small. Panicles terminal or axillary or cauliflorous, to 45 cm; flowers golden yellow; pedicel to 1 cm; calyx tube short, oblique, lobes 5, 1.5 x 0.5 cm, unequal, apex rounded, lower one covers the bud; petals 5, 1 x 3 cm, clawed, upper one 2-lobed; stamens 10, declinate, exerted; ovary stipitate, style 1.5 cm, stigma capitate.

*Fl. & Fr.* October-April

*D i s t.* Common along the sides of ravines

Chinnar, *KKS 15899*

**Caesalpinia mimosoides** Lam., *Encycl.* 1: 452. 1785; Wight,  *Ic. t.* 392. 1840; *Fl. Brit. India* 2: 256. 1878; *Fl. Pres. Madras* 394. 1919; Matthew, *Fl. TN. Carnatic* 492. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 220. 1988.

Stragglers; branchlets with glandular hairs. Leaves to 45 cm, pinnae *ca.* 20 pairs, to 7 cm; leaflets more than 20 pairs, opposite, 1 x 0.3 cm, oblong, apex mucronate, rachis very prickly; stipules small. Racemes axillary, to 40 cm; peduncle and rachis glandular hairy; flowers yellow; pedicels 2.5 cm, glandular hairy; bracts to 6 mm; calyx tube 2 mm, sepals 5, 1.5 x 0.5 cm, unequal, gland dotted; petals 5, 1.5 x 1.2 cm, unequal, clawed; stamens 10, unequal, filaments 1.5 cm, villous at base; ovary stipitate, style, 1.5 cm. Pod 5 x 2.5 cm, oblong, falcate, turgid, beaked, red glandular, golden brown.

*Fl. & Fr.* February-April

*D i s t.* Common in moist deciduous disturbed forest areas

Ichampetty, *KKS 15592*

## CASSIA L.

- |                                                     |                          |
|-----------------------------------------------------|--------------------------|
| 1. Flowers red; leaflets 2 pairs                    | : <i>C. absus</i>        |
| 1. Flowers yellow; leaflets more than 2 pairs       | : 2                      |
| 2. Herbs                                            | : 3                      |
| 2. Subshrubs/shrubs/trees                           | : 4                      |
| 3. Gland stipitate, leaflets greater than 7 mm long | : <i>C. kleinii</i>      |
| 3. Gland sessile, leaflets less than 6 mm long      | : <i>C. mimosoides</i>   |
| 4. Leaf rachis eglandular                           | : 5                      |
| 4. Leaf rachis glandular                            | : 6                      |
| 5. Trees, pod terete                                | : <i>C. fistula</i>      |
| 5. Shrubs, pod flat                                 | : <i>C. timorensis</i>   |
| 6. Pod flat, puberulus                              | : 7                      |
| 6. Pod terete, hirsute                              | : <i>C. hirsuta</i>      |
| 7. Leaflets 4 or 5 pairs, branchlets glabrous       | : <i>C. occidentalis</i> |
| 7. Leaflets 9-11 pairs, branchlets pubescent        | : <i>C. auriculata</i>   |

**Cassia absus** L., Sp. Pl. 376. 1753; Wight & Arn., Prodr. Fl. Ind. 291. 1834; Fl. Brit. India 2: 255. 1878; Fl. Pres. Madras 403. 1919; Matthew, Fl. TN. Carnatic 496. 1983 & Ill. Fl. TN. Carnatic t. 231. 1982.

Viscid herbs, puberulus. Leaves 4 cm; leaflets unequalateral, 2-3 x 1.5 to 2 cm, obovate-elliptic, base cuneate, pubescent, glands sessile on the rachis between leaflets; stipule 2-3 mm. Racemes terminal or leaf-opposed, to 6 cm; peduncle to 2 cm; pedicel 0.5 cm; bracts 2-2.5 mm, ovate; sepals 4 mm, oblong, apex acute; petals 5, 6 mm, obovate; stamens 5, 3 longer, dilated. Pod 3.5 x 0.6 cm, falcate, glandular pubescent.

*Fl. & Fr.* October-February

*D i s t.* Abundant in disturbed forest areas

Churullipetty, *KKS* 11659; Chinnar, 11584

**Cassia auriculata** L., Sp. Pl. 379. 1753; Fl. Brit. India 2: 263. 1878; Fl. Pres. Madras 402. 1919; Matthew, Fl. TN. Carnatic 497. 1983 & Fur. Ill. Fl. TN. Carnatic t. 222. 1988.

Shrubs; branchlets pubescent. Leaflets to 2 x 1 cm, oblong-obovate or elliptic, shortly acuminate, pubescent, gland opposite the leaflets, stipitate; petiole 1-1.5 cm, stipules 1 cm, lunate, auricled. Corymbs axillary and terminal; peduncle 2 cm, pubescent; flowers yellow; larger sepals 1.5 x 1 cm, broadly ovate, obtuse, outer smaller; petals 3-3.5 x 2 cm, ovate, orbicular, clawed; stamens 7, fertile and 3 staminodes. Pod flat, pubescent, mucronate.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15914

**Cassia fistula** L., Sp. Pl. 377. 1753; Fl. Brit. India 2: 201. 1878; Fl. Pres. Madras 400. 1919; Matthew, Fl. TN. Carnatic 498. 1983 & Fur. Ill. Fl. TN. Carnatic t. 224. 1988.

Trees. Leaflets *ca.* 5 pairs, subopposite, 8-12 x 4-6 cm, broadly ovate, apex emarginate, coriaceous; petiole to 6 cm, petiolule 0.5 cm, stipules linear, small, cauducous. Panicle terminal

or axillary, 25-40 cm, drooping; flowers yellow; pedicels to 3.5 cm; sepals 1 x 0.6 cm, ovate, obtuse; petals 2.5 x 1.5 cm, obovate, fertile; stamens of various length. Pod 40-60 x 2 cm, terete, woody, indehiscent; seeds many.

Fl. & Fr. March-December

D i s t. Common in moist deciduous forests

Palapetty, *KKS 15515*

**Cassia hirsuta** L., Sp. Pl. 378. 1753; Fl. Brit. India 2: 263. 1878; Fl. Pres. Madras 401. 1919; Matthew, Fl. TN. Carnatic 501. 1983 & Fur. Ill. Fl. TN. Carnatic t. 227. 1988.

Subshrubs, hirsute. Leaflets 4-6 pairs, 4-6 x 2-2.5 cm, ovate, elliptic, apex caudate, within a gland at the base; petiole 3 to 9 cm, stipules 1 cm, cauducous. Racemes or sub-umbels, 3-7 flowered; peduncles 0.5 cm; flowers yellow; sepals 6-7 mm long, hirsute; petals 1-1.5 cm, obovate; antheriferous stamens 7, staminodes 3. Pod terete, hirsute, linear, slightly curved; seeds many.

Fl. & Fr. July-October

D i s t. Common in dry deciduous forests

Palapetty, *KKS 15849*

**Cassia kleinii** Wight & Arn., Prodr. 293. 1834; Fl. Brit. India 2: 266. 1878; Fl. Pres. Madras 403. 1919; Matthew, Fl. TN. Carnatic 501. 1983 & Fur. Ill. Fl. TN. Carnatic t. 228. 1988.

Prostrate herbs, puberulus. Leaves 3-6 cm; leaflets 8-13 pairs, 13 x 4 mm, falcate, mucronate, midrib near to upper margin, gland on the petiole, stipitate, near to the lowest pair of leaflets; petiole to 0.5 cm, stipules 3-7 mm. Flowers axillary, 1-3, yellow; bracts and bracteoles 2-3 mm; sepals 6-7 mm long, pubescent; petals 8-10 mm; stamens 10, subequal. Pod 4.5 x 0.5 cm, flat, hairy, thickened on the sutures.

FZ & Fr. July-October

D i s t. Common in dry and moist deciduous forests

Palapetty, *KKS 15853*

**Cassia mimosoides** L., Sp. Pl. 379. 1753; Fl. Brit. India 2: 266. 1878; Fl. Pres. Madras 403. 1919; Matthew, Fl. TN. Carnatic 502. 1983 & Fur. Ill. Fl. TN. Carnatic t. 229. 1988.

Herbs, branchlets puberulus. Leaflets 20-30 pairs, 5 x 1 mm, oblong, apex acute, glands sessile on the petiole; stipules 2, 0.5 to 0.7 cm, slightly cordate. Flowers axillary, solitary or 2-3 together, yellow; pedicel 1-15 cm; bracts 2-5 mm long, bracteoles 2, 2 mm, narrow; sepals 7-8 mm, slightly hirsute; petals 7-10 mm; stamens 10, antheriferous, unequal. Pod 4 x 0.5 cm, strap shaped, flat, slightly pubescent.

Fl. & Fr. June-February

D i s t. Common in dry and moist deciduous forests

Chinnar, *KKS 11714, 11518*; Ichampetty, *15745*

*Cassia occidentalis* L., Sp. Pl. 377. 1753; Fl. Brit. India 2: 262. 1878; Fl. Pres. Madras 401. 1919; Matthew, Fl. TN. Carnatic 505. 1983 & Fur. Ill. Fl. TN. Carnatic t. 232. 1988.

Subshrubs; branchlets striate. Leaflets 4-5 pairs, 4-8 x 2-3 cm, oblong-lanceolate, apex acute or acuminate, hairy, glandular; petioles 0.5-1 cm, with sessile gland at base, stipules 0.7 cm. Racemes or corymbs axillary, to 4 cm; flowers yellow; bracts linear; sepals 5-7 mm, ovate, obtuse; petals 1.5 x 1 cm, obovate, fertile; stamens 7. Pod 12 x 0.5 cm, flat, margin slightly thickened, mucronate, sparsely hairy.

*Fl. & Fr.* August-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11512*

*Cassia timorensis* DC., Prodr. 2: 499. 1825; Fl. Brit. India 2: 263. 1878; Fl. Pres. Madras 402. 1919.

Shrubs; branchlets pubescent, angled. Leaflets 4-5 x 1.5 cm, oblong-elliptic, apex mucronate, base slightly unequal; petiole 2.5 cm, stipules large cordate, acuminate. Racemes axillary, shorter than the leaves; peduncles 10 cm; flowers yellow; sepals 1.5 x 1 cm, ovate, hairy; petals 2 x 1 cm, veined; stamens 6-7 antheriferous, staminodes 4-3, various in length. Pod flat, stipitate, pubescent when young, transversely septate.

*Fl. & Fr.* January-April

*D i s t.* Common in wet places in moist deciduous forests

Ichampetty, *KKS 25654*

#### **DELONIX Raf.**

*Delonix regia* (Boj. ex Hook.) Rafin., Fl. Tellur. 2: 92. 1837; Fl. Pres. Madras 396. 1919; Matthew, Fl. TN. Carnatic 512. 1983 & Fur. Ill. Fl. TN. Carnatic t. 239. 1988. *Poinciana regia* Boj. ex Hook. in Bot. Mag. t. 2884. 1829.

Erect trees; branchlets puberulus. Leaves bipinnate, 15 cm, pinnae 8-20 pairs, to 9 cm, opposite to subopposite; leaflets 15-25, to 7 x 3 mm, oblong, pubescent, apex rounded; petiole to 6 cm, stipules small. Panicles terminal or lateral; flowers red; sepals 3.5 cm, lanceolate; petals to 7 cm, clawed, obovate; stamens 10, white, villous at base, subequal, longest to 5 cm; ovary puberulus, style 3 cm, stigma terminal.

*Fl.* February-July

*D i s t.* Planted as ornamental trees

Chinnar, *KKS 15694*

#### **HARDWICKIA Roxb.**

*Hardwickia binata* Roxb., Pl. Cor. t. 209. 1811; Fl. Brit. India 2: 270. 1878; Fl. Pres. Madras 412. 1919; Matthew, Fl. TN. Carnatic 513. 1983 & Ill. Fl. TN. Carnatic t. 233 & 968a,b. 1982 [Fig. 4].

Trees. Leaflets 4-6 x 2-3.5 cm, obliquely ovate, apex obtuse, coriaceous, with hair like out growth between the leaflets, 3-5 nerved; petiole 2 cm, stipule cauducous. Panicle terminal and



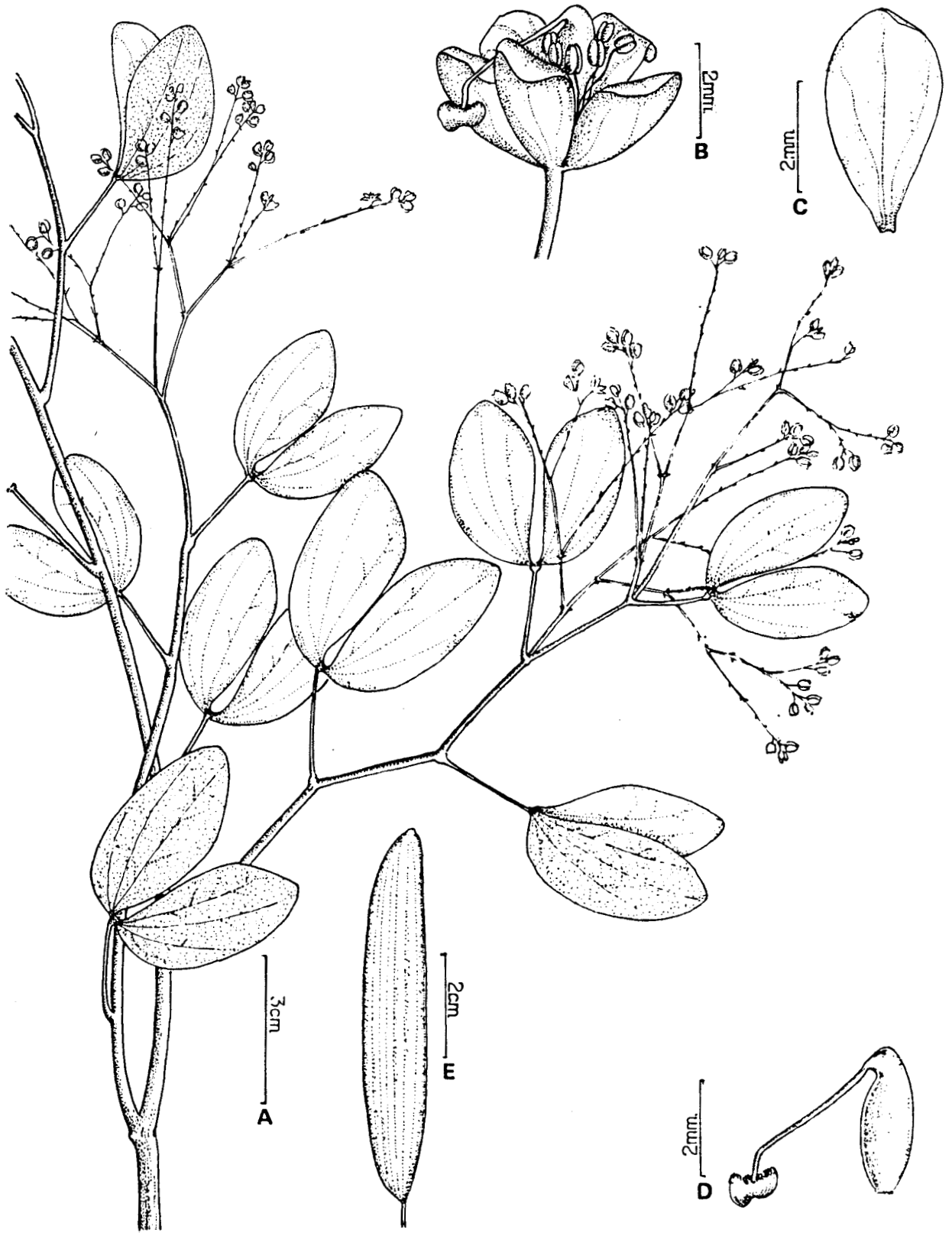


Fig. 4. *Hardwickia binata* Roxb. A. flowering twig, B. flower, C. sepal, D. pistil, E. fruit.

axillary, to 11 cm; pedicel to 3 mm; bracts minute; sepals 4 x 2 mm, ovate; petals absent; stamens 10, filaments alternately long, filiform; anthers versatile; ovary 3 x 1.5 mm, stigma discoid, peltate. Pod 8 x 1.5 cm, flat, strap shaped, sessile, longitudinally veined; seed one.

*Fl. & Fr.* June-April

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 15811*

#### PARKINSONIA L.

**Parkinsonia aculeata** L., Sp. Pl. 375. 1753; Bedd., Fl. Sylv. t. 91. 1871; Fl. Brit. India 2: 260. 1878; Fl. Pres. Madras 397. 1919; Matthew, Fl. TN. Carnatic 514. 1983 & Ill. Fl. TN. Carnatic t. 235. 1982.

Armed shrubs; branchlets tomentose, glabrescent when old, spines erect, broad based, woody. Leaves bipinnate, 35 cm, pinnae 2-4 pairs; leaflets 2, 2-7 x 1-3 mm, oblanceolate, rachis flattered. Racemes axillary, to 15 cm; flowers yellow; pedicels 1 to 1.5 cm; bracts cauducous; calyx tube short, lobes 6 x 2 mm, unequal; petals 10 x 10 mm, obovate, clawed, villous; stamens 10, filaments unequal, villous. Pod 10 x 0.6 cm, tomentose, striated; 1-5 seeded.

*Fl. & Fr.* November-March

*D i s t.* Occasional in dry deciduous forests and also grown as hedge plants

Chinnar, *KKS 15974*

#### PTEROLOBIUM R. Br. ex Wight & Arn.

**Pterolobium hexapetalum** (Roth) Sant. & Wagh in Bull. Bot. Surv. India 5: 108. 1963; Matthew, Fl. TN. Carnatic 515. 1983 & Ill. Fl. TN. Carnatic t. 237. 1982. **P. lacerans** Wall. ex Wight & Arn., Prodr. 283. 1834; Wight,  *Ic.* t. 196. 1839. **P. indicum** A. Rich., Tent. Fl. Abyss. 1: 247. 1847; Fl. Brit. India 2: 259. 1878; Fl. Pres. Madras 395. 1919.

Stragglers; prickles 2 mm, recurved, branchlets puberulus. Leaves to 15 cm, pinnae 4-7 pairs; leaflets 6-10 pairs, 1.2 x 0.7 cm, oblong, obovate, apex rounded, base oblique, pubescent. pinnae rachis ends in a bristle; petiole to 3 cm. Racemes axillary or terminal, to 15 cm; peduncles to 5 cm; flowers white; pedicel 1-1.5 cm; bracts subulate; sepals 4 and 6 mm, hooded; petals 6 x 2 mm, obovate, clawed, subequal; stamens 10, filaments 5-6 mm, basally villous; ovary sessile. Pod 4.5 x 1.5 cm, samaroid, flat. apically winged, reddish when young; seed 1, 10 x 5 mm.

*Fl. & Fr.* March-August

*D i s t.* Common in dry deciduous forests

Thayanankkudy, *KKS 15674*

#### TAMARINDUS L.

**Tamarindus indica** L., Sp. Pl. 34. 1753; Bedd., Fl. Sylv. t. 184. 1872; Fl. Brit. India 2: 273. 1878; Fl. Pres. Madras 409. 1919; Matthew, Fl. TN. Carnatic 516. 1983 & Ill. Fl. TN. Carnatic t. 238. 1982.

Trees; branchlets warty. Leaves paripinnate; leaflets 14-17 pairs, 2 x 0.7 cm, oblong, apex obtuse; petiole 1 cm. Racemes terminal on short branches, 6 cm long; bracts and bracteoles

ovate; pedicel 7 mm; calyx tube 6 mm, turbinate, lobes 4, to 1 cm, subequal; petals 3, 1.5 x 1 cm, oblanceolate, lateral clawed, subequal, yellow, outer one dotted with pink; staminal tube to 7 mm, filaments 6 mm, base villous, staminodes 2; ovary 8 mm, stipitate, style 5 mm.

*Fl.* February-May

*D i s t.* Very common along the sides of ravines

Chinnar, *KKS* 15677

### MIMOSACEAE

- |                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| 1. Stamens numerous                                             | : 2                    |
| 1. Stamens 10                                                   | : 4                    |
| 2. Pinnae with two leaves                                       | : Pitheceilobium       |
| 2. Pinnae with 8 or more leaves                                 | : 3                    |
| 3. Stamens free, trees or climbers, often spinning              | : Acacia               |
| 3. Stamens basally united, trees                                | : Albizia              |
| 4. Lianas; fruits more than 60 cm long                          | : Entada               |
| 4. Armed trees; fruit less than 25 cm long                      | : 5                    |
| 5. Pinnae 1 or 2 pairs: pod turgid, straight or slightly coiled | : <i>Prosopis</i>      |
| 5. Pinnae more than 4 pairs; pod flat, coiled                   | : <i>Dichrostachys</i> |

### ACACIA P. Mill.

- |                                                                                                       |                                         |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1. Flowers in globose heads                                                                           | : 2                                     |
| 1. Flowers in spikes                                                                                  | : 8                                     |
| 2. Trees                                                                                              | : 3                                     |
| 2. Stragglers                                                                                         | : 6                                     |
| 3. Heads in terminal panicles; pod tomentose                                                          | : <i>A. leucophloea</i>                 |
| 3. Heads axillary; pod glabrous                                                                       | : 4                                     |
| 4. Plants unarmed                                                                                     | : <i>A. mearnsii</i>                    |
| 4. Plants armed                                                                                       | : 5                                     |
| 5. Involucel bracts at or above the middle of the peduncle; flowers golden yellow; pods not circinate | : <i>A. nilotica</i> ssp. <i>indica</i> |
| 5. Involucel bracts near the base of the peduncle; flower white; pod circinate                        | : <i>A. planifrons</i>                  |
| 6. Pinnae 6 pairs                                                                                     | : <i>A. caesia</i>                      |
| 6. Pinnae 7-12 pairs                                                                                  | : 7                                     |
| 7. Leaflets overlapping; leaflets 40-50 pairs                                                         | : <i>A. pennata</i>                     |
| 7. Leaflets not overlapping; leaflets 15-30 pairs                                                     | : <i>A. torta</i>                       |
| 8. Pinnae less than or equal to 6 pairs, ovary glabrous                                               | : <i>A. ferruginea</i>                  |
| 8. Pinnae more than or equal to 10 pairs, ovary pubescent                                             | : 9                                     |
| 9. Pinnae 10-15 pairs, glandular between the 1-2 extreme pairs of pinnae                              | : <i>A. chundra</i>                     |
| 9. Pinnae more than 16 pairs, glandular between the 1-7 extreme pairs of pinnae                       | : <i>A. catechu</i>                     |

***Acacia caesia* (L.) Willd.**, Sp. Pl. 4: 1090. 1806; Fl. Pres. Madras 428. 1919; Matthew, Fl. TN. Carnatic 522. 1983 & Fur. Ill. Fl. TN. Carnatic t. 241. 1988. *Mimosa caesia* L., Sp. Pl. 522. 1753 p.p. *Acacia intsia* Willd. var. *caesia* (L.) Baker in Hook. f., Fl. Brit. India 2: 297. 1878.

Stragglers. Leaves 7-15 cm, pinnate *ca* 6 pairs, 6-8 cm; leaflets 10-15 pairs, oblong, acute at apex, glands near the base of the rachis; petiole to 3 cm. Panicle terminal, more than 30 cm, heads **2-3** in a cluster; peduncle to 3.5 cm, pubescent; flowers sessile, creamy-white; calyx 2 x 1 mm, tubular, pubescent; petals 3 mm, pubescent; ovary 2 mm long, stipitate, oblong, pubescent.  
*FZ* September-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11600*

***Acacia catechu*** (L.f.) Willd., *Sp. Pl.* 4: 1079. 1806; *Fl. Brit. India* **2**: 295. 1878; *Fl. Pres. Madras* 427. 1919. ***Mimosa catechu*** L.f., *Suppl. Pl.* 439. 1781.

Tress; bark and branchlets dark brown. Leaves 15-25 cm, pinnae more than 15, 4 to **5** cm; leaflets 7 x 1 mm, oblong, puberulus, stipular spines none or small, recurved. Spike 10-12 cm long; flowers yellowish-white, sepals 1 mm; petals 2 x 0.7 mm, broadly crenate. Pod 5-10 cm long, flat.

*Fl. & Fr.* March-September

*D i s t.* Common in dry deciduous forests

Kombakkayam, *KKS 15718*

***Acacia chundra*** (Roxb. ex Rottl.) Willd., *Sp. Pl.* **4**: 1078. 1806; Matthew, *Fl. TN. Carnatic* 524. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 242. 1988. ***Mimosa chundra*** Roxb. ex Rottl. in *Ges. Naturf. Freunde Berlin Neue Schriften* 4: 207. 1803. ***Acacia sundra*** (Roxb.) DC., *Prodr.* **2**: 295. 1878; Wight & Arn., *Prodr. Fl. Ind.* 273. 1834; Bedd., *Fl. Sylv. t.* 50. 1870. *Fl. Brit. India* **2**: 295. 1878; *Fl. Pres. Madras* 428. 1919.

Trees; bark brown. Leaves 8-15 cm, pinnae 10-15 pairs; leaflets 20-40 pairs, 4 x 0.5 mm, oblong, gland at the base of the lowest pair of pinnae and between 1-2 extreme pairs. Spikes to 7 cm; flowers **2** mm across, white. Pod 5-10 x 1.5-2 cm, obtuse at apex with a horn, strongly nerved, brownish.

*FZ* June-December

*D i s t.* Common in dry deciduous forests

Poomaram odai, *KKS 15906*

***Acacia ferruginea*** DC., *Prodr.* **2**: 458. 1825; Bedd., *Fl. Sylv. t.* 51. 1870; *Fl. Brit. India* **2**: 295. 1878; *Fl. Pres. Madras* 428. 1919; Matthew, *Fl. TN. Carnatic* 526. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 245. 1988.

Trees; spines short, recurved or straight, branchlets glabrous. Leaves 8-10 cm, pinnae *ca.* **6** pairs, 5-6 cm, racliis with a gland near the middle. Spikes axillary, solitary or in pairs, 8-10 cm; flowers **3** mm across, yellow, sessile; ovary 1 mm, stipitate.

*Fl.* February-March

*D i s t.* Occasional in dry deciduous forests

Samplampetty, *KKS 15606*

**Acacia leucophloea** (Roxb.) Willd., Sp. Pl. 4: 1083. 1806; Bedd., Fl. Sylv. t. 48. 1870; Fl. Brit. India 2: 294. 1878; Fl. Pres. Madras 427. 1919; Matthew, Fl. TN. Carnatic 527. 1983 & Fur. III. Fl. TN. Carnatic t. 246. 1988. **Mimosa leucophloea** Roxb., Pl. Cor. t. 150. 1800.

Trees; bark white, fibrous. Leaves sometimes clustered at apex, 8-15 cm; leaflets 20-30, 6 x 1.5 mm, base truncate, pubescent below, glands near the base of the rachis. Panicles terminal, more than 20 cm, rachis zig-zag; flowers 1 mm. across, yellowish-white, sessile; bracts small, bracteoles 5, involucl at the middle of the peduncles. Pod 10-13 x 1 cm, sessile, straight turgid, tomentose; seeds *ca* 10.

*Fl. & Fr.* July-February

*D i s t.* Very common in dry deciduous forests

Champakkad, *KKS 11896, 11616*; Chinnar, *16729*

**Acacia mearnsii** Wilde, Pl. Bequaert. 3: 61. 1925, "*mearnsii*"; Brenan & Melville, Kew Bull. 14: 37-39. 1960; Matthew, Fl. TN. Carnatic 528. 1983.

Trees; branchlets tomentose. Leaves to 15 cm, pinnae 15-20, 4 to 5 cm; leaflets 30-50, 2 x 0.5 mm, oblong, margin ciliate, pubescent, glands between each pair of pinnae and one below the lowest pair of pinnae; petiole 2-3 cm. Pod 6-7 x 0.7-1 cm, pubescent, constricted between the seeds.

*Fl. & Fr.* March-October

*D i s t.* Raised in plantations

Pothumala, *KKS 17.386*

**Acacia nilotica** (L.) Willd. ex Del. **ssp. indica** (Benth.) Brenan in Kew Bull. 12: 84. 1957; Matthew, Fl. TN. Carnatic 528. 1983 & Fur. III. Fl. TN. Carnatic t. 248. 1988. **A. arabica** (Lam.) Willd. var. *indica* Benth. in London J. Bot. 1: 500. 1842. **A. arabica** auct. non (Lam.) Willd. 1806; Bedd., Fl. Sylv. t. 47. 1869; Fl. Brit. India 2: 295. 1878; Fl. Pres. Madras 425. 1919.

Trees; stipular spines to 5 cm, white with grey spots, branchlets grey pubescent. Leaves 3-5 cm, pinnae 4-5 pairs; leaflets 10-20, 4 x 1 mm, elliptic, rachis with several glands. Head solitary or 2-5 together; flowers 1 mm across, golden yellow; involucl at or above the middle of the peduncle. Pod to 18 x 1.5 cm, constricted apex horned.

*Fl. & Fr.* June-November

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15775*

**Acacia pennata** (L.) Willd., Sp. Pl. 4: 1090. 1806; Fl. Brit. India 2: 297. 1878, in part.; Fl. Pres. Madras 1: 429. 1919; Matthew, Fl. TN. Carnatic 530. 1983.

Scandent shrubs; branchlets yellowish, tomentose. Leaves to 12 cm long, pinnae *ca.* 14 pairs, 3-6 cm, leaflets 40-50 pairs, overlapping, 5 x 1 mm, elliptic, base truncate, margins seriate, midnerve very close to the distal margins; petiole to 2 cm, with a gland near the middle. Racemes more than 10 cm, heads *ca.* 1.5 cm across, 1-3 in a cluster; flowers 3 mm across. Pod flat, to 14 x 2.5 cm, thin, horned.

*Fl. & Fr.* June-November

**D i s t.** Common in moist deciduous forests

Chinnar, *KKS 15729*

**Acacia planifrons** Wight & Arn., Prodr. 276. 1834; Fl. Brit. India 2: 293. 1878 p.p.; Fl. Pres. Madras 426. 1919; Matthew, Fl. TN. Carnatic 531. 1983 & Fur. III. Fl. TN. Carnatic t. 250. 1988.

Trees, armed with long and short spines, to 4 cm, white with black spots. Leaves clustered, 1.5-2.5 cm, pinnae *ca.* 5 pairs, 0.5-1 cm; leaflets 5-12 pairs, 1 x 0.4 mm, oblong, gland at the middle? petiole to 1 cm. Heads white, involucre near the base or below the middle of the pedicel; flowers 2 mm across. Pod 8 cm, circinate, turgid,

*Fl. & Fr.* October-April

**D i s t.** Common in dry deciduous forests

Chinnar, *KKS 15728*; Kuttar, *15538*

Note : Top of the tree is umbrella like so it is called umbrellatree

**Acacia torta** (Roxb.) Crib in Kew Bull. 1915: 410. 1915; Fl. Pres. Madras 428. 1919; Matthew, Fl. TN. Carnatic 533. 1983 & Fur. III. Fl. TN. Carnatic t. 252. 1988. *Mimosa torta* Roxb., Fl. Ind. 2; 566. 1832. *Acacia caesia* non Willd. 1806; Wight & Arn., Prodr. 278. 1834.

Prickly stragglers. Leaves to 9-15 cm, pinnae 7-12 pairs; leaflets 15-30 pairs, to 7 x 3 mm, oblong-falcate, margin ciliate, gland near the base; petiole 3-4 cm, pubescent prickly. Panicle 20 cm; flowers 1 mm across, yellow; bracts lanceolate; peduncles 0.5-1.5 cm. Pod 12 x 1.5 cm, flat, margin undulate.

*Fl. & Fr.* October-April

**D i s t.** Common in dry deciduous forests

Karimutty, *KKS 15558*

#### ALBIZIA Duraz.

1. Flowers sessile	: <b>A. odoratissima</b>
1. Flowers pedicelled	: <b>2</b>
2. Leaflets glabrous	: <b>A. lebeck</b>
2. Leaflets pubescent	: <b>3</b>
3. Leaflets 15-30 pairs	: <b>A. amara</b>
3. Leaflets <i>ca.</i> 8 pairs	: <b>A. lathamii</b>

**Albizia amara** (Roxb.) Boivin. in Encycl. 19(2): 34. 1838; Bedd., Fl. Sylv. t. 61. 1870; Fl. Brit. India 2: 301. 1878; Fl. Pres. Madras 432. 1919; Matthew, Fl. TN. Carnatic 535. 1983 & Fur. III. Fl. TN. Carnatic t. 253. 1988. *Mimosa amara* Roxb., Pl. Cor. t. 122. 1799.

Trees, branchlets dark grey. Leaves bipinnate, pinnae 5-10 pairs, 4-6 cm; leaflets 15-30 pairs, to 8 x 2 mm, oblong, pubescent; petiole to 3 cm, glandular. Heads in axillary clusters, 2-3 together, 2 cm across, flowers 1 mm across, white; peduncle 2-4 cm, pubescent. Pod 10-20 x 3-4 cm, flat, thin.

*Fl. & Fr.* February-August

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15727; Champakkad, 11895

***Albizia lathamii*** Hole in Indian Forest Rec. 4(4):153.1913; *Fl. Pres. Madras* 432.1919[Fig. 5].

Small much branched trees, bark grey, lenticellate, branchlets virgate. Leaves bipinnate, pinnae *ca.* 4 pairs, opposite, 5 cm; leaflets opposite, *ca.* 8 pairs, 1.2 x 0.5 cm, basal pair unequal, pubescent, obovate-oblong, sessile, obtuse at apex, base truncate, oblique, midrib just above the midposition. Heads axillary; flowers white; peduncles to 2 cm, pubescent; calyx 4 mm, pubescent; petals united, 7 mm; stamens exserted; ovary 2 mm, style to 7 mm.

*Fl.* February-June

*D i s t.* Very rare in dry deciduous forests; endemic to Peninsular India and critically endangered.

Champakkad, *KKS* 18248; 18307

**Note:** It was the first recollection after the type collection. The species was described by Hole in 1913 based on the specimens referred to him by H.A. Latham from Tirunelvely District of Madras in 1911 and R. Wight's collection (No. 898) from Ramanad District during 1866-67.

***Albizia lebbeck*** (L.) Willd., *Sp. Pl.* 4: 1066. 1806; Bedd., *Fl. Sylv.* t. 53. 1870; *Fl. Brit. India* 2: 298. 1878; *Fl. Pres. Madras* 432. 1919; Matthew, *Fl. TN. Carnatic* 538. 1983 & *Ill. Fl. TN. Carnatic* t. 241. 1982.

Trees. Leaves bipinnate, pinnae 2-3 pairs, 8-13 cm; leaflets 4-16 pairs, 2-4 x 1-2 cm, obovate-oblong, gland between leaflets of each pairs of pinnae; petiole 5-6 cm. Heads axillary; peduncles to 8 cm, grooved; flowers 5 mm across, white; pedicels 4 mm; stamens exserted, filament 2.5 mm, pink; ovary 2.5 mm.

*Fl.* February-June

*D i s t.* Common in dry deciduous forests

Anakunnu, *KKS* 11999

***Albizia odoratissima*** (L. f.) Benth. in *London J. Bot.* 3: 88. 1844; Bedd., *Fl. Sylv.* t. 54. 1870; *Fl. Brit. India* 2: 299. 1878; *Fl. Pres. Madras* 431. 1919; Matthew, *Fl. TN. Carnatic* 539. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 255. 1988. *Mimosa odoratissima* L. f., *Suppl. Pl.* 437. 1781.

Trees. Leaves bipinnate, pinnae 3-5 pairs, 5-13 cm; leaflets 9-13, 1.5-2.5 x .8-1 cm, oblong-elliptic; petiole to 3-5 cm. Heads in corymbs or umbels; flowers 4 mm across, white; ovary 2 mm, stipitate. Pod 18 x 3 cm, flat, apically obtuse, drying black.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Kuttar, *KKS* 15934; Karimutty, 15555



Fig. 5. *Albizia lathamii* Hole **A**. flowering twig, **B**. flower, **C**. calyx, **D**. corolla split open, **E**. pistil, **F**. fruit.



### DICHRSTACHYS (DC.) Wight & Arn.

**Dichrostachys cinerea** (L.) Wight & Arn., Prodr. 271. 1834; Bedd., Fl. Sylv. t. 185. 1872; Fl. Brit. India 2: 288. 1878; Fl. Pres. Madras 419. 1919; Matthew, Fl. TN. Carnatic 540. 1983 & Ill. Fl. TN. Carnatic t. 242. 1982. **Mimosa cinerea** L., Sp. Pl. 520. 1753, non L. 517. 1753.

Small trees, armed. Leaves bipinnate, 3-6.5 cm, pinnae 8-14 pairs, 1.5-2 cm; leaflets 15-25 pairs, 2.5 x 1 mm, oblong, apex acute, margin ciliate, glands between each pair of pinnae; petiole 5, pubescent. Spikes 2-3 cm, 2 coloured, upper half yellow, lower half pink turning white: peduncle 1.5 cm; upper flowers bisexual, lower male; calyx 0.75 mm, pubescent; petals 1.5 mm, pubescent; stamens 10, filaments crested with black glands; ovary 0.5 mm, pubescent, stigma simple. Pod 5 x 0.7 cm, circinate.

*Fl. & Fr.* August-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11603*

### ENTADA Adans. *nom. cons.*

**Entada rheedii** Spreng. in Syst. Veg. (ed. 16) 2: 325. 1825. **E. pursaetha** DC., Prodr. 2: 425. 1825 & Mem., Legum. 421. 1826; Wight & Arn., Prodr. Fl. Ind. 267. 1834; Matthew, Fl. TN. Carnatic 542. 1983 & Ill. Fl. TN. Carnatic t. 243. 1982. **E. scandans** auct. non Benth. : Hook. f., Fl. Brit. India 2: 287. 1878; Fl. Pres. Madras 417. 1919

Woody lianas; branchlets grooved. Leaves bipinnate, to 15 cm, pinnae 2 pairs, 6-12 cm; leaflets 3-4 pairs, 4-6 x 3-5 cm, elliptic-ovate, apex emarginate, thinly coriaceous; petiole 3-3.5. Spikes axillary, 15-20 cm, pendulous; peduncle 5 cm; flowers polygamous, bisexual, yellow turns to white; calyx tube 1 mm, 5-toothed, campanulate; petals 2 mm, elliptic; stamens 10, filaments to 4 mm, dilated at apex, anthers gland crested; ovary 2 mm, style 4 mm, stigma minute. Pod woody, constricted; seeds *ca* 10.

*Fl. & Fr.* February-June

*D i s t.* Common along the sides of rivers

Champakkad, *KKS 15530*

### PITHECELLOBIUM C. Martius

**Pithecellobium dulce** (Roxb.) Benth. in London J. Bot. 3: 199. 1844; Bedd., Fl. Sylv. t. 188. 1872; Fl. Brit. India 2: 302. 1878; Fl. Pres. Madras 434. 1919; Matthew, Fl. TN. Carnatic 548. 1983 & Ill. Fl. TN. Carnatic t. 249. 1982. **Mimosa dulcis** Roxb., Pl. Cor. t. 99. 1798.

Trees; spines straight, branchlets pubescent. Leaves bipinnate, pinnae 3 cm; leaflets 2, 3-4 x 1.2 cm, oblong, lanceolate, inequilateral, sparsely hairy on the upper side; petiole to 3 cm. Panicles 15-20 cm, pubescent; flowers 5 mm across, creamy white; stamens numerous, filaments 4 mm, basally united; ovary 2 mm, pubescent, stigma minute. Pod 9 x 1 cm, flat, circinate, falcate, turgid, pubescent.

*Fl. & Fr.* November-March

*D i s t.* Planted in the settlement areas

Champakkad, *KKS 11919*

## PROSOPIS L.

**Prosopis juliflora** (Sw.) DC., Prodr. 2: 447. 1825; Johnston, Brittonia 14: 83. 1962; Matthew, Fl. TN. Carnatic 549. 1983.

Trees; crown spreading, spines 1-1.5 cm, bark dark fissured. Leaves clustered, bipinnate, pinnae 1 or 2 pairs; leaflets 15-20 pairs, to 15 x 2.5 mm, oblong, gland on the rachis; stipules spinescent. Spikes axillary, solitary or 2-3 together, 7-9 cm; peduncle 1 cm; flowers white; calyx lobes 0.8 mm, ovate, basally united; petals 2.5 mm, hairy within; stamens 10, free; ovary 2 mm, stipitate, pubescent, style 2.5 mm. Pod 15-20 x 1 cm, turgid, straight or slightly curved.

*Fl. & Fr.* October-February

D i s t. Very common in dry deciduous forests

Chinnar, KKS 11625

## ROSACEAE

- |                                  |                   |
|----------------------------------|-------------------|
| 1. Leaves simple                 | : 2               |
| 1. Leaves pinnate                | : <b>Rubus</b>    |
| 2. Inflorescenceterminal corymbs | : <b>Photinia</b> |
| 2. Inflorescenceaxillary racemes | : <b>Prunus</b>   |

## PHOTINIA Lindley.

**Photinia notoniana** Wight & Arn. Prodr. 302.1834; Fl. Brit. India 2: 380. 1878; Wight Ic, t. 991. 1843; Fl. Pres. Madras 445.1919.

Small trees, branchlets black. Leaves 5-7 x 3-5 cm, obovate, oblong, apex shortly obliquely acuminate; petiole 2 cm. Flowers white; calyx tube turbinate, lobes 0.5 mm long, hairy; petals 1.5 mm, including claw; stamens 20, incurved; ovary with a woolly crown, 2-celled, styles 2, 1 mm, stigmas 2. Fruit 0.5 cm across, globose, blue; seeds 1-2.

*Fl. & Fr.* December-April

D i s t. Common in shola forests

Kadapathura, KKS 17253

## PRUNUS L.

**Prunus ceylanica** (Wight) Miq. Fl. Ind. Bot. 1: 366. 1855; Kalkman, Blumea 13: 52. 1965; Matthew, Fl. TN. Carnatic 553. 1983 & Ill. Fl. TN. Carnatic t. 251. 1982. *Polydontia zeylanica* Wight, Ill. 1 203. 1840, "Polyodontia"; Wight, Ic. t. 256. 1840. *Pygecim zeylanicum* Gaertn., Fruct. 218. t. 46. 1788; Bedd., Fl. Sylv. t. 59. 1870. *P. acuminatum* Colebr., Trans. Linn. Soc. London 12: 300. t. 18. 1818; Fl. Brit. India 2: 318. 1878; Fl. Pres. Madras 439. 1919, non *Prunus acuminata* (Wall.) Dietr., 1803. *Pygecim wightianum* Blume ex Muell. in Walp. Ann. 4: 642. 1857; Fl. Brit. India 2: 319. 1878; Fl. Pres. Madras 439. 1919. *P. gardneri* Hook. f., Fl. Brit. India 2: 321. 1878; Fl. Pres. Madras 439. 1919.

Large trees. Leaves **to** 16 x 7 cm, ovate, lanceolate, coriaceous, apex acute; petiole 3 cm, thick. Racemes 6-8 cm, pubescent; calyx tube 4 mm, campanulate, pubescent; lobes 1.5 mm,

pubescent; petals 1 mm, white, stamens *ca.* 20, filaments 2.5-3.5 mm; ovary 1-celled, ovules  
lor 2 per cell, stigma capitate.

*Fl.* February-June

*D i s t.* Common in shola and high altitude evergreen forests

Ollavayal, *KKS 17413; 15734*

### RUBUS L.

1. Stem covered with rufous hairs; flowers white

: **R. ellipticus**

1. Stem glabrous; flowers pink

: **R. niveus**

**Rubus ellipticus** Smith in Rees, Cyclop. 30: n. 16. 1815; Fl. Brit. India 2: 336. 1878; Fl. Pres.  
Madras 441. 1919; Matthew, Fl. TN. Carnatic 555. 1983. **R. gowreepful** Roxb., Fl. Ind. 2: 517.  
1832; Wight & Arn., Prodr. Fl. Ind. 298. 1834; Wight, Ic. t. 230. 1839.

Scandent shrubs; prickles recurved. Leaves 3 or 5 foliate; leaflets to 8 x 5.5 cm, obovate to  
orbicular, serrulate, tawny white below; petiolule 5 mm. Panicle axillary or terminal, fulvous  
tomentose; bracts 5 mm long, ovate, acute; pedicels villous; sepals 6 x 4 mm, ovate, acute,  
united at base, pubescent; petals 8 x 5 mm, obovate; torus densely villous; ovary glabrous.  
Drupes 1.5 mm across, deep red.

*Fl. & Fr.* December-April

*D i s t.* Common in disturbed semi-evergreen forests

Mavelikudy, *KKS 17203*

**Rubus niveus** Thunb., Diss. Rub. 9. t. 1. f. 3. 1813; Fl. Pres. Madras 442. 1919; Matthew, Fl.  
TN. Carnatic 556. 1983 & Ill. Fl. TN. Carnatic t. 252. 1982. **R. lasiocarpus** Smith in Rees,  
Cyclop. 30: n. 6. 1815; Wight, Ic. t. 232. 1839; Fl. Brit. India 2: 339. 1878.

Scandent shrubs; prickles few. Leaves 7-9 foliate; leaflets to 5 x 3 cm, elliptic, acute at  
either ends, spinous-serrate, white-tomentose beneath, subsessile. Racemes axillary, 2-3  
together; pedicels slender, villous; bracts 4 mm long, lanceolate; sepals 6 mm long, lanceolate,  
united at base; petals 3 x 2 mm, obovate; ovary densely pubescent. Drupe 2 x 1 mm, ovoid,  
acute.

*Fl. & Fr.* March-June

*D i s t.* Common in moist deciduous and semi-evergreen forests

Mulangampetty, *KKS 15671*

### CRASSULACEAE

#### KALANCHOE Adans.

1. Leaves pinnately lobed; flowers yellow

: **K. laciniata**

1. Leaves simple; flowers white

: **K. olivacea**

**Kalanchoe schweinfurthii** Penzig in Atti Congr. Bot. Genova 341. 1893. **K. laciniata** sensu  
Wight. Ic. t. 1158. 1846, non (L.) Pers. 1805; Fl. Brit. India 2: 415. 1878; Fl. Pres. Madras 451.

1919; Matthew, Fl. TN. Carnatic 560. 1983 & Fur. Ill. Fl. TN. Carnatic t. 257. 1988. *Cotyledon laciniata* L., Sp. Pl. 430. 1753.

Fleshy herbs, sap watery; stem hollow. Upper leaves simple, lower pinnatifid, to 10 cm, lobes to 4 x 0.5 cm, oblong, coarsely dentate, puberulus. Cymes corymbose, axillary and terminal; flowers yellow; bracts 0.8 cm, linear; calyx 4 lobed to the base, 7 x 1.5 mm, lanceolate, glandular pubescent; corolla tube 7 mm, lobes 4, 4 x 2 mm, lanceolate, acuminate, twisted, glandular pubescent: stamens 8, in two rows at the throat of the corolla tube; carpels 4, 4 x 1.5 mm, style 2.5 mm, hypogynous scales 4, subulate. Follicle 8 x 4 mm.

*Fl. & Fr.* November -February

*D i s t.* Very rare in dry deciduous forests

Panchankalithode, *KKS 11678*

**Kalanchoe olivacea** Dalz. & Gibs., Bombay Fl. 313. 1861; Fl. Pres. Madras 450. 1919; Fischer in Rec. Bot. Surv. India 9: 78. 1921.

Fleshy herbs. Leaves 8-10 x 4-5 cm, obovate, crenate, olive green. Cymes corymbose. axillary and terminal, 5 x 9 cm; flowers white; bracts, 0.5 cm, linear, glandular; calyx 4-lobed to the base, 6 x 1 mm, elliptic, glandular, corolla tube 11 mm long, lobes 4, 8 x 3 mm, lanceolate, apiculate, glandular; stamens 8, in two rows at the throat of the corolla lobes, carpels 9 x 3 mm, stigma oblique; hypogynous bristles 4, subulate. Follicle glabrous.

*Fl. & Fr.* December-March

*D i s t.* Very rare in dry deciduous forests; endemic to Peninsular India and threatened.

Mulangampetty, *KKS 11891*

## DROSERACEAE

### DROSERA L.

1. Leaves all cauline, semi-lunar

: **D. peltata**

1. Leaves all radical, in rosette, obovate

: **D. burmannii**

**Drosera burmannii** Vahl, Symb. Bot. 3: 50. 1794; Wight, Ic. t. 944. 1845; Fl. Brit. India 2: 424. 1878; Fl. Pres. Madras 452. 1919; Matthew, Fl. TN. Carnatic 563. 1983 & Fur. Ill. Fl. TN. Carnatic t. 258. 1988.

Small glandular herbs. Leaves forming a rosette at the base, obovate, with gland tipped long tentacles, especially on the margins, to 1 cm; petiole flat. Scapes to 15 cm; racemes rarely branched; pedicels to 2 mm; calyx to 4 mm, papillose; petals to 4.5 mm, white; styles 5, included. Capsule ovoid. 5-valved, 4 mm, many seeded, black, papillose.

*Fl. & Fr.* January-April

*D i s t.* Common on wet rocky areas in dry and moist deciduous forests

Chinnar, *KKS 11705*

**Drosera peltata** Sm, in Willd., Sp. Pl. 1: 1546. 1797; Wight, Ill 1: t. 20. 1840; Fl. Brit. India 2: 424. 1878; Fl. Pres. Madras 452. 1919; Matthew, Fl. TN. Carnatic 565. 1983 & Fur. Ill. Fl. TN. Carnatic t. 259. 1988.

Glandular herbs, root stock tuberous. Leaves alternate, sometime two arise from a single node, 0.6 cm across, semilunar, tentacles long, gland tipped; petiole to 2 cm. Racemes terminal; pedicel to 1.5 cm; calyx 5-lobed, to 3 mm, lobes acute, papillose, petals 5 mm, white, stamens included, styles 3, fimbriate.

FZ March-April

D i s t. Common in grasslands

Pothumala, KKS 17361

## COMBRETACEAE

- |                                         |                     |
|-----------------------------------------|---------------------|
| 1. Petals absent: trees                 | : 2                 |
| 1. Petals present, lianas               | : <b>Combretum</b>  |
| 2. Flowers in globose heads             | : <b>Anogeissus</b> |
| 2. Flowers in simple or branched spikes | : <b>Terminalia</b> |

### **ANOGEISSUS (DC.) Guill. & Perr.**

**Anogeissus latifolia** (Roxb. ex DC.) Wall. ex Guill. & Perr., Fl. Seneg. Tent. 7: 280. 1832; Bedd., Fl. Sylv. t. 15. 1869; Wight, Ic. t. 994. 1845; Fl. Brit. India 2: 450. 1878; Fl. Pres. Madras 466. 1919; Matthew, Fl. TN. Carnatic 575. 1983 & Ill. Fl. TN. Carnatic t. 261. 1982.

**Conocarpus latifolia** Roxb. ex DC., Prodr. 3: 16. 1828.

Trees, bark white. Leaves to 8 x 5 cm, ovate-elliptic or suborbicular, apex obtuse; petiole to 1 cm. Heads paniced, hairy; peduncles to 0.5 cm; calyx tube 3 mm, pubescent, lobes 1 mm, triangular, greenish-yellow; stamens 10, in two rows, filaments 1.5 mm, yellow; ovary 2 mm, pubescent, style 1 mm, broadened at base, hairy. Fruit 6 x 4 mm, indehiscent, 2-winged, entire, beaked.

FZ & Fr. April-October

D i s t. Very common in dry deciduous forests

Chinnar, NS 5922; Charkapetty, KKS 11748; Karimutty, 15735

### **COMBRETUM Loeffl. nom. cons.**

**Combretum albidum** G. Don in Trans. Linn. Soc. London 15: 429. 1827. **C. ovalifolium** Roxb., Fl. Ind. 2: 226. 1832; Fl. Brit. India 2: 458. 1878; Fl. Pres. Madras 469. 1919; Matthew, Fl. TN. Carnatic 577. 1983 & Ill. Fl. TN. Carnatic t. 263. 1982.

Woody climbers. Leaves 7-10 x 5-6.5 cm, ovate, orbicular, apex acuminate; petiole to 1 cm. Spikes compound, axillary; flowers polygamo-dioecous, yellow; calyx tube constricted above, lobes 4, 1.5 mm, triangular; petals 1.5 mm, oblong lanceolate, disc lining calyx pilose; stamens 8, in two rows, didymous, filaments 3 mm; ovary 3 mm, 1-celled, style 3 mm, subulate. Fruit 2 x 2 cm, 4-winged, wings chartaceous, red.

EZ & Fr. November-March

D i s t. Common along the sides of ravines

Kuttar, KKS 15540; Thayanankudy, 11881

## TERMINALIA L.

1. Fruit 5-winged : **T. arjuna**  
1. Fruit not winged : **T. chebula**

**Terminalia arjuna** (Roxb. ex DC.) Wight & Arn., Prodr. 314. 1834; Bedd., Fl. Sylv. t. 28. 1869; Fl. Brit. India 2: 447. 1878; Fl. Pres. Madras 465. 1919; Matthew, Fl. TN. Carnatic 581. 1983 & Fur. Ill. Fl. TN. Carnatic t. 261. 1988. **Pentaptera arjuna** Roxb. ex DC., Prodr. 3: 14. 1828.

Large trees, barks easily flaking off, exudes red gum when cut. Leaves alternate *or* sub-opposite, 8-11 x 4-5.5 cm, oblong-ovate or obovate, glands 2, at the base of the blade on the petiole. Spikes compound, axillary, to 10 cm, tomentose; flowers pale yellow; calyx tube 1.5 mm, pubescent, lobes 2 mm, disc 5-lobed, pilose; stamens 10, in two rows, filaments 4 mm; ovary 1.5 mm, pubescent, style 4 mm. Fruit 6 x 3 cm, oblong, ovoid, 5-wings **equal**, apex notched.

*Fl. & Fr.* March-September

*D i s t.* Very common on riverside up to 900 m altitude

Champakkad, *KKS 15803*; Kuttar, **15552**

**Terminalia chebula** Retz., Obs. Bot. 5: 31. 1789; Fl. Brit. India **2**: 446. 1878 p.p.; Fl. Pres. Madras 464. 1919; Matthew, Fl. TN. Carnatic 583. 1983 & Ill. Fl. TN. Carnatic t. 266 & 969c. 1982. **Myrobalanus chebula** (Retz.) Gaertn., Fruct. 2: 91. t. 97. 1791.

Trees, bark reddish, young branchlets pubescent. Leaves alternate, 8-11 x 4-7.5 cm, elliptic oblong, ovate, young ones tomentose, glands 2 at the base of the blade; petiole to 1.5 cm. Spikes axillary, 8-9 cm, tomentose; flowers greenish-yellow; calyx tube 3 mm, lobes 2 mm, triangular, pubescent; disc 5-lobed, pilose, ovary 2 mm, pubescent, style 1-4 mm. Fruit 4 x 2 cm, ovoid oblong, glossy.

*Fl. & Fr.* February-August

*D i s t.* Common in dry deciduous forests

Karumpara, *KKS 11806*; Palapetty, *15514*

## MYRTACEAE

1. Leaves alternate, bark peeling : **Eucalyptus**  
1. Leaves opposite, bark not peeling : **2**  
2. Leaves 3-ribbed from base, densely tomentose : **Rhodomyrtus**  
2. Leaves penninewed, glabrous : **Syzygium**

### EUCALYPTUS L'Heritier de Brutelle

**Eucalyptus grandis** Hill ex Maiden, Forest fl. N.S. W. 1:79.1903, in obs., J. Roy. Soc. N.S. Wales 52501.1918 & Crit. revis. Eucalyptus 4:338.1920; Matthew, Fl. TN. Carnatic 589. 1983.

Large trees, bark smooth, white. Leaves alternate, to 16 x 3 cm, lanceolate, apex acuminate, base obtuse; petiole to 3 cm. Umbels axillary, 6-11 flowered; peduncles to 1.5 cm; pedicels to 3 mm. Hypanthium to 5 mm, obconical, ribbed; operculum to 4 mm, hemispherical; stamens 2-6 cm. Fruits 6-8 x 4-6 mm, pyriform.

*Fl. & Fr.* September-April

*D i s t.* Raised in plantation at Ollavayal and Vanchikulam

KKS 15720

#### RHODOMYRTUS (DC.) Reichb.

**Rhodomyrtus tomentosus** (Ait.) Hassk. in Flora 25(2): 35. 1842; Fl. Brit. India 2: 469. 1878; Fl. Pres. Madras 471. 1919. *Myrtus tomentosa* Ait. Hort. Kew ed. 1. 2: 159. 1789; Wight, Ic. t. 522. 1842.

Small trees, young branchlets, tomentose. Leaves to 5.5 x 3 cm, elliptic, oblong, margins recurved. coriaceous, white tomentose below, 3-nerved from little above the base; petiole to 8 mm. Cymes axillary; flowers 1-7, white, tomentose, peduncle to 4 cm; calyx tube to 5 mm, tomentose, lobes 4 mm, ovate; petals 5 mm, spreading; stamens many, unequal; ovary embedded in calyx tube, style 5 mm, filiform; stigma capitate.

*Fl.* March-June

*D i s t.* Common in shola forests above 1900 m altitude

Pothumala, KKS 17370

#### SYZYGIUM R. Br. ex Gaertn.

- |                                                                        |                           |
|------------------------------------------------------------------------|---------------------------|
| 1. Flowers more than 2.5 cm across; inflorescence exclusively terminal | : <b>S. hemisphericum</b> |
| 1. Flowers less than 1 cm across; inflorescence terminal and axillary  | : 2                       |
| 2. Leaves obovate; leaf apex obtuse                                    | : <b>S. tamilnadensis</b> |
| 2. Leaf elliptic; leaf apex acute, acuminate                           | : 3                       |
| 3. Branchlets tetragonous                                              | : <b>S. densiflorum</b>   |
| 3. Branchlets terete                                                   | : 4                       |
| 4. Petals free; calyx tube longer than broad                           | : <b>S. lanceolatum</b>   |
| 4. Petals calyptrate; calyx tube broader than long                     | : <b>S. cumini</b>        |

**Syzygium cumini** (L.) Skeels in U. S. DA. Bur. Pl. Industr. Bull. 248: 2. 1912; Matthew, Fl. TN. Carnatic 594. 1983 & Ill. Fl. TN. Carnatic t. 271. 1982. *Myrtus cumini* L., Sp. Pl. 471. 1753. *Eugenia jambolana* Lam., Encycl. 3: 198. 1789; Wight, Ic. t. 535. 1842; Fl. Brit. India 2: 499. 1879. *Syzygium jambolanum* (Lam.) DC., Prodr. 3: 259. 1828; Fl. Pres. Madras 481. 1919.

Large trees, bark smooth, blaze reddish. Leaves to 15 x 7 cm, elliptic, acuminate, cuneate, reddish brown when dry, nerves numerous, parallel; petiole to 2 cm. Panicles axillary, to 10 cm; flowers 6 mm across, white; pedicels to 1 mm; calyx to 2 mm, cup shaped.

*Fl. & Fr.* March-August

*D i s t.* Common in semi-evergreen forests and along the sides of streams

Olikkudy, KKS 17285; Karimutty, 15569; Ichampetty, 15650

**Syzygium densiflorum** Wall. ex Wight & Arn., Prodr. 329. 1834. *S. arnottianum* Walp. Rep. 2: 180. 1843; Fl. Pres. Madras 478. 1919. *Eugenia arnottiana* (Walp.) Wight. Ic. t. 999. 1845; Fl. Brit. India 2: 483. 1878.

Large trees, branchlets tetragonous. Leaves to 7 x 2.5 cm, elliptic, acuminate, base acute, coriaceous, nerves very close and parallel, midnerve deeply impressed; petiole to 1 cm, slender. Panicles corymbose; peduncles to 3 cm; flowers 5 mm across, white, shortly pedicelled; calyx tube obconic, produced beyond the ovary, 2 mm.

Fl. February-March

D i s t. Occasional in shola forests; endemic to Peninsular India.

Olikkudy, KKS 17334

**Syzygium hemisphericum** (Wight) Alston in Trimen, Handb. Fl. Ceylon 6 (Suppl.): 115. 1931. *Eugenia hemispherica* Wight, Ic. t. 525. 1842; Fl. Brit. India 2: 477. 1878. *Jambosa hemispherica* (Wight) Walp. Rep. 2: 191. 1843; Fl. Pres. Madras 474. 1919.

Large trees, branchlets quadrangular. Leaves to 15 x 5 cm, elliptic, acute to acuminate at both ends, semi-coriaceous, gland dotted beneath, midnerve prominently impressed above, lateral and intramarginal nerves faint; petiole 1.5 cm. Cymes terminal, to 7 cm; flowers 3 cm across, white; pedicels to 5 mm, stout; calyx tube produced beyond the ovary, obconic 7 mm.

Fl. February-August

D i s t. Occasional along the margins of shola forests

Olikkudy, KKS 17279

**Syzygium lanceolatum** (Lam.) Wight & Arn., Prodr. 330. 1834. *Eugenia lanceolata* Lam., Encycl. 3: 200. 1789; Wight, Ic. t. 530. 1842. *Syzygium wightianum* Wall. ex Wight & Arn., Prodr. 330. 1834; Fl. Pres. Madras 478. 1919. *Eugenia wightiana* (Wall. ex Wight & Arn.) Wight, Ic. t. 529. 1842; Fl. Brit. India 2: 485. 1878.

Trees, branchlets terete. Leaves to 11 x 4 cm, elliptic, lanceolate, obliquely acuminate, base cuneate, thinly coriaceous, nerves close, parallel; petiole to 8 mm. Racemes axillary; peduncle to 3 cm; flowers white, 5 mm across; pedicels to 2 mm; calyx tube elongate, to 1.5 cm, widened. Fruit scarlet red.

Fl. & Fr. April-August

D i s t. Occasional in moist deciduous forests

Ichampetty, KKS 15749

**Syzygium tamilnadensis** Rathakr. & Chithra in Nair & Henry, Fl. Tamil Nadu ser. 1, 1: 158. 1983. *S. montanum* (Wight) Gamble, Fl. Pres. Madras 479. 1919. *Eugenia montana* Wight, Ic. t. 1060. 1846, non Aubl. 1775; Fl. Brit. India 2: 488. 1878.

Tress, branchlets tetragonous. Leaves 8 x 3.5 cm, elliptic, obovate, apex obtuse, base cuneate, coriaceous, lateral nerves distant; petiole to 1.5 cm; Cymes corymbose, terminal and lateral; peduncles to 5 cm; flowers 5 mm across; calyx tube produced beyond the ovary, 3 mm long, obconic.



Fl. March-April

D i s t. Occasional in shola forests; endemic to Peninsular India.

Pothumala, *KKS* 17390

**Psidium guajava** is cultivated in homesteads

### MELASTOMATACEAE

- |                                                 |             |
|-------------------------------------------------|-------------|
| 1. Plants epiphytic                             | : Medinilla |
| 1. Plants terrestrial                           | : 2         |
| 2. Trees: leaves with intramarginal nerves      | : Memecylon |
| 2. Herbs or shrubs; leaves ribbed from the base | : Osbeckia  |

### MEDINILLA Gaud.

**Medinilla malabarica** Bedd., Ic. t. 157. 1868-1874; Fl. Brit. India 2: 548. 1879; Fl. Pres. Madras 496. 1919.

Epiphytic fleshy shrubs. Leaves 7 x 4.5 cm, ovate, apex obtuse, base slightly cordate or rounded, thick, fleshy, basally 3-nerved; petiole to 0.5 cm. Flowers axillary, 1-3, pink; peduncles to 1 cm; pedicels to 1 cm, thickened, fleshy; bracts deciduous. Berry 8 mm across, crowned by the limb of the calyx, red.

Fl. & Fr. September-December

D i s t. Occasional in shola forests: endemic to Peninsular India.

Olikkudy, *KKS* 17481

### MEMECYLON L.

- |                                               |               |
|-----------------------------------------------|---------------|
| 1. Branches quadrangular                      | M. molesturn  |
| 1. Branches terete                            | 2             |
| 2. Leaf ovate- lanceolate, apex acuminate     | M. umbellatum |
| 2. Leaves elliptic, apex obtuse or emarginate | M. grande     |

**Memecylon grande** Retz., Obs. Bot. 4: 26. 1786; Fl. Brit. India 2: 557. 1879; Fl. Pres. Madras 504. 1919.

Small trees. Leaves to 8 x 3 cm, ovate-lanceolate, obtusely acuminate, base cuneate, coriaceous, slight brown when dry, lateral nerves and intramarginal nerves faint; petiole 8 mm. Umbels in the axils of fallen leaves; flower blue; peduncles to 1.5 cm; bracts ovate, minute; pedicels to 3 mm; calyx lobes 1 mm, ovate; petals 2.5 mm, obovate; stamens 8, recurved; ovary embedded in calyx tube, 2 mm. Berry globose, brownish-black.

Fl. & Fr. February-June

D i s t. Common along the sides of streams in semi-evergreen forests

Karimutty, *KKS* 15615

**Memecylon molesturn** (Clarke) Cogn. in DC., Monog. Phan. 7: 1169. 1891; Fl. Pres. Madras 505. 1919. *M. edule* Roxb. var. *molesta* Clarke in Hook. f., Fl. Brit. India 2: 564. 1879.

Small trees: branchlets quadrangular. Leaves to 5 x 2 cm, elliptic, apex emarginate, base cuneate, semi-coriaceous, yellowish brown when dry, 7-8 nerved, faintly visible; petiole to 0.3 cm. Flower clusters on old wood; peduncle to 3 mm; pedicels to 8 mm. Fruit globose, 3 mm across.

*Fl. & Fr.* March-July

*D i s t.* Occasional in dry deciduous forests; endemic to Peninsular India.

Chinnar, *KKS* 15698

**Memecylon umbellatum** Burm. f., *Fl. Ind.* 87. 1768; *Fl. Pres. Madras* 504. 1919; Bremer in *Opera Bot.* 50: 9. t. 3. 1979; Matthew, *Fl. TN. Carnatic* 600. 1983 & *Ill. Fl. TN. Carnatic* t. 276. 1982.

Small trees, branchlets terete. Leaves to 5 x 2 cm, elliptic, apex obtuse or emarginate, cuneate at the base, shining at above, nerved faint, dark green when dry; petiole to 3 mm. Umbels axillary; calyx 1.5 mm across, lobes short; petals orbicular, blue. Berry 0.5 mm across, yellow.

*Fl. & Fr.* August-December

*D i s t.* Common in shola forests

Olikkudy, *KKS* 17393

#### OSBECKIA L.

- |                                                      |                                          |
|------------------------------------------------------|------------------------------------------|
| 1. Flowers 4-merous; herbs                           | : <i>O. zeylanica</i>                    |
| 1. Flowers 5-merous; shrubs                          | : 2                                      |
| 2. Hypanthium hairs stalked, internodes very short   | : <i>O. leschenaultiana</i>              |
| 2. Hypanthium hairs sessile, internodes long         | : 3                                      |
| 3. Leaves membranous, 3-nerved; flowers capitate     | : <i>O. virgata</i>                      |
| 3. Leaves coriaceous, 5-7-nerved; flowers in panicle | : <i>O. aspera</i> var. <i>wightiana</i> |

**Osbeckia aspera** (L.) Blume var. **wightiana** (Benth. ex Wight & Arn.) Trim., *Fl. Ceylon* 2: 196. 1894; Hansen. *Ginkgoana* 4: 85. 1977. *O. wightiana* Benth. ex Wight & Arn., *Prodr.* 1: 323. 1834.

Subshrubs, pubescent. Leaves 5.5 x 2.5 cm, oblong-elliptic, shortly acuminate, base obtuse, 7-nerved, outer 2 pairs, slender, pubescent; petiole to 3 mm. Panicle terminal, to 10 cm; flowers pink; bracts minute, ovate; calyx cup, 0.8 cm, with simple hairs below and compound above: sepals 1 mm, ovate, with few hairs at apex; petals 2 x 1.5 cm, obovate; stamens 10, filaments 1 cm, anthers 1 cm, attenuate at apex, yellow; ovary sunken, style to 1.5 cm.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS* 15577

**Osbeckia leschenaultiana** DC., *Prodr.* 3: 142. 1828; *Fl. Brit. India* 2: 520. 1879; *Fl. Pres. Madras* 493. 1919; Hansen. *Ginkgoana*, 4: 87. 1977. *O. gardneriana* Wight,  *Ic. t.* 997. 1845.

Shrubs; branchlets terete, corrugate, young parts with rufous hairs, internodes short. Leaves to 2.5 x 1.5 cm, elliptic-ovate, acute at apex, base rounded, densely pubescent, 3-5 nerved; petiole to 3 mm. Flowers terminal, solitary or capitate, pink; calyx cup with compound rufous hairs, stalked hairs; petals to 2.5 cm, obovate; stamens 10, filaments 6 mm, anthers 6 mm, twisted.

*Fl. & Fr.* November-January

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17359*

**Osbeckia virgata** D. Don ex Wight & Arn., Prodr. 323. 1834; Hansen in Ginkgoana 4: 107. ff. 1(8), 2(7) & 35(5). 1977. *O. octandra* auct. non (L.) DC. 1828; Fl. Brit. India 2: 521. 1879; Fl. Pres. Madras 493. 1919.

Shrubs; branchlets slender, trichotomously branched, puberulus. Leaves 3 x 1.5 cm, elliptic, acute, attenuate at base, puberulus above, glabrous beneath except the nerves, ciliate along the margins, 3-ribbed; petiole to 0.5 cm. Flowers terminal, solitary or 2-3 together, 0.5 cm across, pink; calyx tube with stalked compound hairs, lobes acute, ciliate along the margins, with a tuft of stellate hairs at apex; stamens 10, anthers attenuate.

*Fl. & Fr.* November-February

*D i s t.* Common in moist deciduous forests

Alampetty, *KKS 15872*

**Osbeckia zeylanica** L. f., Suppl. Pl. 215. 1781; Fl. Brit. India 2: 516. 1879; Fl. Pres. Madras 494. 1919; Hansen in Ginkgoana 4: 43. 1977; Matthew, Fl. TN. Carnatic 603. 1983 & Fur. III. Fl. TN. Carnatic t. 269. **1988.**

Small erect herbs, stem quadrangular, patent. Leaves elliptic, ovate, entire, basally, 3-nerved, hirsute on both sides, apex acute, 2 x 1 cm; petiole 3 mm. Flowers in terminal clusters, pink; pedicels to 2 mm with hairs; petals ovate, 7 mm, ciliate at apex; stamens 8, equal, filaments to 5 mm; anthers attenuate, twisted 5 mm, glandular at base; ovary inferior in the hypanthium; style 1.2 cm; stigma slightly widened.

*Fl. & Fr.* March-June

*D i s t.* Common in wet places in moist deciduous forests

Mulangampetty, *KKS 15670*

## LYTHRACEAE

- |                                                                                           |                   |
|-------------------------------------------------------------------------------------------|-------------------|
| 1. Flowers axillary, solitary                                                             | : <b>Rotala</b>   |
| 1. Flowers in axillary dichasia or in groups                                              | : <b>2</b>        |
| 2. Calyx lobes incurved at anthesis; stamens inserted at the base of the calyx tube       | : <b>Nesaea</b>   |
| 2. Calyx lobes erect at anthesis; stamens inserted on the rim or middle of the calyx tube | : <b>Ammannia</b> |

## AMMANNIA L.

1. Petals absent; leaf base acute

: **A. baccifera**

1. Petals present; leaf base semiamplexicaul

: **A. multiflora**

**Ammannia baccifera** L., Sp. Pl. 120. 1753 incl. subsp. **aegyptiaca** (Willd.) Koehne; Fl. Brit. India 2: 569. 1879; Fl. Pres. Madras 5 10. 1919; Matthew, Fl. TN. Carnatic 605. 1983 & Fur. III. Fl. TN. Carnatic t. 270. 1988. **A. salicifolia** sensu Clarke in Hook. f., Fl. Brit. India 2: 569. 1879, non Blume 1856.

Herbs, branched. Leaves to 6 x 1.5 cm, decussate, apex and base acute, nerves obscure, glossy below, subsessile. stipulate. Cymes axillary, dense, sessile; pedicels to 1-2 mm; calyx tube 1 mm, lobes 4. 1.5 mm, triangular; stamens 4. Capsule globose, as long as or shorter than calyx.

*Fl. & Fr.* November-January

*D i s t.* Common in sandy water logged areas

Churullipetty, *KKS 15933*

**Ammannia multiflora** Roxb., Fl. Ind. 1: 426. 1820; Fl. Brit. India 2: 570. 1879; Fl. Pres. Madras 509. 1919; Matthew, Fl. TN. Carnatic 606. 1983 & Fur. III. Fl. TN. Carnatic t. 271. 1988.

Marshy branched herbs, stems quadrangular at the base, branchlets grooved. Leaves to 2.5 x 0.4 cm, decussate, oblong, obtuse. membranous. Flowers in axillary dichasia, 10-20 flowered; peduncles to 1 cm; bracts 2, 1.5 mm; linear; calyx membranous; lobes 2 mm; petals 1 mm, rarely absent; stamens 4-many, style 0.5 mm; ovary 2-5 locular. Capsule 2 mm, globose, circumscissile.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11721*

## NESAEA L.

**Nesaea brevipes** Koehne in Engl., Bot. Jahrb. **Syst.** 3: 326. 1882; Fl. Pres. Madras 510. 1919; Matthew, Fl. TN. Carnatic 610. 1983 & Ill. Fl. TN. Carnatic t. 281. 1982. **Ammannia cordata** Wight & Arn., Prodr. 304. 1834; Fl. Brit. India 2: 570. 1879.

Herbs, young branchlets slightly winged. Leaves to 4 x 1.2 cm, sessile, oblong, lanceolate, apex acute, base semiamplexicaule in the upper and lanceolate in the lower ones, membranous. Cymes axillary, sessile. bracteoles 4 mm, linear; calyx lobes 4 mm, ovate; stamens 4, included. Capsule included in the calyx.

*Fl. & Fr.* December-February

*D i s t.* Common on dry rocky area in dry deciduous forests

Chengamperu, *KKS 11723*

## ROOTALA L.

**Rotala illecebroides** (Arn. ex Clarke) Koehne in Engl., Bot. Jahrb. **Syst.** I: 162. 1881; Fl. Pres. Madras 508. 1919; Matthew. Fl. TN. Carnatic 613. 1983 & Fur. III. Fl. TN. Carnatic t. 374.

1988. *Ammannia pentandra* Roxb. var. *illecebroides* Arn. ex Clarke in Hook. f., Fl. Brit. India 2: 569. 1879.

Small aquatic erect herbs. Leaves opposite, to 2 x 1 mm, decussate, ovate, glabrous, entire. Flowers axillary, each from the leaf axils; bracteoles 2, subulate.

FZ & Fr. November-January

D i s t. Common in waterlogged areas

Ichampetty, KKS 18268

## ONAGRACEAE

### LUDWIGIA L.

*Ludwigia octovalvis* (Jacq.) Raven subsp. *sessiliflora* (Mich.) Raven in Kew Bull 15: 476. 1962; Matthew, Fl. TN. Carnatic 623. 1983 & Fur. Ill. Fl. TN. Carnatic t. 278. 1988. *Jussiaea octonervia* forma *sessiliflora* Mich., in Mast. Fl. Bras. 13(2): 171. 1875. *J. suffruticosa* L., Sp. Pl. 388: 1753; Fl. Brit. India 2: 587. 1879; Fl. Pres. Madras 516. 1919. *J. villosa* Lam., Encycl. 3: 331. 1789; Fl. Pres. Madras 1875. 1935.

Shrubs, pubescent. Leaves to 6 x 1 cm, elliptic, linear, acute at both ends, pubescent; petiole to 3 mm. Flowers axillary, solitary, yellow; calyx lobes to 8 mm, ovate, subacuminate, villous; petals to 6 mm, obovate; stamens 8, inserted; ovary 4-celled, to 1 cm, tubular, hirsute.

Fl. November-December

D i s t. Common in wet areas

Athiyodai, KKS 11757

## PASSIFLORACEAE

1. Tendrils in leaf axils only; flowers bisexual

: *Passiflora*

1. Tendrils on inflorescence only; flowers unisexual

: *Adenia*

### ADENIA Forsk.

*Adenia wightiana* (Wall. ex Wight & Arn.) Engl. in Bot. Jahrb. Syst. 14: 376. 1891; Fl. Pres. Madras 525. 1919; Matthew, Fl. TN. Carnatic 628. 1983. *Modecca wightiana* Wall. ex Wight & Arn., Prodr. 353. 1834; Wight, Ic. t. 179. 1839; Fl. Brit. India 2: 601. 1879.

Glabrous vines, tendrils simple, coiled. Leaves to 12 x 10 cm, ovate or deeply 3-5-lobed, terminal lobe 12 x 10 cm, lanceolate, acute, base cordate, membranous, gland at the base of lamina; petiole to 3 cm. Flowers monoecious or polygamo-dioecious, white; calyx tube 3 mm, campanulate, lobes 1 mm; corolla lobes attached to the calyx lobes, 1 mm, oblong; ovary 2 mm, globose, style trifid, stigma papillose, ovules many. Capsule 3 valved, 4 cm across; seeds pitted.

Fl. & Fr. October-November

D i s t. Common in dry deciduous forests

Palapetty, KKS 15859

## PASSIFLORA L.

1. Leaves semi-orbicular, glabrous : *P. leschenaultii*  
1. Leaves trilobed, with many gland-tipped hairs at base : *P. foetida*

**Passiflora foetida** L., Sp. Pl. 959. 1753; Fl. Pres. Madras 524. 1919; Matthew, Fl. TN. Carnatic 630. 1983 & Ill. Fl. TN. Carnatic t. 289. 1982.

Vines, tendrils simple, branchlets densely stiff hairy. Leaves to 5 x 3 cm, acute, base cordate; petiole to 3 cm, with gland tipped hairs, stipules to 1 cm, cleft deeply into lobes, glandular hairy. Flowers axillary, solitary, hermaphrodite, 4 cm across; bracts and bracteoles 3, pinnatisect, glandular pubescent. Berry 3.5 cm across, globose; seeds many, pitted.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15732*

**Passiflora leschenaultii** DC., Prodr. 3: 326. 1828; Wight, Ic. t. 39. 1838; Fl. Brit. India 2: 599. 1879; Fl. Pres. Madras 524. 1919.

Twining, tendrils unbranched. Leaves 4 cm across, semi-orbicular, 3 toothed at apex, base cordate or truncate; petiole to 2 cm. with two glands at the middle, stipule linear. Flowers mostly solitary, sometimes cymose, bisexual. Berry 3.5 cm across, globose; seeds many, pitted.

*Fl. & Fr.* March-May

*D i s t.* Common in shola forests

Pothumala, *KKS 17368*

## CUCURBITACEAE

1. Tendrils simple : 3  
1. Tendrils branched : 2  
2. Petals lacinate : Trichosanthes  
2. Petals entire : Diplocyclos  
3. Bracts stipuliform, ciliate : Ctenolepis  
3. Bracts not stipuliform : 4  
4. Male flowers solitary : Coccinia  
4. Male flowers in clusters or umbels or racemes : 5  
5. Fruit dehiscing by operculum : Corallocarpus  
5. Fruit dehiscing by valves or slits : 6  
6. Leaves amplexicaule; male flowers in axillary umbels : Solena  
6. Leaves not amplexicaule; male flowers in axillary clusters : Mukia

## COCCINIA Wight & Am.

**Coccinia grandis** (L.) Voigt, Hort. Sub. Calc. 59. 1845; Matthew, Fl. TN. Carnatic 637. 1983 & Ill. Fl. TN. Carnatic t. 239. 1982. *Bryonia grandis* L., Mant. Pl. 126. 1767. *Coccinia indica* Wight & Arn.. Prodr. 347. 1834; Wight, Ill. 2: t. 105. 1850; Fl. Pres. Madras 537. 1919.

*Cephalandra indica* (Wight & Arn.) Naud. in Ann. Sci. Nat. Bot. ser. 5. 5: 16. 1866; Fl. Brit. India 2: 621. 1879, excl. syn.

Vines. Leaves 3-5 angled, to 8 x 9 cm, apex acute, apiculate, margins crenate, base deeply cordate, chartaceous, palmately veined, gland dotted beneath; petiole to 3 cm. Flowers axillary, solitary, monoecious, white; pedicels 3 cm; calyx tube 3 mm, campanulate, lobes 2 mm, ovate, acute; corolla 2.5 cm, 5-lobed. campanulate, pubescent without, acute at apex; ovary 1 cm long, glandular, pubescent, ovules numerous, stigma 3-partite, fimbriate.

Fl. September-October

D i s t. Common in dry deciduous forests

Cliinnar, KKS 11609

#### **CORALLOCARPUS Welw. ex Hook. f.**

*Corallocarpus epigaeus* (Rottl. & Willd.) Clarke in Hook. f., Fl. Brit. India 2: 628. 1879; Fl. Pres. Madras 541. 1919; Matthew, Fl. TN. Carnatic 638. 1983 & Ill. Fl. TN. Carnatic t. 294. 1982. *Bryonia epigaea* Rottl. & Willd. in Ges. Naturf. Freunde Berlin Neue Schriften ser. 4. 212. 1803; Wight, Ic. t. 503. 1841.

Vines. Leaves 3-5 angled, to 8 x 8 cm, pubescent, apex acute, base cordate, dentate; petiole to 3 cm. Flowers monoecious, yellow; male flowers in racemes, to 1 cm; peduncles to 5 cm, stout; corolla 2 mm across, pubescent; stamens 3, erect; female flowers solitary, 2 mm across; ovary 4 mm, oblong, beaked. Fruit 1.5 x 1 cm, ellipsoid, beaked, circumscissile at the base; seeds ca. 8.

Fl. & Fr. December-March

D i s t. Common in dry deciduous forests

Sivapura, KKS 11927

#### **CTENOLEPIS Hook. f.**

*Ctenolepis garcinii* (Burm. f.) Clarke in Hook. f., Fl. Brit. India 2: 629. 1879; Matthew, Fl. TN. Carnatic 639. 1983 & Ill. Fl. TN. Carnatic t. 295. 1982. *Sicyos garcinii* Burm. f., Fl. Ind. 211. 1768. *Blastania garcinii* (Burm. f.) Cogn. in DC., Monog. Phan. 3: 629. 1881; Fl. Pres. Madras 540. 1919.

Vines. Leaves deeply 3-5 lobed, to 5 x 6 cm, ovate, acute, base cordate, crenulate, scabrous above; petiole to 6 cm. Flowers unisexual, 2 mm across; male flowers in axillary racemes, to 1 cm; bracts 1 x 2 cm, stipuliform, ovate, ciliate; calyx lobes 1 mm; stamens 3, female flowers - ovary globose, 4 mm across.

Fl. December-January

D i s t. Common in dry deciduous forests

Kalladuthupurai, KKS 11695

#### **DIPLOCYCLOS Post & O. Ktze.**

*Diplocyclos palmatus* (L.) Jeffrey in Kew Bull. 15: 352. 1962; Matthew, Fl. TN. Carnatic 644. 1983 & Ill. Fl. TN. Carnatic t. 297. 1982. *Bryonia palmata* L., Sp. Pl. 1012. 1753. *B. laciniosa*

L. Sp. Pl. 1013. 1753 p.p. excl. typus; Wight, Ic. t. 500. 1841; Fl. Brit. India 2: 622. 1879. *Bryonopsis luciniosa* sensu Naubl. in Ann. Sci. Nat. Bot. ser. 4. 12: 141. 1859; Fl. Pres. Madras 534. 1919.

Vines. Leaves deeply 5-lobed, to 9 x 7 cm, elliptic, apex acute, margins denticulate, scabrous above, minutely spinous along the lower veins and sometimes on petiole; petiole to 4 cm. Flowers unisexual; male and female in the same axils, yellow; female flowers - calyx tube 3 mm, broadly campanulate, lobes 5, 0.5 mm; corolla 5 mm long; ovary 5 mm, globose, ovules many, stigmas 3, bifid or papillose at apex. Berry to 2 cm across, globose, greenish with white patches; seeds medianly surrounded by crenulate ring, projected at both sides.

*Fl. & Fr.* October-February

*D i s t.* Common in dry deciduous forests

Sivapura, *KKS 11936*; Churullipetty, *11638*

#### MUKIA Arn.

1. Seeds smooth; leaves ferruginous tomentose

: **M. leiosperma**

1. Seeds rugose; leaves hirsute

: **M. maderaspatana**

**Mukia leiosperma** (Wight & Arn.) Wight in Ann. Mag. Nat. Hist. Ser. 8: 208. 1842; Fl. Brit. India 2: 623. 1879; Matthew, Fl. TN. Carnatic 649. 1983. *Bryonia leiosperma* Wight & Arn., Prodr. 1: 345. 1834. *Melothria leiosperma* (Wight & Arn.) Cogn. in DC., Monog. Phan. 3: 622. 1881; Fl. Pres. Madras 539. 1919.

Vines, densely hispid. Leaves obscurely, 3-lobed, to 5 x 4 cm, ovate, deltoid, crenulate, palmately veined, nerves prominent below; petiole to 3 cm. Flowers in axillary clusters, yellow; male flowers 5 mm across, female flowers 6 mm across. Fruit 1.5 cm across, globose, puberulus; seeds smooth.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Vanchikulam, *KKS 15658*

**Mukia maderaspatana** (L.) Roem., Syn. Monogr. 2: 47. 1846; Jeffrey, Kew Bull. 34: 802. 1980; Matthew, Fl. TN. Carnatic 650. 1983 & Ill. Fl. TN. Carnatic t. 302. 1982. *Cucumis maderaspatana* L., Sp. Pl. 1012. 1753. *Mukia scabrella* (L. f.) Arn. in Hook. f., Fl. Brit. India 3: 276. 1841; Fl. Brit. India 2: 623. 1879. *Melothria maderaspatana* (L.) Cogn. in A. & C. DC., Monog. Phan. 3: 623. 1881; Fl. Pres. Madras 539. 1919; Chakravarthy, Rec. Bot. Surv. India 141. 1959 & Fl. India Fasc. 11: 83. 1982.

Vines, hirsute. Leaves shallowly 3-lobed, to 8 x 7 cm, broadly ovoid, deltoid, apex acute, base deeply cordate, crenulate, palmately veined, hirsute; petiole to 4 cm. Flowers in axillary clusters, yellow; female flowers - calyx tube 2 mm, campanulate, pubescent, lobes 5, 2 mm, pubescent; corolla deeply lobed; ovary 5 mm, globose, stigma 3-lobed, ovules many. Fruit 1.5 cm across, globose: seeds rugose.

*Fl. & Fr.* August-December

*D i s t.* Occasional in dry deciduous forests

Churullipetty, *KKS 15835*



### SOLENA Lour.

**Solena amplexicaulis** (Lam.) Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 179. 1976; Matthew, Fl. TN. Carnatic 651. 1983 & Ill. Fl. TN. Carnatic t. 303. 1982. **Bryonia amplexicaulis** Lam., Encycl. 1: 496. 1785. **Solena heterophylla** Lour., Fl. Cochinch. 514. 1790. **Zehneria umbellata** Thw., Enum. Pl. Zeyl. 125. 1859; Fl. Brit. India 2: 625. 1879. **Melothria heterophylla** (Lour.) Cogn. in DC., Monog. Phan. 3: 618. 1881; Fl. Pres. Madras 539. 1919.

Vines. Leaves simple or deeply 3-lobed, to 9 x 8 cm, triangular-deltoid, lobes oblong, apex apiculate, base amplexicaule, distantly serrulate, scabrous above. Male flowers in axillary umbels, white; peduncle to 1 cm; calyx 4 mm, campanulate; corolla lobes 1 mm, ovate, pubescent outside; filaments 1.5 mm, anthers conduplicate, pistillode 3-lobed, to 1 mm.

Fl. February-March

D i s t. Common in dry deciduous forests

Ichampetty, KKS 15596

### TRICHOSANTHES L.

1. Leaves shallowly lobed; bracts not lacinate

: **T. animalaiensis**

1. Leaves deeply lobed; bracts lacinate

: **T. tricuspidata**

**Trichosanthes animalaiensis** Bedd. in Madras J. Lit. Sci. ser. 3. 1: 47. 1864 & in Trans. Linn. Soc. London 25: 217. 1865; Fl. Pres. Madras 530. 1919; Matthew, Fl. TN. Carnatic 652. 1983.

Vines, stem angled, lepidote. Leaves 3-5 lobed, to 12 x 12 cm, broadly ovate, lobes acute, margins spinescent, very scabrous above, tomentose below; petiole to 10 cm. Male flowers in long racemes, to 50 cm; bracts 8 mm, elliptic, pedicels 2.5 cm; calyx 1.8 cm, tubular, glandular, lobes 5, 4 mm, lanceolate, pubescent; corolla 7 mm, oblong, white, lacinate; stamens 3, filaments 1 mm, anthers hairy.

Fl. February-March

D i s t. Common in shola forests; endemic to Peninsular India.

Olikudy, KKS 17326, 1726.3

**Trichosanthes tricuspidata** Lour., Fl. Cochinch. 589. 1790; Matthew, Fl. TN. Carnatic 653. 1983 & Ill. Fl. TN. Carnatic tt. 304 & 971a. 1982. **T. bracteata** (Lam.) Voigt, Hort. Sub. Calc. 58. 1845. **Modecca bracteata** Lam. Encycl. 4: 210. 1797. **Trichosanthes palmata** Roxb., Fl. Ind. 3: 704. 1832; Wight, Ill. 2: 104. 1850; Fl. Brit. India 2: 606. 1879; Fl. Pres. Madras 529. 1919. **T. lepiniana** (Naud.) Cogn. in DC., Monogr. Phan. 3: 377. 1881; Fl. Pres. Madras 530. 1919.

Vines, branches lepidote. Leaves deeply 5-lobed, to 18 x 20 cm, lobes lanceolate, acuminate, base deeply cordate, gland dotted above, margins distantly serrate; petiole to 5 cm. Male flowers in axillary racemes, to 10 cm, ca. 12-flowered; bracts 2.5 cm long, broadly ovate, many

nerved, laciniate, gland spotted, pubescent; calyx tube 3 cm, 1.5 cm, lobes lanceolate; corolla white, petals 1 cm, laciniate.

*Fl.* October-November

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS* 15879

## BEGONIACEAE

### BEGONIA L.

**Begonia malabarica** Lam., *Encycl.* 1: 393. 1785; *Fl. India* 2: 655. 1879; *Fl. Pres. Madras* 546. 1919.

Subshrubs, stem succulent. Leaves to 15 x 7 cm, inequilateral, ovate, apex acute, base cordate, margin serrate-dentate, puberulus; petiole to 8 cm, stipules 1.5 cm, ovate, lanceolate. Cymes corymbose, axillary and lateral, to 6 cm; bracts to 1 cm, oblong; male flowers pink; bracteoles 4 mm, subulate, tepals 2, 1 x 1.5 cm, orbicular; stamens many, filaments 2.5-4.5 cm, unequal: female flower - ovary 3-celled, 1 x 0.8 cm, globose, ovule many on axile placentation, style 3, to 3 mm. Capsule 3 x 2.5 cm, 3-winged, apically broad, prominently nerved; seeds many, minute.

*Fl. & Fr.* November-February

*D i s t.* Common on wet rocks

Mangavada, *KKS* 15925

## CACTACEAE

### OPUNTIA Miller.

1. Areoles one-spined; flowers yellow with brown tinges

: **O. vulgaris**

1. Areoles 3-7 spined; flowers purely yellow

: **O. stricta var. dillenii**

**Opuntia stricta** (Haw.) Haw., *Syn. Pl. Succ.* 191. 1812 var. **dellenii** (Ker-Gawler) L., Benson, *Cact. Succ. J.* 41: 126. 1969; Matthew, *Fl. TN. Carnatic* 661. 1983. **O. dellenii** (Ker-Gawler) Haw., *Suppl. Pl. Succ.* 79: 1819; Wight & Arn., *Prodr. Fl. Ind.* 363. 1834; *Fl. Brit. India* 2: 657. 1879; *Fl. Pres. Madras* 548. 1919.

Shrubs, fleshy, areoles woolly, spines 1-4 cm. Leaves linear, deciduous. Flowers solitary, sessile; calyx lobes to 7 mm, broadly ovate, acuminate; corolla to 7 cm across, lobes mucronate; stamens many, filaments to 1.5 cm; ovary inferior, ovules many, style 1.5 cm, stigma branched, stout. Berry 6 x 4 cm, obovoid.

*Fl. & Fr.* November-February

*D i s t.* Very common in dry deciduous forests

Champakkad, *KKS* 11779

**Opuntia vulgaris** Mill., Gard. Dict. ed. 8. n. 1. 1768; Matthew, Ill. Fl. TN. Carnatic t. 308. 1982. **O. monacantha** (Willd.) Haw. Suppl. Pl. Succ. 81. 1819; Fl. Pres. Madras 548. 1919; Matthew. Fl. TN. Carnatic 660. 1983. **Cactus monacanthos** Willd., Enum. Pl. Suppl. 33 1814.

Subshrubs, fleshy branches, areoles woolly, spines to 2.5 cm. Leaves subulate or absent. Flowers solitary, sessile; calyx lobes 0.7 cm, ovate, pubescent, tube adnate to ovary; corolla 6 cm across; stamens many, filaments 0.5 to 2 cm; ovary inferior, 3 cm long; ovules many, style to 2 cm. stigma 3-5 lobed. Berry 5 x 3.5 cm, obovoid.

*Fl. & Fr.* November-March

*D i s t.* Very common in dry deciduous forests

Champakkad, *KKS* 11917

## AIZOACEAE

- |                                           |                     |
|-------------------------------------------|---------------------|
| 1. Fruit apocarpus                        | : <b>Gisekia</b>    |
| 1. Fruit syncarpus                        | : 2                 |
| 2. Fruit circumscissile, cells one ovuled | : <b>Trianthema</b> |
| 2. Fruit loculicidal, cells many ovuled   | : 3                 |
| 3. Flowers in cymes                       | : <b>Mollugo</b>    |
| 3. Flowers in axillary clusters           | : <b>Glinus</b>     |

## GISEKIA L.

**Gisekia pharnaceoides** L., Mant. Pl. 562. 1771; Wight, Ic. t. 1167. 1848; Fl. Brit. India 2: 664. 1879; Fl. Pres. Madras 553. 1919; Matthew, Fl. TN. Carnatic 663. 1983 & Ill. Fl. TN. Carnatic t. 309. 1982. **G. mulluginoides** Wight, Calcutta J. Nat. Hist. 7: 162. 1847; Wight, Ic. t. 1168. 1848.

Profusely branched prostrate herbs. Leaves unequal, to 2 x 0.7 cm, obovate, oblong, fleshy, apex obtuse, base cuneate; petiole to 0.5 cm. Cymes axillary, to 2 cm; flowers white; pedicel to 4 mm; bracts 2 mm, lanceolate; calyx lobes 5, 2 mm, concave, obovate; petals absent; stamens 5, 1 mm, filaments dialated at the base; ovary 5-celled, apocarpus, one ovuled each.

*FZ* July-August

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS* 18208; Thayanankkudy, 15834

## GLINUS L.

**Glinus oppositifolius** (L.) A. DC. in Bull. Herb. Boisser ser. 2. 1: 552. 1901; Matthew, Fl. TN. Carnatic 665. 1983 & Ill. Fl. TN. Carnatic t. 310. 1982. **Mollugo oppositifolia** L., Sp. Pl. 89. 1753; Fl. Pres. Madras 552. 1919. **M. spergula** L., Syst. Nat. ed. 10. 881. 1759; Fl. Brit. India 2: 662. 1879.

Dichotomously branched herbs. Leaves 3-5 unequal, to 2.5 x 0.7 cm, elliptic, oblong or obovate, acute, cuneate, membranous; petiole to 0.5 cm. Flowers in axillary clusters, 5-7; pedicels to 1 cm, filiform; calyx deeply 5-lobed, lanceolate; petals absent; stamens 5, filaments 2.5 cm; ovary 3-celled, 3 mm, oblong, stigmas 3, subsessile. Capsule 3 mm, oblong, loculicidal; seeds many.

*Fl. & Fr.* February-April

*D i s t.* Common in rocky areas

Muthuvanala, *KKS 15545*

#### MOLLUGO L.

1. Leaves all radical

: **M. nudicaulis**

1. Leaves both radical and cauline

: **M. pentaphylla**

**Mollugo nudicaulis** Lam., *Encycl.* 4: 234. 1797; *Fl. Brit. India* 2: 664. 1879; *Fl. Pres. Madras* 553. 1919; Matthew, *Fl. TN. Carnatic* 667. 1983 & *Ill. Fl. TN. Carnatic* t. 311. 1982.

Herbs. Leaves to 4 x 2 cm, spatulate, apex obtuse, base cuneate, membranous; petiole to 1 cm. Cymes corymbose, terminal; bracts 1 mm, lanceolate; pedicels to 7 mm; calyx lobes 5, deeply lobed, 3 mm, elliptic; petals absent; stamens 3-5; ovary 3-celled, many ovuled, styles 3. Capsule loculicidal, granulate; seeds many.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15759*

**Mollugo pentaphylla** L., *Sp. Pl.* 89. 1753; *Fl. Pres. Madras* 553. 1919; Matthew, *Fl. TN. Carnatic* 668. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 290. 1988. *M. stricta* sensu Clarke in Hook. f., *Fl. Brit. India* 2: 663. 1879p.p., non L. 1762.

Erect branched herbs. Leaves 3-5 at nodes, to 3 x 1 cm, obovate, membranous, acute, apiculate, cuneate at base; petiole to 0.5 cm. Cymes corymbose, terminal, to 15 cm; bracts 0.5 cm, lanceolate; pedicels to 7 mm, slender; calyx deeply 5-lobed, 2 mm; stamens 3-5; ovary 3-celled. 1.5 mm, ellipsoid, styles 3, ovules many. Capsule loculicidal; seeds reniform, pitted.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11598*

#### TRIANTHEMA L.

**Trianthema decandra** L., *Mant. Pl.* & 0. 1767; Wight,  *Ic. t.* 296. 1840; *Fl. Brit. India* 2: 661. 1879; *Fl. Pres. Madras* 551. 1919; Matthew, *Fl. TN. Carnatic* 670. 1983 & *Ill. Fl. TN. Carnatic* t. 313. 1982.

Prostrate fleshy herbs. Leaves unequal, to 3.5 x 1.5 cm, elliptic, oblong or ovate, apex acute, base cuneate: petiole to 1 cm, sheathing at base. Flowers axillary, solitary or in clusters; bracts membranous, bracteoles 1.5 mm; calyx tube 2 mm, lobes 5, 3 mm, ovate, mucronate, on the back; petals absent: stamens 15, filaments 4 mm, anthers oblong; ovary 2 mm, oblong, 1-ovuled, styles 2. Capsule 5 mm, truncate at the apex, circumscissile.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15715*

## APIACEAE

- |                                                   |                     |
|---------------------------------------------------|---------------------|
| 1. Prostrate herbs; umbels simple                 | : <b>Centella</b>   |
| 1. Erect herbs; umbels compound                   | : <b>2</b>          |
| 2. Petals radiant; fruit dorsally compressed      | : <b>Heracleum</b>  |
| 2. Petals not radiant; fruit laterally compressed | : <b>Pimpinella</b> |

### CENTELLA L.

**Centella asiatica** (L.) Urban in Mart., Fl. Bras. 11: 287. t. 78. f. 1879; Fl. Pres. Madras 556. 1919; Matthew, Fl. TN. Carnatic 676. 1983 & Ill. Fl. TN. Carnatic t. 315. 1982. *Hydrocotyle asiatica* L., Sp. Pl. 234. 1753; Wight, Ic. t. 565. 1842; Fl. Brit. India 2: 669. 1879.

Prostrate herbs, rooting at lower nodes. Leaves radical and cauline, to 3 x 4.5 cm, reniform, base deeply cordate, crenate, puberulus, membranous, palmately veined; petiole to 7 cm. Umbels axillary, ca. 3-flowered; peduncle to 5 mm; involucre bracts 2, 3 mm, hooded; calyx lobes 5, 0.5 mm; petals 1.5 mm, red; stamens to 1 mm; ovary 1 mm, 2-celled, one ovuled, stigmas 2. Mericarps 3 mm, margined, flattened, dorsal ribs 7-9.

*Fl. & Fr.* February-April

D i s t. Common in dry and moist deciduous forests

Kuttar, KKS 15553

### HERACLEUM L.

**Heracleum candolleianum** (Wight & Arn.) Gamble, Fl. Pres. Madras 565. 1919. *Pastinaca candolleiana* Wight & Arn., Prodr. 372. 1834. *Heracleum rigens* Wall. ex DC. var. *candolleiana* (Wight & Arn.) Clarke in Hook. f., Fl. Brit. India 2: 715. 1879 p.p.

Herbs. Lower leaves pinnate; leaflets 3 pairs, 5 x 4 cm, terminal leaves 3-lobed, margins dentate, base sheathing to 1.5 cm. Umbels compound, peduncle 15 cm; rays ca. 9, to 5 cm; flowers yellow; petals 8 mm, radiant, obovate. Mericarps dorsally compressed, obovate, tipped with two persistent styles.

*Fl. & Fr.* March-June

D i s t. Occasional in shola forests; endemic to Peninsular India.

Pothumala, KKS 17383

### PIMPINELLA L.

**Pimpinella candolleiana** Wight & Arn., Prodr. 369. 1834; Wight, Ic. t. 341. 1840; Fl. Brit. India 2: 687. 1879; Fl. Pres. Madras 560. 1919; Matthew, Fl. TN. Carnatic 682. 1983 & Ill. Fl. TN. Carnatic t. 320. 1982.

Tall herbs. Basal leaves simple, to 4.5 x 4 cm, ovate, cordate, margin crenate-dentate, papillose, upper leaves trifoliate, lobes broadly ovate, bidentate, acute at apex, reticulations prominent; petiole to 5 cm, sheathing, puberulus. Umbels compound; flowers white; calyx lobes obscure; petals 5, 1.5 mm, obovate; filaments 1.5 mm; ovary 0.5 mm, 2-celled, pilose, one ovuled each. Mericarps ovoid, 2 mm, papillose, tipped with persistent styles.

*Fl. & Fr.* August-November

D i s t. Occasional in shola forests

Ollavayal, *KKS 17435*, Vanchikulam, 15632

## ARALIACEAE

### SCHEFFLERA J. R. & G. Forst.

1. Leaves obtuse or emarginate at apex; inflorescence glabrous : **S. stellata**

1. Leaves acuminate at apex; inflorescence pubescent : **S. racemosa**

**Schefflera racemosa** (Wight) Harms in Engl. & Prantl, *Pflanzenf.* 3(8): 38. 1894; *Fl. Pres. Madras* 570. 1919. **Hedera racemosa** Wight,  *Ic. t.* 1015. 1845. **Heptapleurum racemosum** (Wight) Bedd., *Fl. Sylv. t.* 214. 1872; *Fl. Brit. India* 2: 729. 1879.

Erect trees. Leaves digitate; leaflets 5-7, to 16 x 7 cm, elliptic, acuminate, nerves scarcely visible on the upper surface; petiole to 20 cm long, petiolule 4 cm long, stout. Panicles axillary or terminal, 30-35 cm long, pubescent; flowers solitary or binate; calyx adnate to the ovary, forming a cup; petals 7-8, 3 x 1.5 mm, triangular, with a small protuberance towards inside at apex; stamens 7-8, filaments 2-5 mm: anther 1.5 mm, style connate, forming a column; ovary 7-8 celled. Drupe globose.

*Fl. & Fr.* April-August

D i s t. Common on the outer regions of shola forests

Ollavayal, *KKS 17415*

**Schefflera stellata** (Gaertn.) Harms in Engl. & Prantl, *Pflanzenf.* 3(8): 39. 1894; *Fl. Pres. Madras* 570. 1919; Matthew, *Fl. TN. Carnatic* 685. 1983 & *Ill. Fl. TN. Carnatic t.* 322. 1982. **Heptapleurum stellatum** Gaertn.. *Fruct.* 2: 472. t. 178. 1791; *Fl. Brit. India* 2: 730. 1879. **Hedera obovata** Wight,  *Ic. tt.* 1011 & 1012. 1845.

Straggling shrubs. Leaves digitate; leaflets 3-5, to 12 x 8 cm, obovate, apex emarginate or slightly obtuse; petiole 10-15 cm long, sheathing, petiolule to 5 cm. Panicles to 35 cm long; pedicels to 0.7 cm long; calyx tube united with ovary, forming a rim; petals 7-8, 3 x 1.5 cm, triangular; stamens 7-8, filaments 1.5 mm; anthers 1.5 mm; ovary seated in the calyx cup; ovary 7-8 celled. Drupe globose.

*Fl. & Fr.* March-August

D i s t. Common along the banks of stream

Churullipetty, *KKS 15680*

## CORNACEAE

### MASTIXIA Blume

**Mastixia arborea** (Wight) Bedd., *Fl. Sylv. t.* 216. 1872, subsp. **arborea**; *Fl. Brit. India* 2: 745. 1879; *Fl. Pres. Madras* 573. 1919. **Bursinopetalum arboreum** Wight,  *Ic. t.* 956. 1845.

Large trees. Leaves to 15 x 5 cm, elliptic-oblong, acuminate, base cuneate, gland dotted on either side of the midvein beneath, lateral nerves *ca.* 10 pairs; petiole to 3 cm. Panicles terminal, dichotomously branched, 9 x 6 cm, tomentose; bracts 5 mm, lanceolate; bracteoles 2; calyx tube 3 mm, lobes 5, 1 mm, ovate, pubescent; petals 5, 4 x 3 mm, ovate, fleshy, incurved at the tip, pubescent; stamens 5, outside the disc, filaments 3 mm, disc 10-lobed; ovary adnate to the calyx tube. I-ovuled, style 1 mm, stout.

*FZ & Fr.* February-June

*D i s t.* Occasional in shola forests

Olikudy, *KKS 17312*

## CAPRIFOLIAEAE

1. Climbing shrubs; corolla tubular, bilabiate

: **Lonicera**

1. Trees; corolla rotate, 5-lobed

: **Viburnum**

### LONICERA L.

**Lonicera leschenaultii** Wall. in Roxb., Fl. Ind. 2: 178. 1824; Wight, Ill. 2: tt. 120 & 121B. 1850; Fl. Brit. India 3: 10. 1880; Fl. Pres. Madras 577. 1919; Matthew, Fl. TN. Carnatic 689. 1983 & Ill. Fl. TN. Carnatic t. 324. 1982.

Climbing shrubs, pubescent. Leaves opposite, to 7 x 4 cm. ovate, acute or shortly acuminate, grey pubescent below; petiole to 1 cm. Flowers axillary, mostly in pairs, white turns to yellow. bracteoles 2, pubescent, calyx tube 2 mm, adnate with the ovary, 5-toothed; corolla bilabiate, tube 6 cm long, villous inside: stamens 5, exserted, attached at the throat of the tube, filaments 2.5 cm; ovary 2 mm, villous.

*FZ* October-November

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Ichampetty, *KKS 15882*

### VIBURNUM L.

**Viburnum punctatum** Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 142. 1825; Fl. Brit. India 3: 5. 1880; Matthew, Fl. TN. Carnatic 690. 1983 & Ill. Fl. TN. Carnatic t. 325. 1982. *V. acuminatum* Wall. ex DC., Prodr. 4: 325. 1830; Wight, Ic. t. 1021. 1845; Fl. Pres. Madras 575. 1919.

Trees; branchlets with golden brown scales. Leaves to 11 x 3 cm, elliptic coriaceous, acuminate, red gland dotted below; petiole to 1.5 cm. Umbels terminal or subterminal, to 9 cm; flowers creamy white; bracts and bracteoles persistent; calyx lobes 5, 0.7 mm, ovate; corolla lobes imbricate, 2 mm, orbicular; stamens 5, included; ovary 1.5 mm, stigma 3-lobed.

*FZ & Fr.* September-December

*D i s t.* Occasional along the sides of stream

Olikudy, *KKS 17473*

## RUBIACEAE

1. Flowers in globose heads

: 2

1. Flowers not in globose heads

: 3

2. Seeds many, winged	: <b>Mitragyna</b>
2. Seeds 2 per locule, not winged	: <b>Morinda</b>
3. Herbs or lianas	: <b>4</b>
3. Shrubs or trees	: <b>11</b>
4. Scandent herbs; leaves whorled	: <b>5</b>
4. Erect herbs; leaves not whorled	: <b>6</b>
5. Flowers 4-merous; leafbase acute, 1-nerved	: <b>Gaiium</b>
5. Flowers 5-merous; leaf base cordate, 5-nerved	: <b>Rubia</b>
6. Ovules solitary in each cell	: <b>7</b>
6. Ovules many in each cell	: <b>9</b>
7. Flowers 3 merous	: <b>Richardia</b>
7. Flowers 4 or 5 merous	: <b>8</b>
8. Inflorescence terminal corymbs or cymes	: <b>Knoxia</b>
8. Flowers axillary and terminal, in fascicles or heads	: <b>Spermacoce</b>
9. Capsule ciliate with persistent disc lobes	: <b>Ophiorrhiza</b>
9. Capsule not as above	: <b>10</b>
10. Calyx broadly sinuate	: <b>Anotis</b>
10. Calyx toothed or lobed	: <b>Hedyotis</b>
11. Ovule solitary in each cell	: <b>12</b>
11. Ovules few to many in each cell	: <b>17</b>
12. Calyx more than 5-toothed, calyculus present	: <b>Psilanthus</b>
12. Calyx 4 or 5-toothed, calyculus absent	: <b>13</b>
13. Flowers solitary or in few flowered cymes, plant with foetid smell	: <b>Saprosma</b>
13. Flowers in paniced cymes, plant without fetid smell	: <b>14</b>
14. Corolla lobes twisted or imbricate in bud	: <b>15</b>
14. Corolla lobes valvate in bud	: <b>16</b>
15. Style as long as the corolla tube	: <b>Ixora</b>
15. Style twice as long as the tube	: <b>Pavetta</b>
16. Stigma capitate	: <b>Canthium</b>
16. Stigma 2-lobed	: <b>Psychotria</b>
17. Leaves ternate	: <b>Wendlandia</b>
17. Leaves opposite, decussate	: <b>18</b>
18. Ovary 1-locular	: <b>Gardenia</b>
18. Ovary 2-locular	: <b>19</b>
19. Scandent shrubs, a few bracts leafy in a cymes	: <b>Mussaenda</b>
19. Shrubs or trees, bracts not leafy	: <b>20</b>
20. Flowers in terminal paniculate racemes: seeds winged	: <b>Hymenodictyon</b>
20. Flowers not paniced; seeds not winged	: <b>21</b>
21. Corolla curved	: <b>Chassalia</b>
21. Corolla not curved	: <b>22</b>
22. Plants armed	: <b>23</b>
22. Plants unarmed	: <b>Tarenna</b>
23. Corolla pubescent outside; leaves pubescent	: <b>Catunaregam</b>
23. Corolla glabrous outside; leaves glabrous	: <b>Benkara</b>

#### **BENKARA Adans.**

**Benkara malabarica** (Lam.) Tirvengadam in Taxon 32: 440. 1983; Matthew, Fur. III. Fl. TN. Carnatic t. 295. 1988. *Randia malabarica* Lam., Encycl. 3: 111. 1880; Fl. Brit. India 3: 111.



1880; Fl. Pres. Madras 616. 1921; Matthew, Fl. TN. Carnatic 696. 1983. *Griffithia fragrans* (Roxb.) Wight & Arn., Prodr. 400. 1834.

Armed small trees, spines in pairs, axillary. Leaves to 8 x 3.5 cm, obovate-oblongate, apex obtusely apiculate, base cuneate; petiole to 1 cm long, stipules interpetiolar deciduous. Cymes corymbose, axillary and terminal, to 4 cm long; flowers white; pedicels 0.5 cm; calyx 4 mm, turbinate, teeth 5, 1.5 mm, triangulare acute; corolla tube with hairs inside, lobes 5, twisted, 9 x 3 mm, lanceolate, spreading; anthers 6 mm, oblong, apiculate; ovary 3 mm, ovules numerous, style 6 mm. Berry 0.8 cm across, globose.

*Fl. & Fr.* January-May

D i s t. Common in moist deciduous forests

Mangavada, KKS 11995, 15922

### CANTHIUM Lam.

- |                                            |                                  |
|--------------------------------------------|----------------------------------|
| 1. Armed shrubs or trees; flowers 4-merous | : C. coromandelicum              |
| 1. Unarmed trees; flowers 5-merous         | : C. dicoccum                    |
| 2. Flower's in umbels                      | : C. dicoccum<br>var. umbellatum |
| 2. Flowers in cymes, paniced               | : C. dicoccum<br>var. dicoccum   |

**Canthium coromandelicum** (Burm. f.) Alston in Trim., Handb. Fl. Ceylon 6: 152. 1931; Matthew, Fur. Ill. Fl. TN. Carnatic t. 296. 1988. *C. parviflorum* Lam., Encycl. 1: 602. 1785; Wight & Arn., Prodr. Fl. Ind. 426. 1834; Fl. Brit. India 3: 136. 1880; Matthew, Fl. TN. Carnatic 699. 1983. *Plectronia parviflora* (Lam.) Bedd., Fl. Sylv. South India 124. 1872; Fl. Pres. Madras 625. 1921.

Armed small trees, spines supra axillary, straight. Leaves to 6 x 4.5 cm, obovate-oblongate or sub-orbicular, membranous; petiole to 1.5 cm. Cymes axillary; flowers white; pedicels 5 mm, filiform: calyx lobes curved; corolla tube 2 mm long, with hairs inside. lobes 3 mm, ovate, acuminate, reflexed; ovary 2-celled, 0.7 mm long, style 2 mm. Drupe 0.8 x 1 cm, globose.

*Fl. & Fr.* May-August

D i s t. Common in dry deciduous forests

Chinnar, KKS 15696, 11632

**Canthium dicoccum** (Gaertn.) Teijsm. & Binn. Cat. Hort. Bog. 113. 1866, var. **dicoccum**; Matthew, Fl. TN. Carnatic 688. 1983 & Fur. Ill. Fl. TN. Carnatic t. 297. 1988. *Psydrax dicoccos* Gaertn., Fruct. 1: 125. t. 26. f. 2. 1788. *Canthium didymum* auct. non Gaertn. f. 1806; Fl. Brit. India 3: 132. 1880. *Plectronia didyma* Benth. & Hook. f. ex Brandis, For. Fl. 276. 1874; Fl. Pres. Madras 624. 1921.

Small trees. Leaves to 10 x 6 cm, ovate-elliptic, apex acuminate; petiole 1 cm long, stipules 0.7 cm long, acuminate, connate. Cymes lateral, spreading; peduncles to 2.5 cm long; flowers

white; pedicels 3 mm long; calyx tube 1.5 mm long, 5-toothed; corolla tube 1.5 mm, hairy within, lobes 2 mm, oblong, deflexed; ovary 2 mm, style 6 mm, stigma 1 mm.

*Fl.* December-January

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11641*

**Canthium dicoccum** (Gaertn.) Teijsm. & Binn. **var. umbellatum** (Wight) Sant. & Merch. in Bull. Bot. Surv. India 3: 107. 1961; Matthew, Fl. TN. Carnatic 698. 1983 & Ill. Fl. TN. Carnatic t. 328. 1982. *C. umbellatum* Wight, Ic. t. 1034. 1845; Fl. Brit. India 3: 132. 1880. *Plectronia didyma* (Gaertn. f.) Kurz var. *umbellata* (Wight) Gamble, Fl. Pres. Madras 624. 1921.

Unarmed trees. Leaves to 14 x 5.5 cm, elliptic, apex obtuse-acuminate, coriaceous; petiole 1 cm long, thick, stipule adpressed, deciduous. Umbels axillary, many flowered; flowers white; calyx tube 2 mm, corolla tube 5 mm long, cylindrical, villous at the throat, lobes 3 mm, oblong, recurved; ovary 1.5 mm long, style 8 mm, stigma 1 mm, capitate.

*Fl.* October-November

*D i s t.* Common in moist deciduous forests

Vanchikulam, *KKS 15886*

#### CATUNAREGAM Wolf

**Catunaregam torulosa** (Dennst.) Tirv.; Matthew, Fur. Ill. Fl. TN. Carnatic t. 299. 1988. *Randia brandisii* Gamble, Fl. Pres. Madras 616. 1921; Matthew, Fl. TN. Carnatic 738. 1983.

Small trees. Leaves to 5 x 2.5 cm, obovate, apex acute, base cuneate; petiole to 1 cm, stipules ovate, acuminate, hairy. Flowers axillary, solitary or in clusters, white turns to yellow; pedicel to 0.5 cm, pubescent; calyx tube 7 mm, cylindrical, lobes 5 x 3 mm, ovate, oblong, accrescent; corolla tube 8 mm long, densely hairy at the middle of the tube, lobes twisted. 10 x 7 mm, obovate or sub-orbiculate hairy; anthers 4 mm, oblong; ovary 2 mm, style 6 mm. stigma capitate. Berry 3 x 2 cm, globose, ribbed.

*Fl. & Fr.* February-August

*D i s t.* Common in dry deciduous forests

Ichampetty, *KKS 15574*; Chinnar, *17405*

#### CHASSALIA Comm. ex Poir.

**Chassalia curviflora** (Wall. ex Kurz.) Thw. var. **ophioxyloides** (Wall.) Deb & Krishna in Bull. Bot. Surv. India 24: 222. 1982 (1983). *Psychotria ophioxyloides* Wall. in Roxb., Fl. India 2: 167. 1824. *Chassalia curviflora* Wall. ex Kurz. For. Fl. Burma 2: 14. 1877; Fl. Brit. India 3: 176. 1880, p.p; Fl. Pres. Madras 643. 1921. *Psychotria ambigua* Wight & Arn., Prodr. 433. 1834.

Shrubs. Leaves to 15 x 5.5 cm. elliptic-lanceolate or oblanceolate, apex acute, base long cuneate. membranous; petiole to 4.5 cm, stipules bifid at apex. Cymes terminal, 4 cm long; flowers white: calyx tube 1.5 mm long, lobes 5; corolla 1.2 cm long, curved, hairy inside; anthers included, disc annular; style 1 cm long, stigma bifid. Berry 6 mm across, purple.

*Fl. & Fr.* February-June

*D i s t.* Very common as an undergrowth in shola forests

Olikudy, *KKS 17265, 17333, 17291*

### GALIUM L.

**Galium asperifolium** Wall. in Roxb., *Fl. Ind.* 1: **381. 1820**; Wight, *Ill.* 2: t. **128. f. 1. 1850**; *Fl. Pres. Madras* **656. 1921**; Matthew, *Fl. TN. Carnatic* **703. 1983** & *Ill. Fl. TN. Carnatic t.* **311. 1982. G. mollugo** sensu Hook. f., *Fl. Brit. India* 3: **207. 1881**, non L. **1753**.

Scabrid slender vines, stem 4-angled. Leaves whorled, **6-8**, to **1.5 x 0.5** cm, oblong, apex apiculate, hirsute, subsessile; stipules absent. Flowers axillary, solitary, 4-toothed; corolla **1.5** mm across; stamens exserted; ovary 2-celled. ovule one in each cell, style **2** forked.

*Fl.* March-May

*D i s t.* Occasional in shola forests

Karivepinshola, *KKS 18313*

### GARDENIA Ellis.

1. Leaves less than 7 cm long, latex absent

: *G. gummifera*

1. Leaves more than 10 cm, latex resiniferous

: *G. resinifera*

**Gardenia gummifera** L. f., *Suppl. Pl.* **164. 1781**; Wight, *Ic. t.* **576. 1842**; *Fl. Brit. India* **3: 116. 1880**; *Fl. Pres. Madras* **618. 1921**; Matthew, *Fl. TN. Carnatic* **704. 1983** & *Fur. Ill. Fl. TN. Carnatic t.* **300. 1988**.

Small tree, with virgate branches and branchlets, young parts puberulus. Leaves to **6 x 3** cm, obovate-oblong, apex acute, sparsely hairy, nerves **8-15** pairs, subsessile, stipules connate. Flowers axillary, solitary or in lax cymes, white turns to yellow; calyx tube **3** mm, pubescent, teeth **5, 2** mm, triangular; corolla tube **4.5** cm long, cylindrical, lobes **2.5 x 1.5** cm, obovate, obtuse; anthers **1** cm long; ovary **3** mm, style **4.5** cm, stigma 5-angled, fusiform. Berry **4 x 3** cm, oblong.

*FZ & Fr.* December-May

*D i s t.* Occasional in dry deciduous forests near streams

Palapetty, *KKS 15507*

**Gardenia resinifera** Roth, *Nov. Pl. Sp.* **150. 1821**; Matthew. *Fl. TN. Carnatic* **705. 1983** & *Ill. Fl. TN. Carnatic t.* **332. 1982. G. lucida** Roxb., *Fl. Ind.* **2: 553. 1824**; Wight, *Ic. t.* **575. 1842**; *Fl. Brit. India* 3: **115. 1880**; *Fl. Pres. Madras* **618. 1921**.

Resiniferous trees. Leaves to **15 x 9** cm, elliptic, obtuse at apex, hairy in the leaf axils below, nerves **20-22** pairs, subsessile. Flowers axillary, solitary, or in lax cymes, white turns to yellow; calyx tube **0.7** cm, lobes **5, 1** cm, triangular, acuminate; corolla tube **3** cm long, lobes **3 x 2** cm **long**, obovate, puberulus without; anthers **1.5** cm long, oblong, exserted; ovary **6** mm, style **3.5** cm. Berry **2 x 1.5** cm, ellipsoid.

*Fl. & Fr.* December-May

*D i s t.* Common in dry deciduous forests especially near the streams

Alampetty, *KKS 18269*

### HEDYOTIS L.

- |                                                            |                       |
|------------------------------------------------------------|-----------------------|
| 1. Leaves whorled                                          | : <i>H. aspera</i>    |
| 1. Leaves opposite                                         | : 2                   |
| 2. Flowers in umbels                                       | : 3                   |
| 2. Flowers in racemes or solitary or in pairs              | : 4                   |
| 3. Leaves glaucous beneath; calyx longer than capsule      | : <i>H. wightii</i>   |
| 3. Leaves not glaucous beneath; calyx shorter than capsule | : <i>H. umbellata</i> |
| 4. Flowers in racemes; erect herbs                         | : <i>H. corymbosa</i> |
| 4. Flowers in solitary or in pairs; diffuse herbs          | : <i>H. diffusa</i>   |

**Hedyotis aspera** Heyne ex Roth, Nov. Pl. Sp. 94. 1821. *Oldenlandia aspera* (Heyne ex Roth) DC., Prodr. 4: 428. 1830; Fl. Brit. India 3: 68. 1880; Fl. Pres. Madras 602. 1921. *Kohautia aspera* (Roth) Bremek., Berh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede. Sect. ser. 2. 48(2): 113. 1952; Matthew, Fl. TN. Carnatic 714. Pl. 50. 1983.

Erect herbs, stem minutely tubercled. Leaves clustered, to 4 x 0.3 cm, linear-lanceolate, 1-nerved, apex acute. margins revolute, sessile. Racemes terminal and axillary, unilateral, paniced, to 2 cm long; flowers 5-7, white; pedicel 0.5 cm; calyx tube 1 mm, lobes 1 mm; corolla tube 3 mm. lobes 1 mm; stamens included; ovary 1 mm, globose, style 2.5 mm, stigma bifid. Capsule 3 x 3 mm.

*Fl. & Fr.* November-March

*D i s t.* Common in moist deciduous forests

Chinnar, *KKS 18271*

**Hedyotis corymbosa** (L.) Lam. Encycl. 1: 272. 1792; R. Rao. & Hemadri in Ind. For. 99: 375. 1973. *Oldenlandia corymbosa* L.. Sp. Pl. 119. 1753; Fl. Brit. India 3: 64. 1880; Fl. Pres. Madras 600. 1921; Matthew, Fl. TN. Carnatic 727. 1983 & Fur. Ill. Fl. TN. Carnatic t. 310. 1988.

Erect herbs, stem 4-winged. Leaves to 2.5 x 0.5 cm, linear-lanceolate, apex acute, margin revolute, 1-nerved. Flowers axillary and terminal, 1-4 per node; pedicel to 1.5 cm; calyx lobes 1 mm. Capsule 3 x 2.5 mm, globose, loculicidal, crown protruded.

*Fl. & Fr.* December-February

*D i s t.* Common in dry and moist deciduous forests

Chengamperu, *KKS 11722*

**Hedyotis diffusa** Willd., Sp. Pl. 1: 566. 1798. *Oldenlandia diffusa* (Willd.) Roxb., Fl. Ind. 1: 444. 1820; Fl. Brit. India 3: 65. 1880; Fl. Pres. Madras 601. 1921; Matthew, Fl. TN. Carnatic 727. 1983 & Fur. Ill. Fl. TN. Carnatic t. 311. 1988.

Diffuse herbs. rooting at lower nodes. Leaves to 2 x 0.2 cm, linear-lanceolate, apex acute, margins revolute, sessile; stipules pectinate. Flowers solitary or in pairs, white, sessile; calyx

## IXORA L.

1. Leaves subsessile : **I. pavetta**  
1. Leaves petioled, more than 1 cm : **I. notoniana**

**Ixora notoniana** Wall. ex G. Don, Gen. Syst. 3: 571. 1834; Fl. Brit. India 3: 139. 1880; Fl. Pres. Madras 630. 1921; Matthew, Fl. TN. Carnatic 712. 1983 & Fur. Ill. Fl. TN. Carnatic t. 304. 1988.

Trees. Leaves to 16 x 7 cm, elliptic-obovate, apex obtuse or acute, slightly mucronate, shining above, nerves impressed above; petiole to 1.5 cm. Corymbs axillary; pedicel to 4 cm; calyx teeth 1 mm, triangular. Berry 4 mm across, globose.

*Fl. & Fr.* December-June

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikudy, *KKS 17311*; Karivepinshola, **I7454**

**Ixora pavetta** Andr., Bot. Repos. t. 78. 1799; Matthew, Fl. TN. Carnatic 712. 1983. **I. parviflora** Vahl, Symb. Bot. 3: 11. t. 52. 1794, non Lam. 1791; Wight, Ic. t. 711. 1840; Fl. Pres. Madras 631. 1921. **I. arborea** Roxb. ex J. E. Smith in Rees, Cyclop. 19: n. 5. 1811; Matthew, Ill. Fl. TN. Carnatic t. 337. 1982.

Trees; branchlets woody. Leaves to 14 x 7 cm, elliptic-oblong, apex obtuse, glossy, subsessile; stipules ovate-acuminate. Cymes 10-12 cm long; calyx 1 mm, truncate, teeth 4, minute; corolla tube 6 mm, lobes 4 x 2 mm, oblong, spreading; ovary 1.7 mm, style 7 mm; stigma 2 fid.

*Fl.* December-January

*D i s t.* Very common in dry deciduous forests

Sivapura, *KKS 11931*

## KNOXIA L.

1. Plants hispid, corymbs less than 6 cm long : 2  
1. Plants glabrous, corymbose more than 7 cm long : **K. sumatrensis**  
var. **sumatrensis**  
2. Flowers in spreading corymbs, to 4 cm long; leaves less than 4 cm long : **K. sumatrensis**  
var. **linearis**  
2. Flowers in congested dense corymbs, to 2 cm; leaves more than 5 cm long : **K. mollis**

**Knoxia mollis** R. Br. ex Wight & Arn., Prodr. Fl. Ind. 439. 1834; Fl. Brit. India 3: 129. 1880; Fl. Pres. Madras 622. 1921; Matthew, Fl. TN. Carnatic 713. 1983 & Ill. Fl. TN. Carnatic t. 338. 1982.

Tall pubescent herbs. Leaves to 10 x 2 cm, elliptic-lanceolate, acute at apex, pubescent; petiole to 1 cm, stipules 6-7 toothed, pubescent. Corymbs terminal, congested, to 2 cm long; calyx 4 toothed, 1 mm. one little longer; corolla lobes 4, 2 mm long.

lobes aristate; corolla tube 5 mm, lobes 4; ovary 1 mm. Capsule 3 x 3 mm, loculicidal, with persistent calyx lobes.

*Fl. & Fr.* March-June

*D i s t.* Common in dry deciduous forests

Ichampetty, *KKS 15652 (Ichampetty)*

**Hedyotis umbellata** (L.) Lam., Tabl. Encycl. 1: 272. 1792, non Wall. 1788. **Oldenlandia umbellata** L., Sp. Pl. 119. 1753; Fl. Brit. India 3: 66. 1880; Fl. Pres. Madras 601. 1921; Matthew, Fl. TN. Carnatic 730. 1983 & Fur. Ill. Fl. TN. Carnatic t. 314. 1988.

Herbs, hirsute. Leaves to 2.5 x 0.3 cm, linear-lanceolate, sometimes whorled at the nodes, margins strongly revolute, hirsute, one nerved; stipules pectinate. Umbels axillary and terminal; flowers 3-12, white; pedicels to 2 cm; calyx subtruncate, tooth 1.5 mm, hirsute. Capsule 1.5 x 2 mm, loculicidal, glabrescent.

*Fl. & Fr.* October-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11566*

**Hedyotis wightii** (Hook. f.) K.K.N. Nair in J. Bombay Nat. Hist. Soc. 79: 453. 1982. **Oldenlandia wightii** Hook. f., Fl. Brit. India 3: 66. 1880; Fl. Pres. Madras 601. 1921; Matthew, Fl. TN. Carnatic 730. 1983 & Fur. Ill. Fl. TN. Carnatic t. 315. 1988.

Scabrid erect herbs. Leaves clustered, to 3 x 0.5 cm, linear-lanceolate, apex apiculate, glaucous beneath, hirsute, margins revolute; stipules pectinate. Umbels axillary and terminal; peduncles to 3 cm; flowers 3-12, sessile; calyx 4 mm long, hirsute. Capsule 2 x 2 mm, globose, glabrescent.

*Fl. & Fr.* November-March

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Karumpara, *KKS 11812*

#### **HYMENODICTYON Wall. *nom. cons.***

**Hymenodictyon orixense** (Roxb.) Mabber. in Taxon 31: 66. 1982; Matthew, Fl. TN. Carnatic 709. 1983 & Ill. Fl. TN. Carnatic t. 336. 1982. **Cinchona orixensis** Roxb., Bot. Descr. Swietenia 21. 1793 & in Med. Facts Obs. 6: 152. 1795. **Hymenodictyon excelsum** (Roxb.) Wall. in Roxb., Fl. Ind. 2: 149. 1824; Wight, Ic. t. 79. 1838; Fl. Brit. India 3: 35. 1880; Fl. Pres. Madras 589. 1921. **Cinchona excelsa** Roxb., Pl. Cos. t. 106. 1799.

Trees. Leaves to 13 x 8 cm, ovate, acute to acuminate, densely pubescent beneath; petiole to 5 cm, pubescent. Panicles axillary and terminal, to 20 cm long; flowers greenish; calyx 1.5 mm, globose; corolla tube 5 mm, salver shaped, lobes 1 mm, glabrous. Capsule 2.5 x 1 cm; seeds 1.5 cm long, winged.

*Fl. & Fr.* August-February

*D i s t.* Rare in moist deciduous forests

Alampetty, *KKS 15895; 15786*

*Fl.* August-September

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15851*

***Knoxia sumatrensis*** (Retz.) DC. var. ***linearis*** (Gamble) Bhattacharjee & Deb in J. Econ. Tax. Bot. 6: 93. 1985. ***Spermacoce sumatrensis*** Retz., Obs. Bot. 4:23.1786. ***K. linearis*** Gamble in Kew Bull. 1920: 68. 1920 & Fl. Pres. Madras 622. 1921.

Many branched woody herbs; branchlets pubescent. Leaves to 3.5 x 1 cm, linear-elliptic, apex shortly acute, pubescent; petiole to 0.5 cm, stipule acuminate, hirsute, cauducous. Corymbs to 4 cm; calyx tube 1 mm, one tooth longer; corolla tube 3 mm, villous at the throat, lobes 4, 2 mm, oblong, white; ovary 1 mm, style 4 mm, stigma 1 mm, bilobed.

*Fl.* September-December

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India and endangered.

Kathitheetimala., *KKS 18272*; 11821

***Knoxia sumatrensis*** (Retz.) DC.. Prodr. 4: 570. 1830, var. ***sumatrensis***; Bhatt. & Deb, J. Econ. Tax. Bot. 6: 89. 1985. Matthew. Fl. TN. Carnatic 714. 1983 & Fur. Ill. Fl. TN. Carnatic t. 305. 1988. ***Spermacoce sumatrensis*** Retz. Obs. 4: 23. 1786. ***Knoxia corymbosa*** auct. non. Willd., Sp. Pl. 1(2) 582. 1798, sensu Wight, Ill. Ind. t. 126. 1850; Fl. Brit. India 3: 128. 1880; Fl. Pres. Madras 622. 1921.

Large herbs. Leaves to 12 x 1.5 cm, elliptic-lanceolate, apex acute, subsessile; stipules pectinate. Corymbs terminal, to 22 cm, including the peduncle; calyx 4-toothed, 1 mm, one little longer; corolla tube 2.5 mm, lobes 1.5 mm, hairy at the mouth; ovary 1 mm. Mericarps 2.5 x 2 mm.

*Fl. & Fr.* August-December

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15844*

#### MITRAGYNA Korth.

***Mitragyna parvifolia*** (Roxb.) Korth. Observ. Naocl. Ind. 19. 1839; Fl. Pres. Madras 585. 1921; Matthew, Fl. TN. Carnatic 717. 1983 & Ill. Fl. TN. Carnatic t. 340. 1982. ***Stephegyne parviflora*** (Roxb.) Korth. Verh. Nat. Gesch. Ned. Bezitt. Bot. 161. 1842; Fl. Brit. India 3: 25. 1880.

Medium trees. Leaves to 12 x 8 cm, oblong-suborbicular, apex obtuse, nerve axils pubescent, nerves *ca.* 8 pairs; petiole to 2.5 cm. Heads axillary or terminal, globose; flowers 5-merous, creamy-white; bracts cauducous; calyx 1.5 mm, truncate; corolla 2.5 mm across; stamens exserted; ovary 1.5 mm, style 6 mm, stigma mitriform. Head 1.5 cm across; seeds winged.

*Fl. & Fr.* August-February

*D i s t.* Common along the streamsides

Athiyodai, *KKS 11768*

## MORINDA L.

1. Trees; flowers 5-merous, glabrous : **M. coreia**  
1. Climbers; flowers 4-merous, densely hairy inside : **M. umbellata**

**Morinda coreia** Buch.-Ham., Trans. Linn. Soc. London 13: 537. 1822; Matthew, Fl. TN. Carnatic 718. 1983 & Ill. Fl. TN. Carnatic t. 341. 1982. **M. tinctoria** Roxb., Fl. Ind. 2: 197. 1824; Fl. Brit. India 3: 156. 1880; Fl. Pres. Madras 651. 1921.

Trees. Leaves to 17 x 8 cm. elliptic, apex acuminate, pubescent in the nerve axils below, membranous. Heads axillary and terminal; peduncles to 3 cm long; flowers *ca.* 15; calyx rim coherent, enclosing the ovary; corolla tube 1.6 cm long, cylindrical, lobes 5, 1.2 cm long, oblong; filaments 4 mm; anthers 5 mm, style 2.5 cm, forked from the middle. Syncarpium 2 cm across.

*Fl. & Fr.* March-June

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS* 15679

**Morinda umbellata** L., Sp. Pl. 176. 1753; Fl. Brit. India 3: 157. 1880; Fl. Pres. Madras 652. 1921; Matthew, Fl. TN. Carnatic 719. 1983.

Climbing shrubs; branches angular. Leaves to 13 x 5 cm. elliptic, apex acuminate, membranous; petiole 1.5 cm. stipules undivided. Heads umbellate, terminal; flowers *ca.* 12, white; calyx truncate. coherent below; corolla tube 2 mm, densely hairy inside, lobes 3 mm, oblong, recurved; stamens exserted; style 2 mm, stigma 2-lobed. Syncarpium 1 cm across.

*Fl. & Fr.* February-June

*D i s t.* Common along the stream sides in shola forests

Olikudy, *KKS* 17282

## MUSSAENDA L.

**Mussaenda tomentosa** Wight ex Wall. in G. Don, Gen. Syst. 3: 491. 1834; Fl. Brit. India 3: 88. 1880; Fl. Pres. Madras 610. 1921.

Scandent shrubs, densely ferruginous tomentose; branchlets terete. Leaves to 1 x 6 cm, ovate, apex acute; petiole to 1.5 cm. stipule interpetiolar. Cymes terminal, to 5 cm; bracts 2, orange-red, calyx tube 1 cm, hirsute, lobes 1 cm, lanceolate; corolla tube 1.3 cm, hirsute, lobes 9 x 6 mm, ovate, acute, rusty tomentose; stamens attached at the throat; ovary 3 mm, stigmas 2, clavate. Berry 1.5 x 1 cm, globose, sparsely hirsute; seeds many, rugose.

*Fl. & Fr.* August-January

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikudy, *KKS* 17477

## NEANOTIS W. H. Lewis

**Neanotis indica** (DC.) W. H. Lewis in Ann. Missouri Bot. Gard. 53: 38. 1966 var. **deltoidea** (Wight & Arn.) W. H. Lewis in Ann. Missouri Bot. Gard. 53: 39. 1966; Matthew, Fl. TN.



Carnatic 721. 1983 & Ill. Fl. TN. Carnatic t. 326. 1982. *Putaria indica* DC., Prodr. 4: 577. 1830. *Anotis leschenaultiana* (Wall. ex Wight & Arn.) Hook. f., Fl. Brit. India 3: 72. 1880; Fl. Pres. Madras 604. 1921. *Hedyotis leschenaultiana* Wall. ex Wight & Arn., Prodr. 411. 1834.

Perennial herbs, rooting at the nodes, plants hirsute, foul smelling. Leaves to 4 x 2.5 cm, ovate, hirsute, whitish below; petiole 0.5 cm. Cymes axillary and terminal, pubescent; calyx tube 1 mm, broadly sinuate, lobes 2 mm, elliptic, hirsute, corolla tube 4 mm, lobes elliptic, hirsute; filaments 2 mm; anthers 1.5 mm; ovary pubescent, style 4 mm, stigma linear.

*Fl.* February-March

*D i s t.* Occasional in shola forests

Olikkudy, *KKS* 18238

### OPHIORRHIZA L.

**Ophiorrhiza eriantha** Wight, Ic. t. 1067. 1846; Fl. Brit. India 3: 81. 1880; Fl. Pres. Madras 608. 1921.

Erect subshrubs; branchlets tomentose. Leaves to 12 x 5 cm, elliptic, apex acute to acuminate, base cuneate. glaucous beneath; petiole to 3 cm, sparsely pubescent, stipules 0.8 cm, ovate, acuminate. Cymes axillary and terminal; flowers white; calyx 2 mm, truncate, lobes 3 mm, subulate; corolla tube 2 cm, funnel shaped, villous outside; disc of 2 large lobes, 1 x 1.5 mm broad; ovary 2 mm, style 1.5 cm, stigmas 2, linear. Capsule ciliate, with persistent disc lobes.

*Fl. & Fr.* August-January

*D i s t.* Common in shola forests; endemic to Peninsular India.

Karivepinshola, *KKS* 17452; Olikudy, 17273

### PAVETTA L.

**Pavetta laeta** Bremek. in Feddes Rept. 37: 82. 1934; Fl. Pres. Madras 1878. 1936. ***P. indica*** sensu Hook. f., Fl. Brit. India 3: 150. 1880 p.p., non L. 1753;

Large shrubs. Leaves to 13 x 6 cm, elliptic, apex acute. membranous, nerves ca. 9 pairs; petiole 2 cm long. Cymes corymbose, axillary; flowers white; calyx tube 1.5 mm, lobes 0.5 mm; corolla tube 1 cm, infundibuliform, lobes 5mm, oblong; ovary 1.5 mm, style 2.5 cm, stigma clavate. Fruit 1 cm across, glabrous.

*Fl. & Fr.* February-August

*D i s t.* Common in moist deciduous forests at high elevations; endemic to Peninsular India.

Karimutty, *KKS* 15562

### PSILANTHUS Hook. f.

**Psilanthus wightianus** (Wight & Arn.) J. Leroy, Bull. Mus. Hist. Nat. (Paris) (ser. 4) Sect. B, Adansonia, no. 3: 252. 1981; Matthew, Fl. TN. Carnatic 734. 1983. *Coffea wightiana* Wight & Arn., Prodr. Fl. Ind. 436. 1834; Fl. Brit. India 3: 154. 1880; Fl. Pres. Madras 636. 1921; Matthew, Ill. Fl. TN. Carnatic t. 329. 1982.

Shrubs; with spinescent branches and branchlets. Leaves to 3 x 1.5 cm, elliptic-ovate, apes obtuse. membranous; petiole 5 mm. stipule broad. ovate-acuminate. Flowers solitary or in

cymes, white; bracteoles form a calyculus; calyx irregularly many toothed, 1.5 mm; corolla tube 6 mm, lobes 8 mm long, twisted, elliptic-oblong; stamens 4 mm, oblong; style 3 mm, bifid at apex, linear.

*Fl.* February-March

*D i s t.* Occasional in dry deciduous forests

Muthuvanala, *KKS 15550*

**PSYCHOTRIA L. *nom. cons.***

- |                                                   |                                            |
|---------------------------------------------------|--------------------------------------------|
| 1. Inflorescence racemose; stipules not pectinate | : 2                                        |
| 1. Inflorescence umbellate; stipules pectinate    | : <b>P. nigra</b> var. <b>peninsularis</b> |
| 2. Leaves obovate, nerves ca. 16 pairs            | : <b>P. elongata</b>                       |
| 2. Leaves elliptic, nerves ca. 9 pairs            | : <b>P. subintegra</b>                     |

**Psychotria elongata** (Wight) Hook. f., *Fl. Brit. India* 3: 163. 1880; *Fl. Pres. Madras* 641. 1921; Matthew, *Fl. TN. Carnatic* 735. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 318. 1988. **Grumilea elongata** Wight,  *Ic. t.* 1036. 1845.

Shrubs. Leaves to 13 x 9 cm, obovate, apex abruptly acuminate, base cuneate, pits prominent in the nerve axils, coriaceous; petiole to 1.5 cm, stipule 1.5 cm, broadly ovate. Panicle terminal, racemiform, to 8 cm, calyx 1 mm, 5-toothed, ciliate; corolla 5 mm, campanulate, tube with a rim of hairs inside; ovary 0.5 mm, style 4 mm, stigma biglobose. Fruit 7 mm across, globose; seeds plano-convex, smooth.

*Fl. & Fr.* December-February

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 15587; 18242*

**Psychotria nigra** (Gaertn.) Alston var. **peninsularis** (Hook. f.) Deb & Gang., *J. Econ. tax. Bot. (Addl. Ser.)* 7: 51. 1989. **P. thwaitesii** Hook. f. var. **peninsularis** Hook. f., *Fl. Brit. India* 3: 162. 1880.

Shrubs. Leaves to 10 x 4 cm, obovate, apex shortly acuminate, base attenuate, nerves ca. 15 pairs, coriaceous; petiole 1.5 cm, stipules pectinate. Cymes terminal, umbellate, to 4 cm. Fruit 6 x 4 mm, ovoid; seeds plano-convex, smooth.

*Fl. & Fr.* December-February

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 18275*

**Psychotria subintegra** (Wight & Arn.) Hook. f., *Fl. Brit. India* 3: 162. 1880; *Fl. Pres. Madras* 641. 1921; Matthew, *Fl. TN. Carnatic* 737. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 320. 1988. **Grumilea subinteger** Wight & Arn., *Prodr.* 432. 1834.

Shrubs. Leaves to 15 x 6 cm, elliptic, apex obtusely acuminate, base cuneate, nerves distant, membranous; petiole to 3 cm, stipule broadly oblong, 8 mm. Panicles terminal, ultimate branches corymbose. to 10 cm, branches opposite; calyx 0.5 mm, cup shaped, tooth 5, minute;

corolla tube 3 mm, densely hairy inside. lobes 5, 2 mm, triangular; ovary 1 mm, style 4 mm. stigma 5-fid. Fruit ellipsoid.

*Fl. & Fr.* February-August

*D i s t.* Common in riverine forests

Alampetty, NS 5893; Olikudy, KKS 17283

#### RICHARDIA L.

**Richardia scabra** L., Sp. Pl. 330. 1753; Balakr., Bull. Bot. Surv. India 6: 85. 1964; Matthew. Fl. TN. Carnatic 740. 1983 & Ill. Fl. TN. Carnatic t. 346. 1982.

Prostrate hispid herbs. Leaves to 4.5 x 2.5 cm, elliptic-obovate, apex acute, base cuneate. membranous; petiole to 1 cm, stipules interpetiolar, toothed. Flowers in capitate clusters, terminal, subtended by 4 small leaves, 3-merous, white; calyx lobes 6, 1 mm, hairy, spreading in fruit; corolla tube 3 mm, hairy inside, lobes 1 mm; stamens partly exserted; ovary 3 locular, one ovule in each cell, stigmas 3. Capsule 3-valved, scabrous, crowded with persistent calyx lobes.

*FZ & Fr.* November-March

*D i s t.* Common in dry deciduous forests

Chinnar, KKS 18273

#### RUBIA L.

**Rubia cordifolia** L., Mant. Pl. 197. 1771; Fl. Brit. India 3: 202. 1880; Fl. Pres. Madras 655. 1921; Matthew, Fl. TN. Carnatic 741. 1983 & Ill. Fl. TN. Carnatic t. 347. 1982.

Profusely branched vines, strigose, stem 4-angled, spiny. Leaves whorled, 4-6, to 5 x 2.5 cm, ovate, apex acute, base cordate, margin aristate, 5-nerved from base; petiole 0.5-8 cm, stipules absent. Cymes axillary and terminal, lax; calyx 1 mm, truncate, rim entire; corolla 5-lobed, combined below the middle, lobes 1.5 mm long, rotate, acuminate; stamens attached at the throat of the corolla; ovary 1 mm, styles 2, immersed in the depressions.

*Fl.* November-March

*D i s t.* Common in semi-evergreen and evergreen forests

Mangavada, KKS 15921

#### SAPROSMA Blume

**Saprosma foetens** (Wight) K.Schum. in Engl. & Prant. Pflanzenf. 4(4):122.1891. *Lasianthus foetens* Wight in Calcutta J. Nat. Hist. 6: 517. 1846. *Saprosma ceylanicum* (Gard.) Bedd. For. Man. Bot. 134/12.1872; Fl. Brit. India 3: 193.1881; Fl. Pres. Madras 649. 1921. *Dysodidendron ceylanica* Gard. in Calcutta J. Nat. Hist. 7; 2. 1847. *Serissa wightii* Bedd., Ic. t. 15. 1868-1874.

Shrubs, with foul smell while squeezing. Leaves opposite, decussate, to 7 x 3 cm, elliptic, membranous. apex acuminate, base cuneate; petiole to 1 cm; stipules interpetiolar, stiff. cauducous. Cymes axillary and terminal, slender, to 1.5 cm. Drupe ovoid or obovoid, to 1 x 0.5 cm: seeds 2.

Fr. March-May

D i s t. Common in shola forests

Pothumala, *KKS 17346*

#### SPERMACOCE L.

- |                                              |                         |
|----------------------------------------------|-------------------------|
| 1. Calyx lobes of 2 unequal pairs            | : <b>S. mauritiana</b>  |
| 1. Calyx lobes 4, equal                      | : 2                     |
| 2. Leaves scabrous, margins revolute         | : <b>S. articularis</b> |
| 2. Leaves not scabrous, margins not revolute | : <b>S. latifolia</b>   |

**Spermacoce articularis** L. f., Suppl. Pl. 119. 1782; Sivar. et al., Proc. Indian Acad. Sci. (Pl. Sci.) 97: 349. 1987. **Borreria articularis** (L. f.) F. N. Will., Bull. Herb. Boiss. ser. 5. 2: 88. 1905; Matthew, Ill. Fl. TN. Carnatic t. 327. 1982. **Spermacoce hispida** sensu Hook. f., Fl. Brit. India 3: 200. 1881; Matthew, Fl. TN. Carnatic 742. 1983; Deb & Duatta, J. Econ. Tax. Bot. 5: 1046. 1984 p.p., non L. 1753.

Coarse herbs with reddish hairs, stem tetragonous. Leaves to 2.5 x 1 cm, elliptic-acute, margins revolute, hairy, very scabrous. Cymes axillary and terminal, condensed; calyx lobes 4, 2 mm. Capsule 3 x 2 mm, pubescent.

Fl. & Fr. September-February

D i s t. Common in dry deciduous forests

Chinnar, *KKS 18274*

**Spermacoce latifolia** Aublet, Hist. Pl. Guinea Fr. 1: 55. t. 19/1. 1775; Deb & Duatta, Bull. Bot. Surv. India 18: 216. 1979; Sivar. et al., Proc. Indian Acad. Sci. (Pl. Sci.) 97: 355. 1987. **Borreria eradii** Ravi, J. Bombay Nat. Hist. Soc. 6: 539. 1970.

Hispid erect herbs, stem quadrangular, slightly winged. Leaves decussate, to 3 x 2 cm, broadly ovate elliptic, acute, hirsute, sessile, stipules with papillate bristles. Cymes axillary; flowers few, pink; calyx pubescent; corolla 1 cm long. Capsule ellipsoid.

Fl. & Fr. November-February

D i s t. Common in dry deciduous forests

Chinnar, *KKS 11513*

**Spermacoce mauritiana** Osea Gideon ex Verdc. in Kew Bull. 37: 547. 1983; Sivar. et al., Proc. India Acad. Sci. (Pl. Sci.) 97: 356. 1987. **S. ocymoides** auct. non Burm. f. 1708, sensu Hook. f., Fl. Brit. India 3: 200. 1881, p.p. **Borreria ocymoides** auct. non (Burm. f.) DC. 1830; Fl. Pres. Madras 654. 1921. **Spermacoce decandollei** Deb & Duatta, J. Econ. Tax. Bot. 5: 1044. 1984.

Diffuse hispid herbs. Leaves to 3 x 1.5 cm, elliptic-lanceolate, hairy, stipules pectinate. Heads axillary and terminal; calyx lobes 4, in unequal pairs, 2 mm long, aristate. Capsule dehisces transversally.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11508

#### TARENNA Gaertn.

**Tarenna asiatica** (L.) O. Ktze. ex K. Schum. in Bot. Tidsskr. 24: 332. 1902; Matthew, Fl. TN. Carnatic 744. 1983 & Ill. Fl. TN. Carnatic t. 348. 1982. **Rondeletia asiatica** Willd., Sp. Pl. 1: 1224. 1798; Fl. Brit. India 3: 102. 1880. **Chomelia asiatica** (L.) O. Ktze., Rev. Gen. Pl. 1: 278. 1891; Fl. Pres. Madras 613. 1921. **Stylucoryne webera** A. Rich. in Mem. Soc. Hist. Nat. Paris 5: 248. 1834; Wight, Ic. t. 309. 1840 & t. 584. 1842.

Shrubs; branchlets terete. Leaves 8-10 x 4-5 cm, oblanceolate, shortly acuminate, coriaceous, black on drying, lateral nerves 10-12 pairs, prominent, parallel, looped at margin; stipules one toothed, to 3 mm. Cymes corymbose, terminal; calyx tube 4 mm, lobes 4 x 1.5 mm, puberulous along the margins; corolla tube 4 mm, with a rim of hairs inside. lobes 8 x 4 mm, obovate, recurved; style 6 mm, stigma 4 mm long, clavate, grooved.

*Fl.* December-January

*D i s t.* Occasional in shola forests

Alampetty, *NS* 5889, *KKS* 11967; Olikudy, *KKS* 18233

**Note** : The plant is sticky because of the resinous exudation especially from the younger shoots and inflorescence

#### WENDLANDIA Bartling ex DC.

**Wendlandia thyrsoides** (Schultes) Steud. Nomencl. ed. 2. 2: 786. 1841; Matthew, Fl. TN. Carnatic 745. 1983 & Ill. Fl. TN. Carnatic t. 349. 1982. **W. notoniana** Wall. ex Wight & Arn., Prodr. 403. 1834; Wight, Ic. t. 1033. 1845; Fl. Brit. India 3: 40. 1880; Fl. Pres. Madras 588. 1921.

Small trees; young parts pubescent. Leaves to 11 x 4 cm, elliptic, apex acute, ferrugineous pubescent below, nerves *ca.* 10 pairs; petiole 1 cm long, stipule recurved. Cymes thyrsoid, axillary and terminal, pubescent; bracteoles 2-3 or more; calyx 1.5 mm, globose, pubescent; corolla tube 6 mm, lobes 1.5 mm, oblong, rotate; stamens subsessile attached to the throat of the corolla; style 7 mm, filiform, stigma 2 fid.

*Fl.* February-March

*D i s t.* Common near streams in moist deciduous forests

Palapetty, *KKS* 15511

#### ASTERACEAE

- |                                                                                   |                   |
|-----------------------------------------------------------------------------------|-------------------|
| 1. Capitula of two kinds, unisexual; female capitula covered with hooked bristles | : <b>Xanthium</b> |
| 1. Capitula of one kind only                                                      | : 2               |
| 2. Leaves opposite or at least the lower ones                                     | : 3               |
| 2. Leaves alternate                                                               | : 18              |

3. Heads with tubular flower only	: 4
3. Heads with both tubular and ligulate flowers	: 9
4. Pappus absent	: Spilanthes
4. Pappus present	: 5
5. Pappus of 3 gland tipped hairs	: Adenostemma
5. Pappus not glandular	: 6
6. Pappus of 5 bristles	: Ageratum
6. Pappus more than 10	: 7
7. Phyllaries many seriate	: 8
7. Phyllaries 4-5, subequal	: Mikania
8. Outer phyllaries pubescent, ovate; flowers blue	: Chromolaena
8. Outer phyllaries glandular, lanceolate; flowers white	: Ageratina
9. Pappus present	: 12
9. Pappus absent	: 10
10. Leaves simple	: 11
10. Leaves compound	: Moonia
11. Phyllaries glandular; achenes glabrous	: Sigesbeckia
11. Phyllaries eglandular; achenes prickled	: Acanthospermum
12. Leaves compound	: 13
12. Leaves simple	: 14
13. Leaves trifoliolate	: <b>Bidens</b>
13. Leaves bipinnatisect	: Cosmos
14. All flowers white	: 15
14. Disc florets yellow and ray florets white	: 16
15. Pappus of 2 short hairs; achenes warted	: Eclipta
15. Pappus of 3-4 bristles; achenes truncate	: Blainvillea
16. Pappus fimbriate	: Galinsoga
16. Pappus not fimbriate	: 17
17. Leaves trilobed; pappus ca. 20, achenes monomorphic	: Tridax
17. Leaves simple; pappus of 2 awns, achenes dimorphic	: Synedrella
18. Pappus absent	: 19
18. Pappus present	: 20
19. Flowers all tubular, head spinous	: Sphaeranthus
19. Flowers both tubular and rayed	: Parthenium
20. Leaves radical, latex milky; all flowers ligulate	: 22
20. Leaves cauline; latex watery; all flowers not ligulate	: 23
21. Plants stoloniferous	: Launaea
21. Plants not stoloniferous	: 21
22. Achene narrowed at both ends	: Sonchus
22. Achenes truncate at apex	: Youngia
23. Flowers both tubular and rayed	: 24
23. Flowers all tubular	: 26
24. Climbing shrubs; pappus many barbellate; capitula corymbose	: Senecio
24. Shrubs or herbs, pappus of 2 awns, capitulum solitary	: 25
25. Leaves simple, herbs	: Vicoa
25. Leaves 3-5-lobed, shrubs	: Tithonia
26. Branchlets winged	: Laggera
26. Branchlets not winged	: 27
27. Flowers all bisexual	: 28
27. Outer flowers female	: 33

28. Phyllaries 1 seriate	: 29
28. Phyllaries many seriate	: 32
29. Flowers yellow	: 30
29. Flowers pink	: <b>Emilia</b>
30. Leaves entire, shrubs	: <b>Notonia</b>
30. Leaves pinnatisect, if simple then margin toothed or lobed; herbs	: 31
31. Perennials; leaves mostly radical	: <b>Gynura</b>
31. Annuals: leaves cauline	: <b>Crassocephalum</b>
32. Pappus 1-seriate	: <b>Phyllocephalum</b>
32. Pappus 2-seriate	: <b>Vernonia</b>
33. Phyllaries herbaceous	: 34
33. Phyllaries scarious, white to yellow, woolly everlasting	: 35
34. Anther bases tailed	: <b>Blumea</b>
34. Anther bases oblique	: <b>Conyza</b>
35. Female flowers more than hermaphrodite flowers; phyllaries yellow or brownish	: <b>Gnaphalium</b>
35. Female flowers fewer than hermaphrodite flowers; phyllaries yellow or white	: 36
36. Phyllaries yellow, convergent at apex	: <b>Helichrysum</b>
36. Phyllaries white or pink; spreading at apex	: <b>Anaphalis</b>

#### ACANTHOSPERMUM Shrank.

**Acanthospermum hispidum** DC., Prodr. 5: 522. 1836; Fl. Pres. Madras 704. 1921; Matthew, Fl. TN. Carnatic 758. 1983 & Ill. Fl. TN. Carnatic t. 350. 1982.

Dichotomously branched herbs, pubescent. Leaves to 6 x 4 cm, obovate or oblanceolate-elliptic, apex obtusely acute, serrate, hirsute, more or less sessile. Capitula axillary, sessile, paleaceous. Achenes 5 mm long, trigonous, covered with hooked spines, apical two larger and stronger.

*FZ & Fr.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11587*

#### ADENOSTEMMA J. R. & G. Forst.

**Adenostemma lavenia** (L.) O. Ktze., Rev. Gen. Pl. 1: 304. 1891; Fl. Pres. Madras 677. 1921; Matthew, Fl. TN. Carnatic 759. 1983 & Ill. Fl. TN. Carnatic t. 351. 1982. *Verbesina lavenia* L., Sp. Pl. 902. 1753. *A. viscosum* Forst., Char. Gen. 90. 1776; Fl. Brit. India 3: 242. 1881.

Tall herbs, younger parts glandular pubescent. Leaves 13-15 x 9-10 cm, ovate, basally 3-nerved, apex acuminate, base cuneate, unequally serrate, serration gland tipped; petiole to 7 cm. Panicles of cymes lax, peduncles to 20 cm; heads 1 x 1 cm; phyllaries biseriate, outer 3 x 1 mm, inner 5 x 1.5 mm, oblong to obovate, pubescent, unequal, ciliate: flowers white; corolla 3 mm long, campanulate. pubescent: stamens included: ovary 4 mm; style branches 2, exerted to 2.5-3 mm, verrucose without: pappus 0.5 mm long.

*Fl. & Fr.* April-August

*D i s t.* Occasional along the sides of streams

Olikkudy, *KKS 18230*

### AGERATINA Spach.

**Ageratina adenophora** (Spreng.) King & Robins., Phytologia **19: 211. 1970**; Matthew, Fl. TN. Carnatic **760. 1983** & Fur. Ill. Fl. TN. Carnatic t. **322. 1988**. *Eupatorium adenophorum* Spreng., Syst. Veg. (ed. **16**) **3: 420. 1826**. *E. glandulosum* Kunth, Nov. Gen. Sp. **4: 122, t. 346. 1820**.

Shrubs, glandular, pubescent. Leaves to 6 x 3 cm, deltoid, apex acute to acuminate, base cuneate, pubescent. Panicles terminal, corymbose; flowers white, corolla tube 2.5 mm, campanulate, stamens included; ovary 1 mm; pappus 1-seriate, more than 10, 3-4 mm, feathery..

**Fl. & Fr.** February-May

**D i s t.** Common in moist deciduous and evergreen forests

Ichampetty, KKS 15585

### AGERATUM L.

1. Phyllaries 2-seriate; small herbs

: **A. conyzoides**

1. Phyllaries many seriate; large herbs

: **A. houstonianum**

**Ageratum conyzoides** L., Sp. Pl. **839. 1753**; Fl. Brit. India **3: 243. 1881**; Fl. Pres. Madras **677. 1921**; Matthew, Fl. TN. Carnatic **761. 1983** & Ill. Fl. TN. Carnatic t. **352. 1982**.

Small herbs. Leaves 2-3 x 1-1.5 cm, ovate, elliptic, apex acute, serrate, puberulus; petiole 0.5-1 cm. Corymbs terminal, lax. phyllaries 2-seriate, 4 mm, elliptic, 2-3 veined, greenish, margins serrate, apex acute; flowers white, 2 mm. Achenes 2 mm, ribbed; pappus 5, paleaceous scales, terminate in long spinescent awns.

**Fl. & Fr.** November-February

**D i s t.** Very common in dry deciduous forests

Karumpara, KKS 11814

**Ageratum houstonianum** Mill., Gard. Dict. (ed. **8**) n. 2. **1768**; Koster, Blumea **1: 490. 1935**; Fl. Pres. Madras **1881. 1935**; Grierson in Dassan. & Fosb., Rev. Handb. Fl. Ceylon **1: 141. 1980**; Matthew, Fl. TN. Carnatic **762. 1983**; Giri & Majumd., J. Bombay Nat. Hist. Soc. **80: 453. 1983 (1984)**.

Tall pubescent branched herbs. Leaves to 5 x 3 cm, ovate, apex acute, base truncate. crenate, pubescent; petiole to 1.5 cm. Corymbs terminal; peduncles to 7 cm; heads 8 mm across; phyllaries many seriate, 4.5 mm, acuminate at apex; flowers deep blue; corolla tube 3 mm; ovary 2 mm; pappus of 5-6 hairs, broadened basally and united.

**Fl. & Fr.** December-April

**D i s t.** Very common in dry deciduous forests

Churullipetty, KKS 11861; Konakaimoola. KKS 12983

### ANAPHALIS A. DC.

1. Leaf margin recurved, basally 3-nerved

: **A. travancorica**

1. Leaf margin flat, basally 1-nerved

: **A. lawii**



**Anaphalis lawii** (Hook. f.) Gamble, Fl. Pres. Madras 696. 1921; Matthew, Fl. TN. Carnatic 763. 1983 & Ill. Fl. TN. Carnatic t. 352. 1982. **Anaphalis oblonga** DC. var. *lawii* Hook. f., Fl. Brit. India 3: 283 1881.

Erect herbs, woolly. Leaves 4 x 0.5-1 cm, narrowly obovate to oblong, I-nerved, apex acute, flat, sessile. Corymbs terminal; phyllaries 3- 5 seriate, non-uniform, 3 mm, ovate, mucronate, basally woolly, scarious above; inner female flowers 1.5 mm long, campanulate, outer female flowers narrow, tubular; ovary 0.5 mm, puberulus. Achenes 0.6 mm, puberulus; pappus 2 mm long, barbellate.

*Fl. & Fr.* February-May

*D i s t.* Common in wet regions in moist deciduous forests; endemic to Peninsular India.

Puthankadukka, *KKS* 15629

**Anaphalis travancorica** W. W. Smith in Rec. Bot. Surv. India 4: 284. 1911; Fl. Pres. Madras 695. 1921.

Large herbs, woolly. Leaves 3 x 1.5 cm, oblong, elliptic, apex obtusely acute, recurved, 3-nerved at base, semiamplexicaule crowded at base, Capitula congested, 1-1.5 cm across; phyllaries 6 mm, obovate, recurved, hyaline; female flowers yellow, tube 3 mm, campanulate. ovary 0.5 mm, puberulus; pappus I-seriate, 3 mm, deciduous, barbellate.

*Fl. & Fr.* April-August

*D i s t.* Common in shola forests; endemic to Peninsular India.

Pothumala, *KKS* 17369

### BIDENS L.

**Bidens pilosa** L. var. **minor** (Blume) Sherff in Bot. Gaz. 80: 387. 1925; Dakshini & Singh in Proc. Indian Acad. Sci. (Plant Sci.) 93: 172. 1984; Matthew, Fl. TN. Carnatic 766. 1983 & Ill. Fl. TN. Carnatic t. 355. 1982.

Tall herbs. Leaves trifoliate, terminal leaflets 6 x 2 cm, terminal leaflets, elliptic or obovate, apex acute, serrate, mucronate, membranous, sparsely hairy; petiole 3 cm long. Capitula axillary or terminal; peduncles 6 cm long; phyllaries 2-4 seriate, dissimilar, oblong; disc florets yellow, 1 mm across, campanulate; ovary, 1.5 mm long, oblong, 2-fid; ray florets white, 1 mm across. Achenes 8 mm long, linear, ending in retrose barbellate awns.

*Fl. & Fr.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS* 11511

### BLAINVILLEA Cass.

**Blainvillea acmella** (L.) Philip., Blumea 6: 350. 1950; Grierson in Dassan. & Fosb., Rev. Handb. Fl. Ceylon 1: 213. 1980; Matthew, Fl. TN. Carnatic 767. 1983 & Ill. Fl. TN. Carnatic t. 356. 1982. **B. latifolia** (L. f.) DC. in Wight, Contrib. Bot. India 17. 1834; Fl. Brit. India 3: 305. 1880. **B. rhomboidea** Cass., Dict. Sci. Nat. 29: 494. 1823; Fl. Pres. Madras 706. 1921.

Erect branching annual herbs, pilose. Upper leaves upper alternate, to 8 x 3.5, ovate, crenate, pubescent, trinerved; petiole 1 cm, pilose. Capitulum solitary, 4-5 mm across; palea 5-6 mm; peduncles to 1.5 cm; phyllaries 5 x 2 mm, ovate-oblong, pubescent; ray florets 2 mm across; disc florets 2 mm across. Achenes truncate, 3.5 mm, black; pappus of 3-4 bristles, 1 mm.

*Fl. & Fr.* November-April

*D i s t.* Very common in dry deciduous forests

Alampetty, *NS* 5860; Chinnar, *KKS* 11577

#### **BLUMEA DC. nom. cons.**

**Blumea lacera** (Burm. f.) DC. in Wight, *Contr.* 14. 1834; *Fl. Brit. India* 3: 263. 1881; *Fl. Pres. Madras* 687. 1921; Matthew, *Fl. TN. Carnatic* 770. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 323. 1988. *Conyza lacera* Burm. f., *Fl. Ind.* t. 59. 1768.

Tall herbs, glandular, puberulus. Leaves elliptic-oblong, lower ones lyrate pinnatifid, margins irregularly dentate, teeth subspinulose, base decurrent to the petiole, puberulus; petiole to 2 cm. Panicles spiciform; heads 1 cm across; phyllaries many seriate, longer 7 mm, lanceolate, acuminate; disc florets 4 mm; ovary 1 mm, pubescent; pappus 1-seriate, 5 mm.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Sivapura, *KKS* 11935

#### **CHROMOLAENA DC.**

**Chromolaena odorata** (L.) King & Robins., *Phytologia* 20: 204. 1970; Ramam. in Sald. & Nicols., *Fl. Hassan Dist.* 608. 1976; Matthew, *Fl. TN. Carnatic* 776. 1983 & *Ill. Fl. TN. Carnatic* t. 369. 1982. *Eupatorium odoratum* L., *Syst. Nat.* (ed. 10) 1205. 1759; *Fl. Brit. India* 3: 244. 1881; Grierson in *Rev. Handb. Fl. Ceylon* 1: 140. 1980.

Shrubs pubescent. Leaves to 10 x 5 cm, deltoid, apex acute, base acute, coarsely serrate, pubescent; petiole 2 cm, pubescent. Capitula in corymbs; phyllaries many seriate, outer ovate, 2 mm, pubescent; inner 6 x 1.5 mm, oblong, 2-nerved; flowers pale bluish, 3 mm long; ovary 0.5 mm; pappus 1-seriate, 3 mm, finely barbellate.

*Fl. & Fr.* August-January

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS* 11533

#### **CONYZA Less. nom. cons.**

1. Leaves petioled, leaf apex acute

: **C. stricta**

1. Leaves sessile, leaf apex obtuse

: **C. bonariensis**

**Conyza bonariensis** (L.) Cronq. in *Bull. Torrey Bot. Club* 70. 632. 1943; Grierson, *Rev. Handb. Fl. Ceylon* 11: 158. 1980; Matthew, *Fl. TN. Carnatic* 777. 1983 & *Ill. Fl. TN. Carnatic* t. 359. 1982. *Erigeron bonariensis* L., *Sp. Pl.* 3: 1955. 1803; *Fl. Brit. India* 3: 254. 1881. *Conyza ambigua* DC., *Fl. Fr.* 6: 468. 1815; *Fl. Pres. Madras* 683. 1921.

Tall herbs, sparsely pubescent, stem striated. Leaves to 6 x 0.8 cm, lanceolate, elliptic, apex obtuse, mucronate, base narrowed, entire to crenate, sessile. Capitula 8 mm across; phyllaries 2-seriate, outer 1 mm, puberulus; inner 3 mm, lanceolate; bisexual flowers 3.5 mm, outer flowers 2 mm. Achenes 1.25 mm, oblong, sparsely pubescent; pappus 4 mm long, brownish, minutely barbellate.

*FZ & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 18276*

***Conyza stricta*** Willd., Sp. Pl. 1922. 1803; Fl. Brit. India 3: 258. 1881; Fl. Pres. Madras 683. 1921; Matthew, Fl. TN. Carnatic 779. 1983 & Ill. Fl. TN. Carnatic t. 360. 1982.

Tall herbs, sparsely pubescent. Leaves to 5 x 1.5 cm, spathulate, oblanceolate, apex acute, broadly crenate, pubescent; petiole to 1-1.5 cm. Panicles terminal, to 4 cm; capitula 3 mm across, yellow; phyllaries 2-seriate; outer 2 mm, inner 2.5 mm, lanceolate, pubescent; bisexual flowers 2 mm; ovary 0.7 mm, pubescent; outer flowers 2 mm. Achenes 0.7 mm, compressed, hairy; pappus 1-seriate, deciduous, wholly, 2 mm, barbellate.

*Fl. & Fr.* December-April

*D i s t.* Very common in dry deciduous forests

Karumpara, *KKS 11823*

#### **COSMOS Cav.**

***Cosmos caudatus*** Kunth in H.B.K. Nov. Gen. Sp. 4: 188. 1820; Matthew, Fl. TN. Carnatic 779. 1983 & Fur. Ill. Fl. TN. Carnatic t. 327. 1988.

Erect herbs, sparsely pilose. Leaves bipinnatisect, to 9 cm, pilose, pinnules apiculate, ciliate along the margins; petiole to 3 cm. Capitulum solitary; peduncles upto 12 cm long; outer phyllaries 8, to 1 cm, oblong, ciliate, inner lanceolate, membranous, ray florets 1.3 cm, 3-toothed; bisexual flowers 5 mm; pappus 2, with retrose barbed awns.

*FZ & Fr.* August-February

*D i s t.* Common in moist deciduous forests

Alampetty, *KKS 15864*

#### **CRASSOCEPHALUM Moench.**

***Crassocephalum crepidioides*** (Benth.) S. Moore in J. Bot. 50: 211. 1912. *Gynura crepidioides* Benth. in Hook., Niger Fl. 438. 1849. *Erechtites valerianifolia* sensu Fischer in Gamble, Fl. Pres. Madras 1882. 1936, non (Wolf) DC. 1838.

Tall herbs. Leaves to 12 x 6 cm, lower ones lyrate pinnatifid, elliptic, oblanceolate, apex acute, dentate, sparsely pubescent; petiole to 3 cm. Racemes terminal; phyllaries 1-seriate, 8 mm, lanceolate. Calyculus free at the base of the phyllaries, to 3 mm; flowers yellow, 9-10 mm long; ovary 2 mm, oblong, style 9 mm, bifid at apex. Achenes 4 mm, brown; pappus numerous, 8 mm long, white.

*Fl. & Fr.* December-April

*D i s t.* Occasional along the stream sides in moist and dry deciduous forests

Mulangampetty, *KKS 11890*

## ECLIPTA L.

**Eclipta prostrata** (L.) L., Mant. 2: 286. 1771; Sant., J. Bombay Nat. Hist. Soc. 54: 475. 1957; Grierson in Dassan. & Fosb., Rev. Handb. Fl. Ceylon 1: 212. 1980; Matthew, Fl. TN. Carnatic 763. 1983 & Ill. Fl. TN. Carnatic t. 365. 1982. **E. alba** (L.) Hassk., Pl. Jav. Rar. 528. 1848; Fl. Brit. India 3: 304. 1881; Fl. Pres. Madras 705. 1921. **Verbesina alba** L., Sp. Pl. 902. 1753.

Prostrate hirsute herbs. Leaves to 6 x 1.5 cm, elliptic, lanceolate, apex obtuse, hirsute, subsessile. Capitula axillary and terminal; peduncle to 0.5-2 cm; phyllaries 2-seriate, 4 x 2 mm, outer ovate, pubescent, inner 3 x 1 mm, oblong; disc florets white, 1.5 mm, campanulate; stamens 4, subexserted; ovary 1 mm, ray florets white. Achenes 3 mm, warted; pappus hairs 2.

*Fl. & Fr.* August-December

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15722*

## EMILIA Cass.

1. Leaves chiefly radical, scabrous

: **E. scabra**

1. Leaves cauline, not scabrous

: **E. sonchifolia**

**Emilia scabra** DC., Prodr. 6: 303. 1837; Wight, Ic. t. 1123. 1846; Fl. Pres. Madras 716. 1921; Matthew, Fl. TN. Carnatic 787. 1983 & Fur. Ill. Fl. TN. Carnatic t. 329. 1988. **E. sonchifolia** (L.) DC. var. **scabra** (DC.) Hook. f., Fl. Brit. India 3: 336. 1881.

Erect herbs, crisped pubescent. Leaves chiefly radical, to 7 x 2.5 cm, lyrate, amplexicaule, apex obtuse, crenate, crispate-pubescent, scabrous, sessile. Capitula terminal: peduncles to 9 cm; palea 1.5 cm long; phyllaries I-seriate, 8 x 1.5 mm, oblong; flowers 9 mm long; anthers very minutely tailed, style arms papillose. Achenes 5-ribbed, 3 mm, hairy along the ribs.

*Fl. & Fr.* December-April

*D i s t.* Occasional in disturbed semi-evergreen forests

Mavelikudy, *KKS 18247*

**Emilia sonchifolia** (L.) DC. in Wight. Contr. 24. 1884; Fl. Brit. India 3: 336. 1881. Fl. Pres. Madras 716. 1921; Matthew, Fl. TN. Carnatic 787. 1983 & Ill. Fl. TN. Carnatic t. 367. 1982. **Cacalia sonchifolia** L., Sp. Pl. 835. 1753.

Prostrate herbs, branchlets sparsely hairy. Leaves to 4 x 1.5 cm, lyrate-pinnatisect, sparsely pubescent; upper lobes obovate, base auricled; petiole to 1.5 cm. Corymbs axillary and terminal; phyllaries I-seriate, 6 mm, oblong, ca. 9, alternate ones broader, 6 x 1.5 mm; flowers 6 mm long, pink; ovary 2 mm, style 2-fid. Achenes 5-ribbed, 2.5 mm long, pubescent; pappus 6 mm, white.

*Fl. & Fr.* February-June

*D i s t.* Common in dry and moist deciduous forests

Ichampetty, *KKS 15579*; Kalladuthupurai, *11690*

### GALINSOGA Ruiz & Pavon

**Galinsoga parviflora** Cav., IC. et Descr. 3: 41, t. 281. 1796; Clarke, Comp. India 142. 1876; Fl. Brit. India 3: 311. 1881; Fl. Pres. Madras 711. 1921; Matthew, Fl. TN. Carnatic 791. 1983.

Erect branched herbs. Leaves to 3.5 x 1.5 cm, ovate, apex acute, puberulus, membranous, distantly serrate; petiole to 0.5 cm. Capitula axillary, solitary or in groups, 5 mm across; palea oblong, 2.5 mm; outer phyllaries 1 mm, ovate; inner 2.5 x 2 mm, broadly ovate; disc flowers yellow, 1.5 mm, pubescent outside; ovary 1.5 mm, pubescent; ray flowers white, 1.5 mm; ovary 2 mm, hairy. Achenes 2 mm, puberulus; pappus 7-8 scales, paleaceous, fimbriate.

*FZ & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Alampetty, NS 5879; KKS 11980

### GNAPHALIUM L.

1. Leaf apex apiculate; phyllaries not pitted

: **G. polycaulon**

1. Leaf apex obtuse; phyllaries pitted

: **G. pulvinatum**

**Gnaphalium polycaulon** Pers., Syn. 2: 421. 1807; Matthew, Fl. TN. Carnatic 795. 1983 & Ill. Fl. TN. Carnatic t. 373. 1982. **G. indicum** auct. non L., Hook. f., Fl. Brit. India 3: 289. 1881; Fl. Pres. Madras 698. 1921.

Herbs, pubescent. Leaves 7-8 x 2 cm, spatulate, obovate, decurrent to the petiole, apex apiculate, pubescent. Spikes terminal. Phyllaries biseriate, 2 mm, oblong, hyaline, densely woolly at base; bisexual florets 1.25 mm; ovary 0.25 mm, papillose; pappus 1-seriate, 2 mm, barbellate.

*Fl. & Fr.* December-April

*D i s t.* Occasional in dry deciduous forests

Nellimedu, KKS 22940

**Gnaphalium pulvinatum** Delile, Fl. Egypt. 266, t. 44. 1812; Fl. Brit. India 3: 289. 1881; Fl. Pres. Madras 698. 1921.

Small herbs. Leaves to 1.5 x 0.3 mm, obovate, thinly woolly, apex obtuse, sessile. Spikes terminal, heads 3 mm across; phyllaries 2-seriate, 2 mm, oblong, basally woolly, hyaline pitted; corolla tube 1.5 mm; ovary 0.4 mm, papillose; pappus 1-seriate, 2 mm long.

*EZ & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Paekulam, KKS 11900

### GYNURA Cass. nom. cons.

**Gynura travancorica** W. W. Smith in Rec. Bot. Surv. India 6: 29. 1914; Fl. Pres. Madras 714. 1921.

Tall herbs, sparsely hispid, stem furrowed. Leaves to 13 x 3.5 cm, apex acute, auricled, sparsely hairy, distantly toothed. Corymbs terminal. heads 2 cm across; peduncle upto 3.5 cm;

phyllaries 2-seriate, outer 5 mm, inner 1.3 x 0.2 cm, margins hyaline; florets 1 cm long; stigma 2 fid. Achenes ciliate, 5 mm; pappus copious, 1 cm long, white, deciduous.

*Fl. & Fr.* August-February

*D i s t.* Rare in shola forests; endemic to Peninsular India.

Karivepinshola, *KKS* 17445

#### **HELICHRYSUM Miller.**

**Helichrysum buddleioides** DC. in Wight, Contrib. 20. 1834; Wight, Ic. t 1113. 1846; Fl. Brit. India 3: 290. 1881; Fl. Pres. Madras 699. 1921. **H. hookerinnurn** Wight & Arn. in DC. Prodr. 6: 201. 1838; Fl. Pres. Madras 699. 1921. **H. buddleioides** DC. var. **hookerinnurn** (Wight & Arn.) Hook. f., Fl. Brit. India 3: 291. 1881.

Subshrubs, stem terete, densely woolly. Leaves to 8 x 2.5 cm, oblanceolate, apex acute, hooked, base semiamplexicaule, 5-7 nerved at the base, impressed above, pubescent when young, later greenish, very dense woolly underneath. Corymbs terminal, dense; peduncles densely woolly; phyllaries 3-seriate, 3 mm, oblanceolate; flowers yellow, bisexual 2.5 mm long. Achenes 0.5 mm, oblong; pappus 1-seriate, 2.5 mm, barbellate, deciduous.

*Fl. & Fr.* December-April

*D i s t.* Common in shola forests

Olikkudy, *KKS* 18235

#### **LAGGERA Sch.-Bip.**

**Laggera crispata** (Vahl) Hepper & Wood in Kew Bull. 38: 83. 1983. **Conyza crispata** Vahl, Symb. Bot. I: 71. 1790. **Laggera pterodonta** (DC.) Sch.-Bip. ex Oliver in Trans. Linn. Soc. London 29: 94. 1873; Fl. Brit. India 3: 271. 1881; Fl. Pres. Madras 689. 1921.

Tall herbs, pubescent, branchlets winged, interrupted. Leaves to 8 x 2.5 cm, oblanceolate, apex acute, serrate, membranous, puberulus, subsessile. Capitula in panicles; phyllaries many-seriate, unequal, inner longer, to 9 mm, lanceolate; bisexual florets 5 mm; ovary 0.5 mm, pubescent. Achenes 1 mm, black, puberulus.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous and moist deciduous forests

Alampetty, *KKS* 11981

#### **LAUNAEA Cass.**

**Launaea acaulis** (Roxb.) Bab. ex Kerr in Craib, Fl. Siam. 2: 299. **Prenanthes acaulis** Roxb., Fl. Ind. 3: 403. 1832. **Microrhynchus glabra** (DC.) Wight, Ic. t. 1145. 1846. **Lactuca glabra** (DC.) in Wight, Contrib. 26. 1834. **Crepis ncnulis** (Roxb.) Hook. f., Fl. Brit. India 3: 396. 1881; Fl. Pres. Madras 730. 1921.

Scapigerous herbs. Leaves to 6 x 0.8 cm, mostly radical, oblong, entire to minutely serrate; Corymbs terminal, lax, heads 1.5 cm long, *ca.* 15-flowered; outer phyllaries 4 mm, inner 1.2 cm long, oblong, margin hyaline; flowers yellow, 1.2 cm long; pappus copious, 7 mm long, silvery-white.

*Fl. & Fr.* February-May

*D i s t.* Occasional in moist deciduous forests

Ichampetty, *KKS* 15589

#### MIKANIA Willd.

**Mikania cordata** (Burm. f.) Robinson, *Contr. Gray Herb.* 104: 65. 1934. *Eupatorium cordatum* Burm., *Fl. India* 176. t. 58. 1768. **Mikania scandens** auct. non L., Clarke *Comp. Ind.* 34. 1876; *Fl. Brit. India* 3: 144. 1881.

Scandent shrubs. Leaves to 10 x 7 cm, ovate, deltoid, apex acute to acuminate, cordate at base, serrate, membranous; petiole to 8 cm. Corymbs axillary; heads 4-flowered, 1.5 cm across, epaleate; phyllaries 4, 3 mm, subequal, sparsely pubescent, with a small bract at base; flowers white, 4 mm. Achenes 2.5 mm, oblong; pappus uniseriate, 3 mm long, connate at base.

*Fl. & Fr.* October-February

*D i s t.* Very common in dry deciduous forests

Thayanankkudy, *KKS* 15917

#### MOONIA Arn.

**Moonia heterophylla** Arn. in *Nova Acta Nat. Cur.* 18: 349. 1836; *Fl. Pres. Madras* 704. 1921. *Chrysogonum heterophyllum* (Arn.) Benth. ex Clarke, *Comp. India* 182. 1876; *Fl. Brit. India* 3: 303. 1881. **Moonia arnottiana** Wight, *Ic. t.* 1105. 1846.

Perennial herbs. Leaves pinnate, leaflets 3, lower to 7 x 2 cm, oblong, elliptic, apex acute, serrate, terminal leaflets trilobed, apex lobe 8 x 3 cm, obovate; petiole 6-7 cm, sheathing. Capitulum terminal, solitary; phyllaries 2-seriate, outer larger, 7 x 2 mm, oblong, margin ciliate; disc florets embraced by palea, 3.5 mm. Achenes blackish, 4 mm long; ray florets deeply 3-lobed, 5 mm; ovary 2.5 mm, compressed.

*Fl. & Fr.* November-April

*D i s t.* Common in moist deciduous forests

Karimutty, *KKS* 18278

#### NOTONIA DC.

**Notonia grandiflora** Wall. ex DC. in *Guill., Arch. Bot. (Paris)* 2: 518. 1833 & in Wight, *Contrib. Bot. India* 24. 1834; Wight, *Ic. t.* 484. 1841; *Fl. Brit. India* 3: 336. 1881; *Fl. Pres. Madras* 717. 1921.

Subshrubs. Leaves to 13 x 4 cm, obovate, apex mucronate, base attenuate; petiole to 1 cm. Corymbs terminal; peduncles to 15 cm long; flowers yellow, phyllaries 1-seriate, 1.5 cm long, lanceolate, margins hyaline; corolla 2.5 cm long; ovary 4 mm long, style 2 cm long. Achenes many ribbed, 7 mm long; pappus copious, 1.5 cm, white.

*FZ & Fr.* November-March

*D i s t.* Occasional in rocky areas in dry deciduous forests

Athiyodai, *KKS* 11762

## PARTHENIUM L.

**Parthenium hysterophorus** L., Sp. Pl. 988. 1753: Ellis & Swamin. in J. Bombay Nat. Hist. Soc. 66: 233. 1969; Matthew, Fl. TN. Carnatic 809. 1983 & Ill. Fl. TN. Carnatic t. 382. 1982.

Dichotomously branched herbs, puberulus. Leaves pinnatisect, to 10 x 1 cm, lanceolate, oblong, acute at apex, base decurrent. Panicles terminal, lax; phyllaries 1-seriate, 3 x 1.5 mm, ovate, ciliate; flowers white; ovary 2 x 1.5 mm, broadly ovoid, compressed, puberulus, margin thickened.

*FZ & Fr.* August-February

*D i s t.* Abundant in dry and moist deciduous forests

Chinnar, *KKS* 11523; Churullipetty, 11871

## PHYLLOCEPHALUM Blume

**Phyllocephalum courtallense** (Wight) Narayana, Curr. Sci. 51: 438. 1982. *Decaneurum courtallense* Wight, Ic. t. 1081. 1846. *Centratherum courtallense* (Wight) Benth. ex Hook. f. Fl. Brit. India 3: 227. 1881; Fl. Pres. Madras 666. 1921.

Herbs, sparsely hirsute. Leaves to 5 x 2 cm, ovate, puberulus above, white tomentose beneath, apex acute, apiculate, dentate, sessile to subsessile. Capitulum solitary; peduncles to 9 cm long; phyllaries many-seriate, outer 1 x 0.5 cm, oblanceolate, hairy, inner hyaline; flowers bluish-purple; anthers obtusely auricled at base. Achenes 10-ribbed, 2 mm, oblong, black spotted between the ribs.

*Fl. & Fr.* December-April

*D i s t.* Common in shola forests: endemic to Peninsular India.

Olippara, *KKS* 17250

## SENECIO L.

**Senecio scandens** Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 178. 1825; Fl. Brit. India 3: 352. 1881; Matthew, Fl. TN. Carnatic 811. 1983 & Ill. Fl. TN. Carnatic t. 383. 1982. *S. wightianus* DC. in Wight, Contr. 22. 1834; Wight, Ic. t. 1136. 1846; Fl. Pres. Madras 724. 1921.

Climbing shrubs. stems zig-zag, dichotomously branched, ribbed. Leaves to 7 x 3.5 cm, ovate, apex acute, base truncate, dentate, membranous, auricles minute, glabrous or minutely pubescent; petiole 2 cm long, minutely auricled. Corymbs divaricately branched; flowers yellow, bracteoles small, 2 mm; phyllaries 1-seriate, 6 mm, lanceolate, shortly pubescent; corolla tube 5 mm; ovary 2 mm, pubescent. Achenes ribbed, fusiform; pappus many, 6 mm, white, barbellate.

*Fl. & Fr.* February-June

*D i s t.* Very common on the margins of shola forests

Pothumala, *KKS* 17373



### SIGESBECKIA L.

**Sigesbeckia orientalis** L., Sp. P. 900. 1753; Clarke, Comp. India 133. 1876; Fl. Brit. India 3: 304. 1881; Fl. Pres. Madras 704. 1921; Matthew, Fl. TN. Carnatic 812. 1983 & Ill. Fl. TN. Carnatic t. 384. 1982.

Herbs, glandular pubescent. Leaves 5-10 x 3-5 cm, ovate, lanceolate, apex acute, serrate, glandular beneath, densely pubescent. Corymbs lax, paleaceous; outer phyllaries 5 mm, clavate; inner 5 mm, spatulate, concave, glandular, covering the achenes; palea 4 mm, concave; flowers yellow; disc florets *ca.* 2 mm, glandular at the base, ray florets 5, basal tube 1 mm, glandular, ligule 1.5 mm. Achenes 4 x 1.5 mm, dark brown, curved.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Vanchikulam, *KKS 15988*

### SONCHUS L.

1. Lower leaves pinnatifid, annual herbs

**S. oleraceus**

1. Lower leaves simple, perennial herbs

**S. wightianus**

**Sonchus oleraceus** L., Sp. Pl. 794. 1753; Fl. Brit. India 3: 414. 1881; Fl. Pres. Madras 732. 1921. **S. ciliatus** Lam., Fl. Franc. 287. 1805; Wight, Ic. t. 1141. 1846.

Tall herbs, latex milky, stem striated. Leaves 15-20 x 5-7 cm, basal leaves usually runcinate, pinnatifid, amplexicaule, apex acute, unequally dentate, lateral segments 1-3 pairs, terminal segments deltoid to hastate, upper leaves mostly simple. Corymbs terminal; peduncles glandular; phyllaries imbricate, 12 x 1.5 mm, lanceolate; flowers yellow; corolla tube 7 mm, pubescent, ligules 5-lobed, 4 mm, style branches 2. Achenes ribbed, oblanceolate, brown, transversally muricate; pappus copious, 7-8 mm long, white.

*Fl. & Fr.* February-May

*D i s t.* Common in shola forests

Olikkudy, *KKS 18225*

**Sonchus wightianus** DC., Prodr. 7: 187. 1838; Wight, Ic. t. 1142. 1846; Matthew, Fl. TN. Carnatic 814. 1983 & Ill. Fl. TN. Carnatic t. 385. 1982. **S. arvensis** sensu Hook. f., Fl. Brit. India 3: 414. 1881. non, L. 1753; Fl. Brit. India 3: 414. 1881.

Perennial herbs, latex milky. Leaves 15-20 cm long, oblanceolate, mostly radical, semiamplexicaule, glaucous, bidentate. Capitula 3-10, on glandular peduncles; phyllaries multiseriate, 1.2 cm long, glandular; flowers yellow; corolla 6 mm, ligule 3 mm, 5-toothed, truncate; ovary 1 mm, stigma 2, linear. Achenes 3 mm, obovoid, longitudinally ribbed and transversally rugose; pappus copious, 8 mm long, silvery-white, basally united.

*Fl. & Fr.* December-April

*D i s t.* Common in shola forests

Olikudy, *KKS 17211, 17393*

### SPHAERANTHUSL.

**Sphaeranthus amaranthoides** Burm. f., Fl. Ind. 186. 1768; Fl. Brit. India 3: 274. 1881; Fl. Pres. Madras 691. 1921. *Oligolepis amaranthoides* (Burm. f.) Wight, Ic. t. 1149. 1846.

Stout herbs, stem terete. branchlets very narrowly winged. Leaves to 9 x 1.5 cm, oblong, spatulate, apex acute, black dotted, distantly serrate. Capitula clustered, ovoid; bracts imbricate, 5 mm long, exserted, ovate, acuminate, spinous; phyllaries 3, membranous; inner bisexual floret 5-dentate, 2 mm long, outer female florets 2 mm long, 2-4 lobed. Achenes of inner flower glabrous, of outer villous.

*Fl. & Fr.* December-March

*D i s t.* Very common in wet sandy areas in dry deciduous forests

Champakkad, *KKS 11777*

**Note** : The plant when bruised produces the smell of mint.

### SPILANTHES Jacq.

**Spilanthes paniculata** DC., Prodr. 5: 625. 1836; Koster & Philip., Blumea 6: 354. 1950; Grierson in Rev. Handb. Fl. Ceylon 1: 220. 1980.

Ascending herbs, scabrid. Laves 3.5 x 1.5 cm, ovate, apex acute, crenate, scabrous, hairy; petiole to 0.5 cm. Capitulum solitary, elongated, 1.2 cm long; peduncles to 11 cm, ciliate; phyllaries 2-seriate. oblong, margin ciliate, inner 5 x 1 mm, outer smaller, palea oblong, 4 x 2 mm, concave. apex acute. puberulus; flowers yellow, 1.5 mm long, lobes 5, 8 mm, ovate, slightly inflexed: ovary 1.5 mm. Achenes 2 mm obovoid, compressed.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Alampetty, *KKS 15605*

### SYNEDRELLA Gaertn.

**Synedrella nodiflora** (L.) Gaertn., Fruct. 2: 456. t. 171. 1791; Fl. Brit. India 3: 308. 1881; Fl. Pres. Madras 708. 1921; Matthew, Fl. TN. Carnatic 811. 1983 & Ill. Fl. TN. Carnatic t. 388. 1982.

Herbs, young branchlets pubescent. Leaves to 9 x 4 cm, ovate, apex acute, crenate, hirsute above, pubescent below, basally 3-nerved; petiole 2.5 cm, hairy. Capitulum solitary, 8 mm across; phyllaries 2-seriate, outer 5 x 2 mm. lanceolate, inner 5 x 2 mm; palea 5 x 2 mm, lanceolate, scarious; flowers yellow, disc florets 4 mm long; ovary 3 mm, hairy; ray florets 3 mm, ligule 2.5 mm long, oblong. Achenes dimorphic, ray achenes 3.5 mm with lacerate winged margins; pappus 1.5 mm, disc achenes 4 mm, puberulus, angled, oblanceolate: pappus 2 awns, 4 mm, barbed.

*Fl. & Fr.* November-February

*D i s t.* Abundant in dry deciduous forests

Chinnar, *KKS 22537*

### TITHONIA Desf. ex Juss.

**Tithonia diversifolia** (Hemsl.) A. Gray in Proc. Amer. Acad. Arts 19: 5. 1883; Matthew, Fl. TN. Carnatic 820. 1983 & Fur. Ill. Fl. TN. Carnatic t. 334. 1988. *Mirasolia diversifolia* Hemsl. Biol. Contr. Amer. 2: 168. t. 47. 1881.

Shrubs, branchlets puberulus. Leaves deeply 3-5 lobed, 16 x 7.5 cm, upper lobes ovate-elliptic, pubescent, basally 3-nerved; petiole 5 cm, bistipulate, stipules ovate, 3 mm, pubescent. Capitulum axillary and terminal, solitary, 3 cm across; pedicels to 15 cm; phyllaries many seriate, subequal, 1-2 cm long, oblong; flowers yellow, disc florets 10-12 mm long, ray florets *ca.* 12, tube 1-2 mm long, ligule 4.5-5.5 x 0.8-1 cm, elliptic, 2-3 lobed at apex. Achenes 5 mm, hairy, dark; pappus of 2 awns, with about 6 broad scales, 2.5-3 mm, connate at base, toothed at apex.

*Fl. & Fr.* February-May

*D i s t.* Common along the sides of streams in moist deciduous forests

Karimutty, *KKS* 15616

### TRIDAX L.

**Tridax procumbens** L., Sp. Pl. 900. 1753; Fl. Brit. India 3: 311. 1881; Fl. Pres. Madras 711. 1921; Matthew, Fl. TN. Carnatic 821. 1983 & Ill. Fl. TN. Carnatic t. 391. 1982.

Procumbent herbs. Leaves to 3.5 x 1.5 cm, ovate, lanceolate, apex acute, serrate to coarsely deeply dentate or trilobed, pubescent; petiole to 1 cm. Capitulum terminal, solitary; outer phyllaries ovate, 5 x 3 mm, pubescent, inner 6 x 3.5 mm, oblong, pubescent. palea 6 x 3 mm, oblong; disc florets yellow; 5 mm long, style arms 2, pubescent, ray florets creamy-white, 3 mm long; ovary 2 mm, pubescent; pappus bristles *ca.* 20, to 6 mm, unequally feathery, white.

*Fl. & Fr.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS* 11554, Champakkad, 15801

### VERNONIA Schreb. nom. cons.

- |                                                         |                           |
|---------------------------------------------------------|---------------------------|
| 1. Shrubs                                               | : 2                       |
| 1. Herbs                                                | : 3                       |
| 2. Heads 10-12-flowered, achenes 4-angled               | : <b>V. bourneana</b>     |
| 2. Heads 5-flowered, achenes 10-ribbed                  | : <b>V. divergens</b>     |
| 3. Achenes 8-10-ribbed                                  | : <b>V. anthelmintica</b> |
| 3. Achenes not ribbed or slightly 4-angled              | : 4                       |
| 4. Leaves tomentose, margins crenate                    | : 5                       |
| 4. Leaves pubescent below, entire or undulately toothed | : <b>V. cinerea</b>       |
| 5. Inner phyllaries 3-nerved; flowers purple            | : <b>V. albicans</b>      |
| 5. Inner phyllaries 1-nerved; flowers blue              | : <b>V. conyzoides</b>    |

**Vernonia albicans** DC in Wight, Contr. 6. 1834; Fl. Pres. Madras 676. 1921; Matthew, Fl. TN. Carnatic 824. 1983 & Fur. Ill. Fl. TN. Carnatic t. 335. 1988.

White pubescent herbs. Leaves 3-4 x 2-2.5 cm, orbicular, oblanceolate, base decurrent to the petiole, truncate, crenate, pubescent above and densely so underneath; petiole 1 cm. Panicles terminal, lax; phyllaries unequal, lanceolate, pubescent acute, inner 3-nerved, 4 mm. Achenes 1.5 mm, pubescent; pappus 2-seriate: outer smaller, inner 4 mm, barbellate.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Alampetty, *NS* 5883; Chinnar, *KKS* 18277

**Vernonia anthelmintica** (L.) Willd.. Sp. Pl. 3: 1634. 1803; Fl. Brit. India 3: 236. 1881; Grierson in Rev. Handb. Fl. Ceylon 1: 121. 1980; Matthew, Fl. TN. Carnatic 826. 1983 & Ill. Fl. TN. Carnatic t. 393. 1982. *Conyza anthelmintica* L., Sp. Pl. ed. 2: 1207. 1763. *Centratherum anthelminticum* (L.) O. Ktze., Rev. Gen. Pl. 1: 320. 1891; Fl. Pres. Madras 667. 1921.

Tall herbs, pubescent. Leaves to 12 x 4 cm, oblanceolate, coarsely pubescent, apex acute, base decurrent to petiole. dentate; petiole to 3 cm. Corymbs at the axils of forks; phyllaries multiseriate, outer herbaceous, 5 x 2 mm, pubescent, inner scarious; flowers 6 mm long; ovary 2 mm oblong, hairy. Achenes 4 mm, 8-10 ribbed, oblong, pubescent; pappus 2-seriate: outer 0.5 mm, inner numerous, barbellate, unequal to 6 mm.

*Fl. & Fr.* November-March

*D i s t.* Common in dry deciduous forests

Chinnar, KKS 11618

**Vernonia bourneana** W. W. Smith in Rec. Bot. Surv. India 6: 101. 1914; Fl. Pres. Madras 675. 1921.

Large shrubs, branchlets and branches tomentose. Leaves to 9 x 4 cm, elliptic or obovate. obtuse or acute, mucronate. puberulus above and brownish-tomentose below, entire or subentire; petiole 1-1.5 cm. Panicles densely tomentose; phyllaries multiseriate, inner 4 x 2 mm. ovate, acuminate, pubescent outside; outer 2 mm, linear, pubescent. Achenes 4-angled, 1.5 mm, black, glandular; pappus 2-seriate, outer fimbriate, less than 1 mm, inner 5 mm, feathery.

*Fl. & Fr.* March-May

*D i s t.* Occasional in shola forests; endemic to Peninsular India.

Pothumala, KKS 17366

**Vernonia cinerea** (L.) Less. in Linnaea 4: 291. 1829; Fl. Brit. India 3: 233. 1881; Fl. Pres. Madras 676. 1921; Matthew, Fl. TN. Carnatic 827. 1983 & Fur. Ill. Fl. TN. Carnatic t. 336. 1988. *Conyza cinerea* L., Sp. Pl. 862. 1753.

Herbs. Leaves 1.5-3 x 1-2 cm. ovate-elliptic to oblanceolate, variable glabrous above, pubescent below; petiole to 1 cm. Corymbs terminal, lax; phyllaries pubescent, dissimilar. lanceolate, acute; florets 7 mm, pink; ovary 1 mm, pubescent; pappus 2-seriate, inner longer, 4 mm, feathery outer smaller persistent, less than 2 mm, white.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Naduvanasithura, KKS 11680; Chinnar, 11576

**Vernonia conyzoides** DC. in Wight, Contrib. 6. 1834; Fl. Pres. Madras 676. 1921. *V. cinerea* sensu Hook. f., Fl. Brit. India 3: 233. 1881 p.p., non (L.) Less. 1829.

Subshrubs, pubescent. Leaves 6-8 x 3-4 cm, ovate. apex acuminate, dentate, puberulus above and white tomentose beneath: petiole 2 cm. Panicles axillary and terminal; phyllaries 2-4 seriate, pubescent, lanceolate, sharply acuminate, inner longer, 6 x 1 mm: florets 4 mm, 3 mm.

blue; anthers cleft at the base, apiculate; ovary 2 mm, pubescent; pappus 2-seriate, outer small, 25 mm, inner 5 mm, *ca.* 20, feathery.

*Fl. & Fr.* November-January

*D i s t.* Common in dry and moist deciduous forests; endemic to Peninsular India.

Alampetty, *KKS* 18236

**Vernonia divergens** (Roxb.) Edgew. in J. Asiat. Soc. Bengal 21: 172. 1853; Fl. Brit. India 3: 234. 1881; Fl. Pres. Madras 673. 1921; Matthew, Fl. TN. Carnatic 828. 1983. **Eupatorium divergens** Roxb., Fl. India 3: 414. 1832. **Decaneurum divergens** (Roxb.) DC., Prodr. 5: 68. 1836; Wight, Ic. t. 1084. 1846.

Large shrubs, pubescent. Leaves to 12 x 6 cm, elliptic, scabrous, hirsute above, white pubescent below, acute. dentate; petiole 0.5 cm. Corymbs terminal; peduncles to 3.5 cm; capitulum 5-flowered; phyllaries multiseriate, ovate, mucronate, pubescent, inner larger, 3 x 1.5 cm, scarious; florets 7 mm; ovary 2.5 mm. Achenes 10-ribbed, 3 mm, glandular between the ribs; pappus I-seriate, 5 mm long.

*Fl. & Fr.* February-May

*D i s t.* Occasional in moist deciduous forests

Palapetty, *KKS* 15508

#### VICOA Cass.

**Vicoa indica** (L.) DC. in Wight, Contr. 10. 1834; Wight, Ic. t. 1148. 1846; Fl. Pres. Madras 701. 1921; Matthew, Fl. TN. Carnatic 830. 1983 & Ill. Fl. TN. Carnatic t. 395. 1982. **Inula indica** L., Sp. Pl. ed. 2. 2: 1237. 1763. **Vicoa auriculata** Cass. in Ann. Sci. Nat. ser. 1. 17: 418. 1829; Fl. Brit. India 3: 297. 1881.

Herbs. Lower leaves sometimes opposite, 4-6 x 1-2 cm, elliptic or lanceolate, base amplexicaule. serrate, pubescent. Capitulum solitary, axillary and terminal; peduncles to 5 cm, 1 cm across, receptacle pitted; phyllaries many-seriate, subequal, 4 mm long, lanceolate; flowers yellow, disc florets 2 mm long, 5-lobed; ovary 0.5 mm, hairy; pappus *cu.* 9, 3 mm; ray flowers 2 mm, rays 5 x 1 mm, oblong, 3 toothed; ovary 0.5 mm, glabrous; pappus absent.

*Fl. & Fr.* December-February

*D i s t.* Abundant in dry deciduous forests

Champakkad, *KKS* 11842

#### XANTHIUM L.

**Xanthium indicum** Koen. in Roxb., Fl. India 3: 601. 1832; Wight, Ic. t. 1104. 1846; Grierson in Rev. Handb. Fl. Ceylon 1: 209. 1980; Matthew, Fl. TN. Carnatic 833. 1983 & Ill. Fl. TN. Carnatic t. 397. 1982. **X. strumarium** L., Sp. Pl. 987. 1753 p.p; Fl. Brit. India 3: 303. 1881; Fl. Pres. Madras 703. 1921.

Large herbs, hispid. Leaves 3-5 lobed. 15 x 12 cm, ovate, triple-nerved, lobes acute, densely pubescent below, hispidulous above; petiole to 11 cm, hispid. Capitulum monoecious, discoid; female capitulum ovoid, 5-6 mm, covered with spines and glands. Fruiting capitulum 2-celled,

with two stout spines at apex and covered with glochidiate spines, spines 5 mm long, utricles, 2 x 1 cm.

*Fl. & Fr.* December-March

*D i s t.* Occasional in dry deciduous forests

Churullipetty, *KKS* 11852

#### **YOUNGIA Cass.**

**Youngia japonica** (L.) DC.. Prodr. 7: 194. 1838; Matthew, Fl. TN. Carnatic 834. 1983 & Ill. Fl. TN. Carnatic t. 398. 1982. *Prenanthes japonica* L., Mant. Pl. 107. 193. *Youngia napifolia* DC., Prodr. 7: 193. 1838; Wight, Ic. t. 1846. *Crepis japonica* (L.) Benth., Fl. Hong. 194. 1861; Fl. Brit. India 3: 395. 1881; Fl. Pres. Madras 730. 1921.

Scapigerous herbs. Leaves to 7 x 2.5 cm, obovate, mostly radical, upper alternate, pinnately dissected, hairy. Corymbs terminal. lax; flowers yellow, *ca.* 15; outer phyllaries 0.7 mm, inner 5 mm. Achenes 2 mm, ribbed: pappus 3 mm, whitish, minutely barbellate.

*Fl. & Fr.* February-May

*D i s t.* Common in shola forests

Olikudy, *KKS* 17308

### **CAMPANULACEAE**

#### **WAHLENBERGIA Schrad ex Roth**

1. Stigma 3-lobed; leaf serrate

: **W. erecta**

1. Stigma 4-lobed; leaf entire

: **W. marginata**

**Wahlenbergia erecta** (Roth ex Schult.) Tuyn in Steenis, Fl. Males, I. 6: 113. 1960; Matthew, Fl. TN. Carnatic 840. 1983 & Ill. Fl. TN. Carnatic t. 400. 1982. *Cephalostigma schimperi* Hochst. ex A. Rich., Tent. Fl. Abyss. 2: 2. 1851; Fl. Brit. India 3: 428. 1881; Fl. Pres. Madras 738. 1921.

Small herbs, hirsute. Leaves to 3 x 0.8 cm, oblong, lanceolate, apex acute, puberulus, sessile. Flowers solitary. axillary and terminal; pedicels filiform; calyx lobes 3 mm long, lanceolate, hirsute, persistent; corolla deeply 5-lobed, lobes 3 mm long, oblong, blue; ovary 2-3-celled, style dilated, 2 mm. Capsule 4 x 3 mm, hirsute, tip pointed; seeds many, oblong.

*Fl. & Fr.* December-February

*D i s t.* Rare in wet regions in moist deciduous forests

Karumpara, *KKS* 11811

**Wahlenbergia marginata** (Thunb.) A. DC., Monog. Campan. 143. 1830. *W. gracilis* (Forst. f.) Schrader ex A. DC., Monog. Campan. 142. 1830; Fl. Brit. India 3: 429. 1881; Fl. Pres. Madras 738. 1921. *W. agrestis* A. DC., Monog. Campan. 145. 1830; Wight, Ic. t. 1175. 1848.

**Small** herbs, hirsute. Leaves 1-2 x 0.3-0.5 cm, oblong, lanceolate, apex obtuse, margin thickened, recurved, hirsute especially on the nerves beneath, sessile. Flowers solitary,

terminal, blue: pedicels to 9 cm; calyx lobes 3 mm, lanceolate; corolla deeply 5-lobed, 8 x 3 mm, oblong; ovary 3 mm, 2-3 valved; stigma pubescent. Capsule loculicidal; seeds many.

*Fl. & Fr.* April-August

*D i s t.* Occasional in grasslands

Pothumala, KKS 17384

## LOBELIACEAE

### LOBELIA L

**Lobelia nicotianifolia** Roth ex Schultes in Roem. & Schultes, Syst. 5: 47. 1819; Wight, Ill. 2: t. 135. ff. 1-10. 1850; Fl. Brit. India 3: 427. 1881; Fl. Pres. Madras 736. 1921.

Large herbs, stem hollow. Leaves to 15 x 5 cm, lower shortly petioled, elliptic, lanceolate, acute, finely serrate, upper sessile, sparsely hairy. Panicles axillary and terminal, lax; bracts leafy; flowers white, zygomorphic; calyx lobes 5, 9 x 2 mm, lanceolate, margins dentate; corolla deeply bilabiate, 2.5 cm, upper lobe 3-toothed, inner lobe 2-toothed; stamens connivent around the style; ovary 2-locular, ovules numerous, style 2 cm long, stigma capitate.

*Fl. & Fr.* January-April

*D i s t.* Common along shola margins

Mavelikudy, KKS 17204

## VACCINIACEAE

### VACCINIUM L

**Vaccinium neilgherrense** Wight, in Calcutta J. Nat. Hist. 8: 173. 1847 & Ic. t. 1189. 1848; Fl. Brit. India 3: 454. 1882. "nilgherrense"; Fl. Pres. Madras 741. 1921.

Large shrubs. Leaves to 10 x 2 cm, elliptic, acute, cuneate at base, crenate; petiole to 0.5 cm. Racemes axillary and terminal; flowers white, bracteate; calyx tube 3 mm, lobes 3 mm, ovate, dentate; corolla urceolate, 8 mm long, lobes 1 mm; stamens 10, filaments dilated at the base, hairy, anther lobes protruded to spurs with openings at the tips. two hairy projections at the end of the anthers lobes; ovary 5-locular, 4 x 3 mm, truncate, pubescent, style 8 mm, stigma obtuse.

*Fl. & Fr.* February-May

*D i s t.* Occasional along the seasonal streams in semi-evergreen forests; endemic to Peninsular India.

Ichampetty, KKS 15586

## ERICACEAE

### GAULTHERIA L.

**Caultheria fragrantissima** Wall. in Asiat. Res. 13: 397. 1820; Fl. Brit. India 3: 457. 1882; Fl. Pres. Madras 743. 1921. *G. leschenaultii* DC., Prodr. 7: 593. 1839; Wight, Ic. t. 1195. 1848.

Large shrubs. Leaves to 7 x 4.5 cm, elliptic-oblong, apex rounded, serrulate, thick, lateral nerves form loops, mid-nerve reddish, lower surface dotted with black or brown glands; petiole to 1 cm. Racemes axillary; bracts 2 mm, ovate, bracteoles 2, 1.5 mm; calyx 5-lobed, 2 mm, ovate; corolla urceolate, tube 4 mm, lobes 0.5 mm; stamens 10, dorsally 2-spurred; ovary 5-celled, ovules many in each cell, stigma 3 mm.

*Fl.* April-June

*D i s t.* Common in shola forests

Pothumala, *KKS 17372*

## PLUMBAGINACEAE

### PLUMBAGO L.

*Plumbago zeylanica* L., Sp. Pl. 151. 1753; Wight, Ill. 2 : t. 179. 1850; Fl. Brit. India 3: 480. 1882; Fl. Pres. Madras 744. 1921; Matthew, Fl. TN. Carnatic 845. 1983 & Ill. Fl. TN. Carnatic t. 403. 1982.

Scandent subshrubs. Leaves to 9 x 5.5 cm, ovate, apex obtusely acute, membranous; petiole to 1 cm. Spikes terminal, 8-10 cm; bracts 1 cm, ovate; calyx tubular, 8 mm, 5-lobed, covered with stalked glands, persistent; corolla campanulate, tube 1.5 cm, lobes 0.7 cm, narrow, obovate; ovary 1-celled and 1-ovuled, style 1 cm, stigmatic lobes 5. Fruit enclosed in calyx.

*Fl. & Fr.* November-January

*D i s t.* Rare near streams in dry deciduous forests

Alampetty, *NS 5877*; Chinnar, *KKS 11505*

## MYRSINACEAE

- |                                    |                  |
|------------------------------------|------------------|
| 1. Stragglers                      | : <b>Embelia</b> |
| 1. Shrubs or trees                 | : <b>2</b>       |
| 2. Leaves entire; anthers sagitate | : <b>Ardisia</b> |
| 2. Leaves serrate; anthers oblong  | : <b>Maesa</b>   |

### ARDISIA Sw. nom. cons.

*Ardisia pauciflora* Heyne ex Roxb., Fl. Ind. 2: 279. 1824; Wight, Ic. t. 1214. 1848; Fl. Brit. India 3: 529. 1882; Fl. Pres. Madras 755. 1928.

Small trees. Leaves to 11.5 x 4.5 cm, elliptic-lanceolate, acuminate, base cuneate, lateral nerves faint, gland-dotted; petiole 1 cm. Flowers white; pedicels to 1 cm; sepals 1.5 mm, ovate, hairy; corolla lobes twisted. 4 x 2.5 mm, broadly ovate; stamens 5; anthers sagitate, apiculate; ovary sessile, globose, few ovuled. style 2 mm. Fruit 0.8 cm across, globose, reddish.

*Fl. & Fr.* September-November

*D i s t.* Occasional in shola forests

Karivepinshola, *KKS 17450*

### EMBELIA Burm. f. nom. cons.

- |             |                    |
|-------------|--------------------|
| 1. Petals 5 | : <b>E. ribes</b>  |
| 1. Petals 4 | : <b>E. basaal</b> |



**Embelia basaal** (Roem. & Schultes) A. DC. in Trans. Linn. Soc. London 17: 131. 1834; Fl. Pres. Madras 753. 1921; Matthew, Fl. TN. Carnatic 851. 1983 & Ill. Fl. TN. Carnatic t. 408. 1982. **E. viridiflora** sensu Clarke in Hook. f., Fl. Brit. India 3: 516. 1882, non Scheff. 1867. **Choripetalum aurantiacum** A. DC. in DC., Prodr. 8: 88. 1844; Wight, Ic. t. 1210. 1848.

Stragglers with short axillary branches. Leaves to 8 x 3.5 cm, elliptic, obovate, obtusely acute, gland dotted, coriaceous; petiole 1 cm long. Racemes axillary, to 2 cm; bracts and bracteole present. Drupe 4 mm across, crowned with persistent style.

Fl. & Fr. January-April

D i s t. Common in moist deciduous forests

Vellickal, **KKS 15997**

**Embelia ribes** Burm. f., Fl. Ind. 62. t.23. 1768; Fl. Brit. India 3: 513. 1882; Fl. Pres. Madras 752. 1921; Matthew, Fl. TN. Carnatic 852. 1983 & Fur. Ill. Fl. TN. Carnatic t. 340. 1988.

Stragglers, mature branches with striated wings. Leaves to 8 x 3 cm, elliptic, obtusely acute, gland dotted, with a row of glands on either side of the midrib; petiole 1 cm. Panicles axillary and terminal; flowers greenish white; calyx lobes 0.5 mm; corolla 2 mm, pubescent; oblong; ovary ribbed, 0.8 mm. Drupe 4 mm across, globose.

Fl. & Fr. February-May

D i s t. Common in shola forests

Olikudy, **KKS 17288**

#### **MAESA Forssk.**

**Maesa indica** (Roxb.) DC. in Trans. Linn. Soc. London 17: 134. 1834; Wight, Ic. t. 1206. 1848; Matthew, Fl. TN. Carnatic 852. 1983 & Ill. Fl. TN. Carnatic t. 409. 1982. **Baeobotrys indica** Roxb., Fl. Ind. 2: 230. 1824. **Maesa dubia** (Wall.) DC. in Trans. Linn. Soc. London 17: 134. 1834; Fl. Brit. India 3: 510. 1882; Fl. Pres. Madras 749. 1921. **Maesa perrottetiana** A. DC. in DC., Prodr. 8: 80. 1844; Fl. Pres. Madras 749. 1921. **M indica** (Roxb.) DC. var. **perrottetiana** (A. DC.) Clarke in Hook. f., Fl. Brit. India 3: 509. 1882.

Small trees, bark lenticellate, Leaves to 12 x 4.5 cm, elliptic, apex acute, serrate, nerves ca. 10 pairs, gland dotted; petiole 2.5 cm. Panicles or racemes axillary and terminal; flowers white; calyx 1 mm, ovate, tube adnate to the ovary; corolla campanulate, imbricate, lobes rounded, obovate; ovary 1 mm across, ovules numerous, style 0.4 mm.

Fl. & Fr. January-April

D i s t. Common in shola forests

Karivepinshola, **KKS 17447**; Olikudy, **16000**

#### **SAPOTACEAE**

- |                              |             |
|------------------------------|-------------|
| 1. Calyx lobes 4             | : Madhuca   |
| 1. Calyx lobes 6-8           | : 2         |
| 2. Calyx lobes and stamens 8 | : Mimusops  |
| 2. Calyx lobes and stamens 6 | : Manilkara |

### MADHUCA Gmet.

**Madhuca indica** J. Gmelin, Syst. Nat. 2(10: 799. 1791; Matthew, Fl. TN. Carnatic 857. 1983 & Fur. III. Fl. TN. Carnatic t. 341. 1988. *M. longifolia* (Koenig) Macbr. var. *latifolia* A. Chev., Rev. Int. Bot. Appl. Agric. Trop. 23: 149. 1943. *Bassia latifolia* Roxb., Pl. Cor. t. 19. 1795; Bedd., Fl. Sylv. South India t. 41. 1870; Fl. Brit. India 3: 544. 1882; Fl. Pres. Madras 763. 1921.

Medium sized trees, exudation milky. Leaves to 20 x 10 cm, broadly elliptic, apex acute, clustered mostly at the apex of the branchlets, coriaceous, nerves ca. 12 pairs; petiole to 4 cm. Flowers crowded at the tip of the branchlets or rarely from the scars of fallen leaves, pedicels brown, tomentose, stout 3-4 cm; calyx lobes 11 x 6 cm, obovate, acuminate, densely brown tomentose; corolla lobes 12, 5 x 2 mm, twisted; stamens 16, in 3 series, sessile; anthers apiculate, hairy on the back; ovary 6-celled, 6-ovuled, tomentose, style thick, stigma obtuse.

*Fl. & Fr.* February-May

D i s t. Common in moist deciduous forests

Palapetty, KKS 15505

### MANILKARA Adans.

1. Leaves to 6 x 4 cm; flowers in clusters of 2-5 in the axils of leafscars;

large trees

: **M. roxburghiana**

1. Leaves to 9 x 5 cm; flowers in the axils of leaves small trees

: **M. hexandra**

**Manilkara hexandra** (Roxb.) Dubard in Ann. Inst. Bot. Geol. Colon. Marseille 23: 9. f. 2. 1915; P. Royen in Blumea 7: 408. 1953; Matthew, Fl. TN. Carnatic 859. 1983 & Fur. III. Fl. TN. Carnatic t. 342. 1988. *Mimusops hexandra* Roxb., Pl. Cor. t. 15. 1795; Fl. Brit. India 3: 549. 1882; Fl. Pres. Madras 766. 1921.

Medium sized trees, latex milky, bark reddish. Leaves mostly crowded at the tip of the arrested woody branchlets, to 9 x 5 cm, elliptic or ovate, apex obtuse to shortly emarginate, glossy; petiole to 2 cm long. Flowers axillary, solitary or 2-3 together; pedicels 3 cm; sepals 9 x 4 mm, ovate, densely tomentose; corolla lobes 9 x 3 mm, 18-24 in two whorls, lanceolate, white; stamens 6, alternate with the staminodes, apiculate, staminodes elliptic, fimbriate; ovary 2 mm, hirsute, style 4 mm.

*Fl. & Fr.* April-August

D i s t. Common near streams in dry deciduous forests

Alampetty, NS 5882; Chinnar, KKS 17404

**Manilkara roxburghiana** (Wight) Dubard in Ann. Inst. Bot. Geol. Colon. Marseille 23: 10. f. 3. 1915. *Mimusops roxburghiana* Wight, Ic. t. 1588. 1850; Fl. Brit. India 3: 548. 1882; Fl. Pres. Madras 766. 1921.

Large trees, latex milky. Leaves clustered mostly at the apex of branchlets, 6 x 4 cm, oblong, lanceolate, apex emarginate, base rounded, coriaceous, glossy; petiole 2 cm long. Flowers axillary or terminal, 2-5 together; pedicels to 3 cm long; sepals 9 x 4 mm, ovate, hirsute; corolla

lobes **18-24**, 1 cm long, lanceolate, white; stamens **6**, alternate with staminodes, anthers 3 mm, staminodes fimbriate; ovary **2** mm, villous at the base, style **15** mm.

**FL & Fr.** December-March

**D i s t.** Common near streams; endemic to Peninsular India.

Chinnar, *KKS* 15945

#### MIMUSOPS L.

*Mimusops elengi* L., Sp. Pl. **349. 1753**; Wight, Ic. t. **1586. 1850**; Fl. Brit. India **3: 548. 1882**; Fl. Pres. Madras **765. 1921**; Matthew, Fl. TN. Carnatic **860. 1983** & Ill. Fl. TN. Carnatic t. **414. 1982**.

Medium trees. Leaves to **13 x 7.5** cm, elliptic, apex obtuse to acute, glossy; petiole **3-5** cm long, stout. Flowers axillary, solitary or few in the upper axils; sepals **8**, outer **7 x 3** mm, ovate, tomentose. inner **8 x 2.5** mm; corolla lobes in **3** series, elliptic to linear, **7 x 2.5** mm; stamens **8**, alternate with staminodes. staminodes densely tomentose, apiculate; ovary tomentose, stigma minutely fimbriate. Fruit **2 x 1.5** cm, ovoid, shining.

*Fl. & Fr.* April-August

**D i s t.** Common along the riversides

Kombakkayam, *KKS* 15682; Chinnar, 15905

#### EBENACEAE

- |                          |             |
|--------------------------|-------------|
| 1. Flowers 3 merous      | : Maba      |
| 1. Flowers 4 or 5 merous | : Diospyros |

#### DIOSPYROS L.

- |                                                       |                         |
|-------------------------------------------------------|-------------------------|
| 1. Leaves pubescent on one or both sides              | : 2                     |
| 1. Leaves glabrous                                    | : 3                     |
| 2. Corolla tube glabrous; leaves cordate              | : <i>D. cordifolia</i>  |
| 2. Corolla tube tomentose, leaves not cordate at base | : <i>D. melanoxylon</i> |
| 3. Fruiting calyx lobes flat, glabrous                | : <i>D. ebenum</i>      |
| 3. Fruiting calyx lobes recurved, tomentose           | : <i>D. ovalifolia</i>  |

*Diospyros cordifolia* Roxb., Pl. Cor. t. **50. 1795**; Fl. Pres. Madras **776. 1923**. *D. montana* Roxb. var. *cordifolia* (Roxb.) Clarke in Hook. f., Fl. Brit. India **3: 55. 1882**.

Trees, spiny at the base especially when young; branchlets tomentose. Leaves to **8 x 3.5** cm, oblong-lanceolate, apex obtuse, base truncate or cordate, pubescent; petiole **0.5** cm. Racemes axillary, pubescent; flowers greenish-yellow, 4-merous; male flowers - calyx tube **2** mm, lobes **3** mm, villous; corolla **6** mm, urceolate, lobes twisted, broadly ovate, acute; stamens **16**, in pairs of unequal size. longer **7** mm, smaller **5** mm, acuminate. Berry **2** cm across, yellow, fruiting calyx enlarged to **1.5** cm, ovate, cordate.

*Fl. & Fr.* February-June

**D i s t.** Common in dry deciduous forests

Palapetty, *KKS* 15516; Churullipetty, 11635

**Diospyros ebenum** Koen. in Physiogr. Salsk. Mag. 1: 176. 1781; Wight, Ic. t. 188. 1839; Fl. Brit. India 3: 558. 1882; Fl. Pres. Madras 775. 1923; Matthew, Fl. TN. Carnatic 864. 1983 & Fur. III. Fl. TN. Carnatic t. 343. 1988 [Fig. 6].

Medium trees, wood dark, very hard, bark rough. Leaves to 10 x 4 cm, oblong to slightly obovate, apex obtuse, dark green, chartaceous; petiole to 1 cm. Female flowers 4-merous, calyx lobes spreading, 7 x 5 mm, ovate, woody; corolla lobes 9 x 3 mm, lanceolate, obtuse-acute, coiled, staminodes 6-12, 2 mm; ovary 3 mm, globose; styles 4, stigma capitellate. Berry globose, calyx accrescent woody, greenish, black when ripe.

*Fl. & Fr.* February-July

*D i s t.* Rare along the banks of streams in moist deciduous forests

Karimutty, *KKS 15560*

**Diospyros melanoxyton** Roxb., Pl. Cor. t. 46. 1795; Fl. Brit. India 3: 564. 1882; Fl. Pres. Madras 772. 1923; Matthew, Fl. TN. Carnatic 866. 1983 & Fur. III. Fl. TN. Carnatic t. 344. 1988. *D. dubia* Wall. ex A. DC. in DC., Prodr. 8: 223. 1844; Wight, Ic. t. 1233. 1848.

Trees; young branchlets tomentose. Leaves to 12 x 6.5 cm, broadly elliptic, apex obtuse, pubescent below. nerves slightly raised above; petiole to 1 cm. Umbels axillary, 2 cm, pubescent. Male flowers: calyx 4-5 lobed, 5 mm, margin wavy, pubescent; corolla 4-5 lobed, campanulate, tube 7 mm, lobes ovate, 2 x 2 mm, tomentose; stamens 16, filaments 1 and 2 mm. variously united, anthers 2 mm, oblong, acute to apiculate; pistillode reduced, pubescent.

*Fl.* March-July

*D i s t.* Occasional in dry deciduous forests

Kombakkayam, *KKS 15685*

**Diospyros ovalifolia** Wight, Ic. t. 1227. 1848; Fl. Brit. India 3: 559. 1882; Fl. Pres. Madras 777. 1923; Matthew, Fl. TN. Carnatic 868. 1983 & Fur. III. Fl. TN. Carnatic t. 346. 1988.

Trees. Leaves to 12 x 4.5 cm, oblong, elliptic, apex obtuse, coriaceous, veins raised below; petiole 0.5 cm. Female flowers 4-merous, calyx lobes 4 mm, ovate, acute, spreading, recurved, pubescent; corolla tubular, lobes 6 mm; staminodes 6-12; ovary globose. Berry globose, calyx lobes strongly recurved, woody, puberulus.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Sivapura, *KKS 11924*; Kuttar, 15794

#### MABA Forster & Forster f.

**Maba neilgherrensis** Wight, Ill. Ind. Bot. t. 148. bis. E. 1850; Fl. Pres. Madras 768. 1921; Matthew. Fl. TN. Carnatic 872. 1983 & Fur. III. Fl. TN. Carnatic t. 347. 1988. *M. ebenus* Wight. Ic. t. 1228 & 1229. 1848. non Sprengel. *Diospyros ferrea* (Willd.) Bakh. var. *neilgherrensis* (Wight) Bakh. Bull. Jard. Bot. Buitenzorg (ser. 3) 15: 57. 1936.

Small trees. branchlets slender. Leaves to 5 x 2 cm, elliptic to lanceolate. apex obtuse, base cuneate, coriaceous ; petiole 0.5 cm.. Male flowers in axillary cymes; flowers 3-merous; calyx

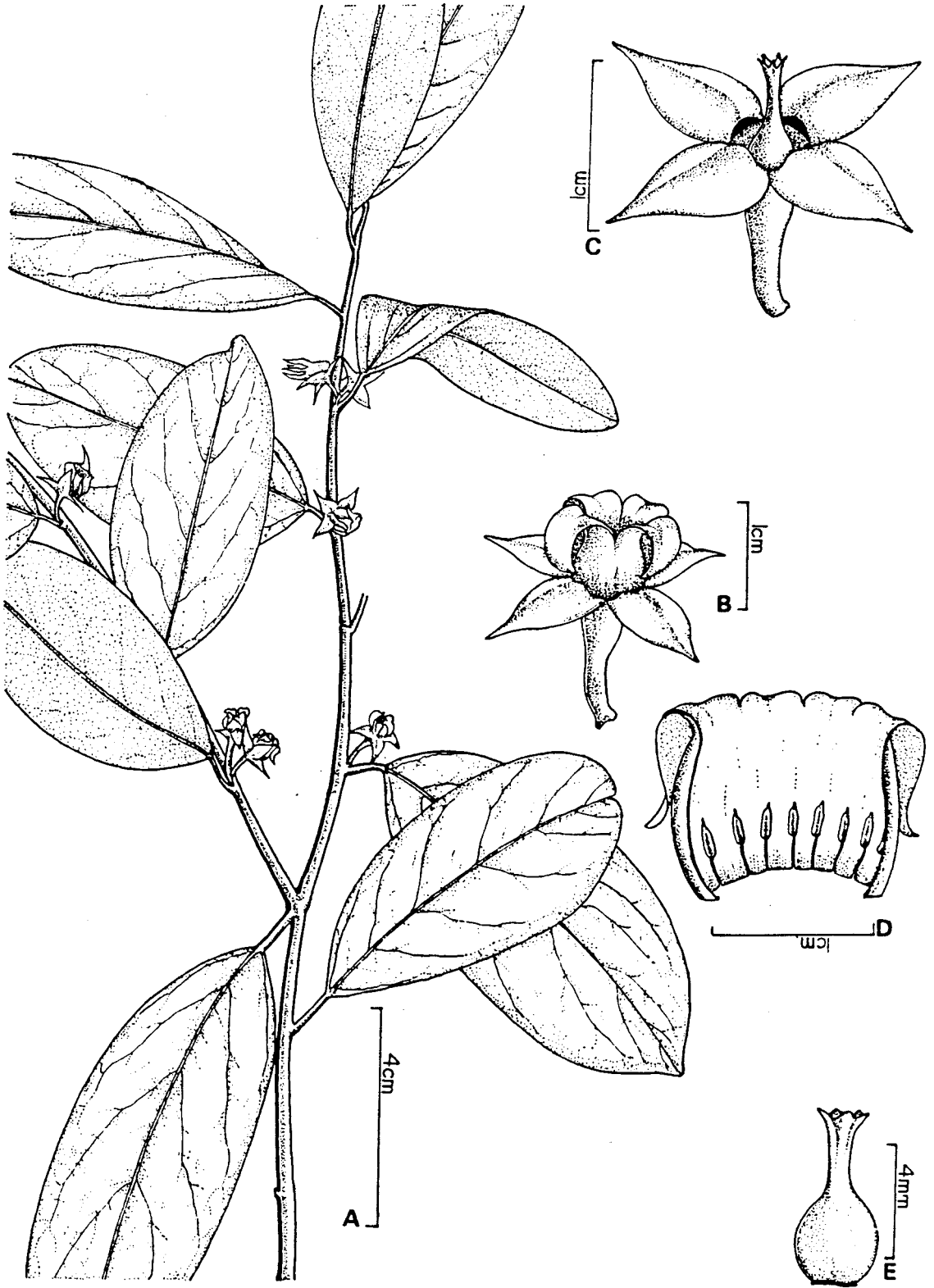


Fig. 6. *Diospyros ebenum* Koen. **A.** flowering twig, **B.** flower, **C.** corolla removed flower, **D.** corolla split open showing staminodes, **E.** pistil.

shortly lobed, lobes 4 mm, ovate, tomentose. corolla tubular, 5 mm, pubescent, lobes 1.5 mm, ovate, twisted; stamens 9, variously united, filaments 1 mm, anthers 2 mm, oblong.

*Fl.* February-July

*D i s t.* Occasional in moist deciduous forests

Karimutty, *KKS 15570*

## SYMPLOCACEAE

### SYMPLOCOS L.

***Symplocos cochinchinensis*** (Lour.) Moore ssp. *laurina* Nooteb., Rev. Symp. Old World. 156. 1975 & in Rev. Handb. Fl. Ceylon 3: 458. 1981; Matthew, Fl. TN. Carnatic 874. 1983 & Ill. Fl. TN. Carnatic t. 417. 1982. ***Myrtus laurinus*** Retz., Obs. Bot. 4: 26. 1786. ***Symplocos spicata*** Roxb. var. *laurina* (Retz.) Clarke in Hook. f., Fl. Brit. India 3: 573. 1882; Fl. Pres. Madras 782. 1921; Wight, Ic. t. 150. 1839.

Small trees. Leaves elliptic-lanceolate, apex acute to shortly acuminate, crenate, coriaceous, glossy, greenish-yellow when dry; petiole to 1.5 cm. Spikes axillary, 3- branched, 4-5 cm long, peduncles, bracts and bracteoles tomentose; calyx tube adnate to the ovary, lobes 5, 1 mm, obtuse; corolla white, 5-lobed, 3 mm, obovate; stamens numerous in many rows, unequal, anthers 0.4 mm, globular; ovary subglobose, 3 locular, ovules 2-4 per cell. 1 mm, stigma capitate. Fruit 8 mm long, ampulliform, ribbed, crowned by calyx lobes.

*Fl. & Fr.* April-August

*D i s t.* Common in evergreen and shola forests

Vanchikulam, *KKS 15623*; Pothumala, *17389*; Ichampetty, *15784*

## OLEACEAE

- |                                             |                      |
|---------------------------------------------|----------------------|
| 1. Climbing shrubs                          | : <b>Jasminum</b>    |
| 1. Shrubs or trees                          | : <b>2</b>           |
| 2. Flowers in axillary panicles or clusters | : <b>3</b>           |
| 2. Flowers in terminal panicles             | : <b>Ligustrum</b>   |
| 3. Corolla lobes free or connate in pairs   | : <b>Chionanthus</b> |
| 3. Corolla campanulate                      | : <b>Olea</b>        |

### CHIONANTHUS L.

- |                                         |                         |
|-----------------------------------------|-------------------------|
| 1. Flowers clustered, leaf apex obtuse  | : <b>C. mala-elengi</b> |
| 1. Flowers paniced, leaf apex acuminate | : <b>C. ramiflorus</b>  |

***Chionanthus mala-elengi*** (Dennst.) P.S. Green in Bull. Bot. Surv. India 26. 124. 1984; Matthew, Fur. Ill. Fl. TN. Carnatic t. 348. 1988. ***Forsythia mala-elengi*** Dennst., Schluess. Hort. Malab. 12, 21 & 31. 1818. ***Linociera malabarica*** Wall ex G. Don, Gen. Syst. 4: 53. 1847; Fl. Brit. India 3: 607. 1882; Fl. Pres. Madras 794. 1923; Matthew, Fl. TN. Carnatic 888. 1983. ***Chionanthus malabaricus*** (Wall. ex G. Don) Bedd., Fl. Sylv. t. 239. 1872.

Trees. Leaves to 9 x 5 cm, oblanceolate, oblong, apex obtuse with an acumen, subcoriaceous, lateral nerves looped at the margins; petiole 1 cm. Flowers in clusters, axillary, to 3 cm long; flowers white. 4 merous; calyx lobes 1.5 mm, ovate, pubescent; corolla deeply 4-lobed, 6 mm, lanceolate, pouched at base; ovary 1 mm, pubescent, stigma 2 lobed.

*Fl. & Fr.* February-August

*D i s t.* Occasional along the stream sides

Kurukku, *KKS 11988*

**Chionanthus ramiflorus** Roxb., *Fl. Ind.* 1: 106. 1820; Matthew, *Fl. TN. Carnatic* 889. 1983 & *Ill. Fl. 7*<sup>7</sup>. Carnatic t. 420. 1982. **Linociera ramiflora** (Roxb.) G. Don, *Gen. Syst.* 4. 54. 1837. **L. macrophylla** Wall. ex D. Don, *Gen. Syst.* 4: 53. 1837; *Fl. Brit. India* 3: 610. 1882; *Fl. Pres. Madras* 795. 1923.

Medium trees,. Leaves to 15 x 6 cm, elliptic, apex shortly acuminate, base cuneate, punctuate on the upper side; petiole 3 cm. Panicles axillary, 12 cm long, lax; bracts 5 mm, bracteoles to 2 mm; flowers 4-merous, white; calyx lobes 1.5 mm, ovate; corolla lobes jointed in pairs, 3 mm, oblong; ovary 1.5 mm, glabrous.

*Fl. & Fr.* March-August

*D i s t.* Common in shola forests

Olikudy, *KKS 17298*

#### JASMINUM L.

- |                                                                                     |                          |
|-------------------------------------------------------------------------------------|--------------------------|
| 1. Leaves simple                                                                    | : 3                      |
| 1. Leaves trifoliate                                                                | : 2                      |
| 2. Corolla lobes 5, lateral leaflets less than half as long as the terminal leaflet | : <b>J. auriculatum</b>  |
| 2. Corolla lobes 8, lateral leaflets more than half as long as the terminal ones    | : <b>J. azoricum</b>     |
| 3. Leaves villous                                                                   | : <b>J. rottlerianum</b> |
| 3. Leaves glabrous                                                                  | : 4                      |
| 4. Calyx lobes linear, puberulus; leaves coriaceous                                 | : <b>J. cuspidatum</b>   |
| 4. Calyx lobes ovate, glabrous; leaves membranous                                   | : <b>J. trichotomum</b>  |

**Jasminum auriculatum** Vahl, *Symb. Bot.* 3: 1. 1794; Wight,  *Ic. t.* 700. 1840; *Fl. Brit. India* 3: 600. 1882; *Fl. Pres. Madras* 790. 1923; Matthew, *Fl. TN. Carnatic* 879. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 352. 1988.

Climbing shrubs, pubescent. Lower leaves smaller, 1 x 0.5 cm, ovate, mucronate, larger 4 x 3 cm. Cymes paniced, axillary and terminal; bracts 0.5 cm, ovate, bracteoles 2, linear; flowers white; calyx 5-lobed, 2 mm; corolla lobes 8, 8 mm, twisted, lanceolate, shortly mucronate; ovary 1 mm, oblong; style 4.5 mm, stigma bifid.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11599*

**Jasniinum azoricum** L., Sp. Pl. 7. 1753; Matthew, Fl. TN. Carnatic 880. 1983. *J. flexile* Vahl, Symb. Bot. 3: 1. 1794; Wight, Ic. t. 1253. 1848; Fl. Brit. India 3: 601. 1882; Fl. Pres. Madras 791. 1923; Matthew, Fur. III. Fl. TN. Carnatic t. 353. 1988.

Climbing shrubs. Terminal leaflet larger 6 x 4 cm ovate, mucronate subcoriaceous; petiole 2 cm. Cymes axillary and terminal, bracteoles 2 mm, linear; flowers white; calyx 5 lobed, 2 mm, puberulus; corolla tube 2 cm long, lobes twisted, 1 cm long, lanceolate; ovary 2 mm, oblong; style 2.5 cm, stigma 2-fid.

*Fl. & Fr.* January-March

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11731*

**Jasminum cuspidatum** Rottl. in Ges. Naturf. Freunde Berlin Neue Schriften 4: 192. 1803; Matthew, Fl. TN. Carnatic 882. 1983 & III. Fl. TN. Carnatic t. 418. 1982. *J. rigidum* Zenk., Pl. Ind. 5. t. 6. 1835; Wight, Ic. t. 1247. 1848; Fl. Brit. India 3: 598. 1882; Fl. Pres. Madras 790. 1923.

Scandent shrubs. Leaves to 9 x 6 cm, ovate, elliptic, apex acute, coriaceous, shining, nerves 4-5 pairs; petiole 0.5 cm. Cymes 3-7 flowered, bracts 2 mm, ovate, bracteoles present; calyx tube 2 mm, 5 toothed, 1.2 cm, linear, puberulus; corolla white, 2 cm, lobes 7, twisted, 1.5 cm, lanceolate, mucronate; ovary 1.5 mm, oblong, style 2.5 cm, stigma 2-forked.

*Fl. & Fr.* January-April

*D i s t.* Common in sliola forests

Olikkudy, *KKS 17221*

**Jasminum rottlerianum** Wall. ex DC., Prodr. 8: 305. 1844; Fl. Brit. India 3: 593. 1882; Fl. Pres. Madras 789. 1923; P. S. Green in Rev. Handb. Fl. Ceylon 6: 259. 1987.

Climbing shrubs, pubescent. Leaves 8 x 3 cm, ovate-lanceolate, apex, acute to acuniinate, villous; petiole 1 cm, pubescent. Cymes terminal and axillary, bracts ovate, bracteoles linear; calyx tube, 2 mm, 7-lobed, 5 mm, linear, curled, pubescent; corolla tube 2.5 cm long lobes 7, twisted, 1.5 cm; ovary 1 mm across: style 7 mm, stigma clavate.

*Fl. & Fr.* March-May

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17290*

**Jasminum trichotomum** Heyne ex Roth, Nov. Pl. Sp. 6. 1821; Fl. Brit. India 3: 599. 1882; Fl. Pres. Madras 790. 1923; Matthew. Fl. TN. Carnatic 886. 1983 & Fur. III. Fl. TN. Carnatic t. 355. 1988.

Climbing shrubs. Leaves 6 x 2.5 cm, ovate or lanceolate, rounded at base, nerves ca. 8 pairs, membranous; petiole 2.5 cm. Cymes terminal and axillary; flowers white; calyx tube 3 mm, 5 toothed, tooth 1 mm; corolla tube 4 mm, lobes 5-7, 4 mm, oblong; ovary 1 mm, oblong, style 2 mm, bifid.

*Fl. & Fr.* March-June

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Chinnar, *KKS 17402*



## LIGUSTRUM L.

*Ligustrum perrottetii* DC., Prodr. 8: 294. 1844; Fl. Brit. India 3: 615. 1882; Fl. Pres. Madras 797. 1923; Matthew, Fl. TN. Carnatic 887. 1983 & Fur. Ill. Fl. TN. Carnatic t. 356. 1988. *L. neilgherrense* Wight, Ic. t. 1243. 1848.

**Small** trees, branchlets lenticellate. Leaves to 5 x 2.5 cm, elliptic, apex acute, gland dotted; petiole 0.5 cm. Panicles thyrsoïd. 5 cm; flowers white; calyx 4 lobed, 2 mm; corolla tube 3 mm, lobes 4, 2 mm. lanceolate; ovary 0.5 mm.

*Fl. & Fr.* February-June

*D i s t.* Common in semi-evergreen and margins of shola forests

Ichampetty, KKS 15591

## OLEA L.

*Olea dioica* Roxb., Fl. Ind. 1: 105. 1820; Fl. Brit. India 3: 612. 1882; Fl. Pres. Madras 796. 1923; Matthew, Fl. TN. Carnatic 891. 1983.

Medium trees. Leaves to 10 x 4 cm, elliptic - lanceolate, acute, serrate; petiole to 1 cm. Panicles axillary, to 4 cm; flowers polygamo-dioecious; calyx 4 lobed, 1 mm, ovate; corolla tube 3 mm, campanulate, lobes 0.5 mm, ovate, incurved; ovary 1.2 mm, style 0.6 mm.

*Fl. & Fr.* October-January

*D i s t.* Common in moist deciduous forests

Samplampetty, KKS 15894

## SALVADORACEAE

### AZIMA Lam.

*Azima tetraacantha* Lam., Encycl. 1: 343. 1783; Wight, Ill. 2: t. 152. 1850; Fl. Brit. India 3: 620. 1882; Fl. Pres. Madras 799. 1923.

Rambling shrubs; spine axillary, usually in 4, straight, to 2.5 cm, grooved, branchlets tetragonous. pubescent. Leaves opposite, 3 x 2 cm, ovate, mucronate, base obtuse, margin thickened, coriaceous, nerves 3 pairs near the base; petiole to 5 mm. Spike axillary and terminal, to 10 cm long: flowers clustered, white, unisexual; bracts 2 x 1 mm, ovate, mucronate, pubescent; calyx 1 mm, campanulate, bilobed, pubescent; petals 4, 2 x 1 mm, oblong; stamens 4, free. alternating the petals, filaments 1 mm, anthers 1 mm, pistillode absent.

*Fl. & Fr.* August-September

*D i s t.* Common in dry deciduous forests

Chinnar, KKS 18307

## APOCYNACEAE

- |                                                        |                     |
|--------------------------------------------------------|---------------------|
| 1. Climbers                                            | : 2                 |
| 1. Erect herbs or shrubs or trees                      | : 3                 |
| 2. Calyx lobes more than 1 cm long, panicles pubescent | : <b>Aganosma</b>   |
| 2. Calyx lobes less than 2 mm long, panicles glabrous  | : <b>Anodendron</b> |

3. Anthers exerted, connivent around the stigma	: <b>Wrightia</b>
3. Anthers included, free	: <b>4</b>
4. Armed shrubs	: <b>Carissa</b>
4. Unarmed	: <b>5</b>
5. Leaves alternate	: <b>6</b>
5. Leaves opposite or whorled	: <b>7</b>
6. Leaves linear, less than 2 cm broad	: <b>Cascabela</b>
6. Leaves oblanceolate more than 5 cm broad	: <b>Plumeria</b>
7. Herbs; leaves opposite	: <b>Catharanthus</b>
7. Shrubs or trees; leaves whorled	: <b>Alstonia</b>

#### AGANOSMA G. Don

**Aganosma cymosa** (Roxb.) G. Don, Gen. Syst. 4: 77. 1837-1838; Fl. Brit. India 3: 665. 1882; Gamble. Fl. Pres. Madras 819. 1923; Matthew, Fl. TN. Carnatic 900. 1983 & Ill. Fl. TN. Carnatic t. 426. 1982. *Echites cymosa* Roxb., Fl. Ind. 2: 16. 1832; Wight, Ic. t. 395. 1840.

Climbers, latex milky. Leaves to 10 x 5.5 cm, elliptic. apex acuminate, nerves 7-8 pairs; petiole to 1.5 cm. Cymes terminal, tomentose, dense; flowers white; bracts many, 1 x 0.4 cm, ovate; calyx lobes divided to the base, 1.3 cm, linear-lanceolate, adpressed tomentose, alternating with subulate glands; corolla salver form, tube 7 mm, dilated above, pubescent inside, lobes 5, twisted to the right, 7 mm, falcate, tomentose; stamens included, sessile, connivent around the stigma, 4 mm; disc of 5 subulate glands; ovaries 0.5 mm, hirsute, style **fitsiform**, 3 mm.

*Fl. & Fr.* February-June

*D i s t.* Occasional in moist deciduous and shola forests

Olikkudy, *KKS 17287*; Alampetty, *NS 55195*; *KKS 15681*

#### ALSTONIA R. Br.

**Alstonia venenata** R. Br. in Mem. Wern. Nat. Hist. Soc. 1: 77. 1811; Wight, Ic. t. 436. 1841; Fl. Brit. India 3: 642. 1882; Fl. Pres. Madras 810. 1923.

Small trees, latex milky, branchlets lenticellate. Leaves whorled, 4-6, to 15 x 2 cm, oblong, lanceolate, apex caudate-acuminate, membranous, nerves many, united intramarginally; petiole 1.5 cm. Cymes corymbose, subterminal; flowers white; pedicels to 1 cm; bracts present; calyx tube 1 mm, lobes 1 mm, lanceolate; corolla tube 2.5 cm, lobes twisted, 1.5 cm; stamens included, at the mouth of the corolla tube, villous; ovary 2 mm, oblong, style **filiform**, 2.5 mm.

*Fl. & Fr.* February-June

*D i s t.* Occasional near wet areas in moist deciduous forests

Vanchikulam, *KKS 15622*

#### ANODENDRON A. DC.

**Anodendron manubriatum** Merr., Philipp. J. Sci. 7: 333. 1912; Matthew, Fl. TN. Carnatic 904. 1983 & Ill. Fl. TN. Carnatic t. 428. 1982. Huber in Rev. Handb. Fl. Ceylon 4: 69. 1983. *Anodendron paniculatum* A. DC. in DC., Prodr. 8: 444. 1844; Fl. Brit. India 3: 668. 1882; Fl.

Pres. Madras 820. 1923. *Echites paniculata* Roxb., Fl. India 2: 17. 1832, non Poir., 1812; Wight, Ic. t. 396. 1840.

Climbers, latex milky. Leaves to 14 x 6 cm, broadly oblong, apex acuminate nerves 12-15 pairs. prominent, lopped below the margins; petiole 1.5 cm. Cymes axillary and terminal, 8-9 cm; flowers yellowish white; calyx. 1.5 mm ovate; corolla tube 1.5 mm, lobes, twisted, 4 mm, lanceolate; anthers sagitate, connivent around the style, 1 mm, basally spurred, apex mucronate; ovary 0.5 mm, embedded in the disc; ovules numerous, style 0.5 mm.

*Fl. & Fr.* February-May

*D i s t.* Common along the river sides

Champakkad, *KKS 15529*

### CARISSA L.

*Carissa carandas* L., Mant. Pl. 52. 1767; Roxb. Pl. Cor. t. 77. 1798; Wight, Ic. t. 426. 1841; Fl. Brit. India 3: 630. 1882; Fl. Pres. Madras 804. 1923; Matthew, Fl. TN. Carnatic 905. 1983 & Ill. Fl. TN. Carnatic t. 429. 1982.

Armed shrubs, latex milky, dichotomously branched, spines forked at apex, 4.5 cm. Leaves 6 x 3.5 cm, elliptic-oblong. apex obtuse or emarginate. subcoriaceous; petiole to 0.5 cm. Cymes axillary and terminal, corymbose, puberulus; flowers white; calyx 5-lobed, 2.5 mm ,ovate. , aristate; corolla liypocrateriform, tube 2 cm, pubescent, twisted, 7 x 3 mm, ovate, pubescent; stamens 2.5 mm. obtuse, mucronate, sessile; ovary 1 mm, stigma fusiform, twisted. Berry 2.5 cm across, black when ripe.

*Fl. & Fr.* January-June

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11847*

### CASCABELA Raf.

*Cascabela thevetia* (L.) Lippold in Feddes Repert. 91: 52. 1980; Matthew, Fl. TN. Carnatic 907. 1983. *Cerbera thevetia* L.. Sp. Pl. 209. 1753. *Thevetia peruviana* (Pers.) Merr., Philipp. J. Sci. 9: 130. 1914; Matthew, Fur. Ill. Fl. TN. Carnatic t. 364. 1988. *T. neriifolia* Juss. ex Steud. Nomencl. ed. 2. 2: 680. 1841. "nereifolia"; Fl. Pres. Madras 821. 1923.

Small trees. latex milky. Leaves 15 x 1.5 cm, linear, apex obtuse, base decurrent nerves united iitramarginally. Cymes axillary and terminal; flowers yellow; pedicels 3 cm; calyx 5 lobed. 8 x 3 mm. ovate, apex acute. glandular within; corolla funnel shaped 6.5 cm long, villous inside; anther cells rounded at base, 2 mm, connective produced, Ovary of 2 distinct carpels, style 1.5 cm, stigma fusiform.

*Fl. & Fr.* April-July

*D i s t.* Occasional in moist deciduous forests

Karimutty, *KKS 15640*

### CATHARANTHUSG. Don

*Catharanthus roseus* (L.) G. Don, Gen. Syst. 4: 95. 1837-1838; Matthew, Fl. TN. Carnatic 900. 1983 & Fur. Ill. Fl. TN. Carnatic t. 359. 1988. *Vinca rosea* L.. Syst. Nat. ed. 10.944. 1759;

Fl. Brit. India 3: 640. 1882. *Lochnera rosea* (L.) Reichb., Consp. Reg. veg. 134. 1828; Fl. Pres. Madras 809. 1923.

Perennial herbs. Leaves to 4.5 x 2.5 cm, oblanceolate, elliptic, apex obtuse, mucronate, pubescent, membranous, nerves ca. 10 pairs; petiole 1 cm. Flowers axillary, solitary or in few, pink; calyx 5 toothed, 5 mm, linear, lanceolate, subequal; corolla tube 2.5 cm, lobes 5, 1.3 x 8 mm, obovate apiculate, puberulus inside the tube; anthers 2.5 mm; disc of 2 linear glands alternating the ovaries; ovary 2 mm long, glabrous, stigma capitate.

*Fl. & Fr.* March-May

*D i s t.* Planted earlier in settlements, now naturalised

Olikudy, *KKS 15612*

#### PLUMERIA L.

*Plumeria rubra* L., Sp. Pl. 209. 1753; Matthew, Fl. TN. Carnatic 915. 1983 & Fur. III. Fl. TN. Carnatic t. 361. 1988. *P. acutifolia* Poir. in Lam., Encycl. Suppl. 2: 667. 1812; Wight, Ic. t. 471. 1841; Fl. Brit. India 3: 641. 1882; Fl. Pres. Madras 821. 1923.

Deciduous trees. Leaves 35 x 10 cm, broadly obovate, spatulate, apex acute, base cuneate, nerves many, parallel, joined intramarginally; petiole 8 cm. Corymbs terminal; peduncles to 7 cm long; calyx cupular, 3 mm, rounded or obtuse; corolla tube 2 cm, lobes 5, 3 x 2 cm, obovate, twisted, whitish, yellow at the centre, obtuse; anthers 2.5 mm; ovaries globose, stigma 2-lobed, sessile.

*Fl. & Fr.* November-April

*D i s t.* Occasional along the sides of river, prostrate plants

Champakad, *KKS 11773*

#### WRIGHTIA R. Br.

*Wrightia tinctoria* (Roxb.) R. Br. in Mem. Wern. Nat. Hist. Soc. 1: 47. 1811; Wight, Ic. t. 444. 1841; Bedd., Fl. Sylv. t. 241. 1872; Fl. Brit. India 3: 653. 1882; Fl. Pres. Madras 815. 1923; Mabber. in Taxon 26: 533. 1977; Matthew, Fl. TN. Carnatic 921. 1983 & III. Fl. TN. Carnatic t. 435. 1982. *Nerium tinctorium* Roxb., Orient. Repert. 1: 39. 1791.

Small to medium trees, latex milky. Leaves to 12.5 x 3.5 cm, elliptic, long acuminate, slightly bluish; petiole to 4 mm long. Panicles terminal and pseudoaxillary; pedicels to 1.5 cm; calyx lobes 5, imbricate, broadly ovate or orbicular, ciliate; corolla tube 3 mm, lobes 1.5 cm, broadly oblong, throat with 2-3 rows of fimbriate corona scales, pubescent; stamens, 6 mm; ovaries 2 mm; style, 4 mm. Mericarps 2, 25-30 cm long striated, fused at apex, terete.

*Fl. & Fr.* February-August

*D i s t.* Common in dry and moist deciduous forests

Charkapetty, *KKS 11745*; Vazhathura, *15639*

#### ASCLEPIADACEAE

- |                |     |
|----------------|-----|
| 1. Erect herbs | : 2 |
| 1. Twiners     | : 4 |

2. Plants leafless; stem angled	: <b>Caralluma</b>
2. Plants leafy; stem not angled	: <b>3</b>
3. Leaves sessile, auricled at the base, woolly	: <b>Calotropis</b>
3. Leaves petioled, not auricled, glabrous	: <b>Asclepias</b>
4. Plants leafless or leaves reduced	: <b>5</b>
4. Plants leafy	: <b>6</b>
5. Corolla rotate; sap milky	: <b>Sarcostemma</b>
5. Corolla tubular, inflated at the base; sap watery	: <b>Ceropegia (p.p.)</b>
6. Stamens connate only by anthers; inflorescencetrichotomous cymes	: <b>7</b>
6. Stamens connate wholly or free; inflorescence otherwise	: <b>9</b>
7. Corona of 5 scales	: <b>8</b>
7. Corona of 10 lobes, alternately long and short, corolla hairy with in	: <b>Decalepis</b>
8. Corolla lobes valvate, lobes rugose	: <b>Hemidesmus</b>
8. Corolla lobes imbricate, lobes not rugate	: <b>Cryptolepis</b>
9. Corona single	: <b>12</b>
9. Corona double	: <b>10</b>
10. Follicle echinate	: <b>Pergularia</b>
10. Follicle smooth	: <b>11</b>
11. Corolla campanulate; latex milky	: <b>Leptadenia</b>
11. Corolla tubular; latex watery	: <b>Ceropegia (p.p.)</b>
12. Corolla staminal	: <b>13</b>
12. Corolla corolline	: <b>Gymnema</b>
13. Leaf base acute; lateral nerves indistinct	: <b>Secamone</b>
13. Leaf base cordate or obtuse	: <b>14</b>
14. Inflorescence peduncled umbels; petiole 2 glandular near the lamina	: <b>Wattakaka</b>
14. Inflorescence otherwise	: <b>15</b>
15. Corona with two lateral buttresses	: <b>Marsdenia</b>
15. Corona small, fleshy, lobes without lateral processes	: <b>Tylophora</b>

#### ASCLEPIAS L.

**Asclepias curassavica** L., Sp. Pl. 215. 1753; Fl. Brit. India 4: 18. 1883; Fl. Pres. Madras **833**. 1923; Matthew, Fl. TN. Carnatic 929. 1983 & Ill. Fl. TN. Carnatic t. 260. 1982.

Perennial herbs, with milky latex. Leaves opposite or whorled, 16 x 2.5 cm, lanceolate, acutely apiculate, puberulus along the veins and margins; petiole 1-1.5 cm. Umbels terminal; calyx deeply 5 lobed, 3 mm, lanceolate, recurved; corolla deeply 5 lobed, red, 9 x 3.5 mm, obovate, acute, recurved; pollinia 5, pendulous; corona single, staminal. 3 mm, concave, cucullate with a horn; ovaries distinct, 1 mm, style 2, 5 mm, connected at the tip.

*Fl. & Fr.* January-April

D i s t. Common in wet areas

Churullipetty, *KKS 11868*

#### CALOTROPIS R. Br.

**Calotropis gigantea** (L.) R. Br. in Ait., Hort. Kew (ed. 2) 2: 78. 1811; Fl. Brit. India 4: 17. 1883; Fl. Pres. Madras 832. 1923; Matthew, Fl. TN. Carnatic 929. 1983 & Ill. Fl. TN. Carnatic t. 437. 1982. Huber in Rev. Handb. Fl. Ceylon 4: 78. 1983. *Asclepias gigantea* L., Sp. Pl. 214. 1753.

Large shrubs, latex milky, covered with soft wool. Leaves 13 x 9 cm, elliptic-ovate, apex obtuse, auricled, coriaceous. Panicles umbellate, to 8 cm; bracts and bracteoles 1 cm, lanceolate, pubescent; calyx lobes 5 mm, ovate. pubescent; corolla sub-rotate, lobes 5, 1.5 cm, spreading, notched at apex, pale purple; corona scales 5, staminal, fleshy, shorter than staminal tube, basally incurved, 3-fid at apex; pollinia 5, pendulous; ovaries 3 mm; style 1 cm.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11872*

#### CARALLUMA R. Br.

- |                                               |                        |
|-----------------------------------------------|------------------------|
| 1. Flowers in umbels                          | : 2                    |
| 1. Flowers in racemes or solitary or in pairs | : <b>C. adscendens</b> |
| 2. Corolla glabrous within; flowers many      | : <b>C. umbellata</b>  |
| 2. Corolla hairy within; flowers few          | : <b>C. indica</b>     |

**Caralluma adscendens** (Roxb.) Haw. var. **attenuata** (Wight) Grav. & Mayuranathan in Bull. Madras Govt. Museum n. s. 4: 13. 1931. **C. attenuata** (Wight), Ic. t. 1268. 1848; Fl. Brit. India 4: 76. 1883; Fl. Pres. Madras 861. 1923; Matthew, Fl. TN. Carnatic 932. 1983 & Ill. Fl. TN. Carnatic t. 438. 1982.

Fleshy leafless herbs, branchlets gradually tapering into racemes. Flowers solitary or rarely in pairs; pedicels to 1 cm: calyx lobes 2.5 mm, ovate; corolla lobes 7 x 2 mm oblong, apiculate, inside with brown hairs; outer corona 3 mm, longer than inner; pollinia bags 0.3 mm; ovary 1.5 mm.

*Fl. & Fr.* June-August

*D i s t.* Occasional in dry deciduous forests

Mullangampetty, *KKS 18279*

**Caralluma indica** (Wight & Arn.) N. E. Br. in Gard. Chron. 2: 369. 1892; Fl. Pres. Madras 862. 1923. **Boucerosia hutchinia** Decne. in DC., Prodr. 7: 649. 1839; Fl. Brit. India 4: 78. 1883.

Small fleshy herbs. Leaves minute, deciduous. Umbels terminal, 5-6 flowered; pedicels 0.5 cm; calyx lobes 4 x 2 mm, lanceolate; corolla broadly campanulate, tube 4 mm; lobes 6 x 6 mm, broadly ovate. acute, hairy within and fringed; corona double staminal, outer cupular, lobes 5, 3 x 3 mm, 2-cuspidate. acute, inner adnate to the outer, inflexed over the pollinia; pollinia erect, pellucid at the apex; style apex 5 angled.

*Fl. & Fr.* July-October

*D i s t.* Occasional in rochs areas in dry deciduous forests; endemic to Peninsular India.

Chengamperu, *KKS 15813*

**Caralluma umbellata** Haw., Syn. Pl. Succ. 47. 1812; Fl. Pres. Madras 861. 1923; Matthew, Fl. TN. Carnatic 933. 1983 & Ill. Fl. TN. Carnatic t. 973b. 1982. **Boucerosia umbellata** (Haw.) Wight & Arn. in Wight, Contrib. 34. 1834; Wight, Ic. t. 495. 1841; Fl. Brit. India 4: 77. 1883

incl. var. *campanulata*. *Caralluma campanulata* (Wight) N. E. Br. in Gard. Chron. 2: 369. 1892; Fl. Pres. Madras 861. 1923. *Boucerosia campanulata* Wight, Ic. t. 1287. 1848.

Tall fleshy leafless herbs, leafscars spiny. Umbels terminal more than 20-flowered; pedicels 3.5 cm, flat; calyx lobes 4 mm, lanceolate, ciliate; corolla recurved, lanceolate, concentrically ringed with fine red lines; pollinal bags 0.5 mm; ovaries 2. Follicle 15 x 0.7 cm, terete, hooked at apex.

*Fl. & Fr.* July-October

*D i s t.* Common in rocky areas in dry deciduous forests

Pallippara, *KKS* 25820

### CEROPEGIA L.

- |                                                                                 |                                                    |
|---------------------------------------------------------------------------------|----------------------------------------------------|
| 1. Plants leafless                                                              | : <i>C. juncea</i>                                 |
| 1. Plants leafy                                                                 | : 2                                                |
| 2. Leafbase cordate                                                             | : <i>C. elegans</i>                                |
| 2. Leafbase obtuse                                                              | : 3                                                |
| 3. Corolla not beaked                                                           | : <i>C. omissa</i>                                 |
| 3. Corolla beaked                                                               | : 4                                                |
| 4. Outer corona lobes 2-lobed                                                   | : <i>C. candelabrum</i> var. <i>biflora</i>        |
| 4. Outer corona lobes entire                                                    | : 5                                                |
| 5. Peduncles less than 3 cm long; corolla lobes more than half long as the tube | : <i>C. decaisneana</i>                            |
| 5. Peduncles more than 9 cm long; corolla lobes less than half long as the tube | : <i>C. candelabrum</i><br>var. <i>candelabrum</i> |

*Ceropegia candelabrum* L., Sp. Pl. 211. 1753, var. *candelabrum*; Fl. Brit. India 4: 70. 1883; Fl. Pres. Madras 857. 1923; Matthew, Fl. TN. Carnatic 935. 1983; Ansari, Fl. India Fasc. 16: 12. 1984.

Twiners. Leaves to 7 x 3 cm, elliptic or lanceolate, acuminate, apiculate, base obtuse, membranous; petiole 1.5 cm. Cymes axillary; peduncles 2.5 cm; pedicels 1 cm; calyx linear 4 mm; corolla shortly beaked, tube 3.5 cm, hairy within, straight, bulbous at base, lobes 7 mm; outer corona process 1 mm, inner spatulate, 2 mm.

*Fl. & Fr.* October-December

*D i s t.* Occasional near streams in dry deciduous forests

Karimutty, *KKS* 15878

*Ceropegia candelabrum* L. var. *biflora* (L.) Ansari in Fasc. Fl. India 16: 12. 1984. *C. biflora* L., Sp. Pl. 211. 1753. *C. tuberosa* Roxb., Pl. Cor. t. 9. 1795; Fl. Brit. India 4: 70. 1883 p.p.; Fl. Pres. Madras 857. 1923. *C. intermedia* sensu Hook. f., Fl. Brit. India 4: 71. 1883 p.p., non Wight 1848.

Twiners. Leaves to 6.5 x 3.5, slightly obovate or oblong, apex obtuse, mucronate, membranous; petiole 1.5 cm. Cymes axillary, few flowered; peduncles 3 cm long; calyx 3 mm linear, subulate; corolla bulbous at base, prominently veined, 3 cm, straight, lobes 5, 2 cm long,

folded, fused to from the beak, hairy, outer corona lobes 0.3 mm, 2-lobed, inner 2 mm, subulate. Follicles paired, 15 x 0.3 cm, terete, long beaked.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 15904*

**Ceropegia decaisneana** Wight, Ic. t. 1259. 1848; Fl. Brit. India 4: 73. 1883; Fl. Pres. Madras 859. 1923.

Twiners, root tuberous. Leaves to 11 x 1.5 cm, linear lanceolate, apex apiculate, base obtuse, membranous; petiole 1.5 cm. Cymes axillary; peduncle to 10 cm long; pedicels 1.2 cm long; calyx linear, 3 mm; corolla base inflated, tube 2 cm long, lobes 1.5 cm, lanceolate; corona outer 1 mm, inner spatulate, 2 mm.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 17463*

**Ceropegia elegans** Wall. in Bot. Mag. t. 3015. 1830; Wight, Ic. t. 1265. 1848; Fl. Brit. India 4: 68. 1883; Fl. Pres. Madras 857. 1923; Matthew, Fl. TN. Carnatic 936. 1983 & Fur. Ill. Fl. TN. Carnatic t. 367. 1988. *C. mysorensis* Wight, Ic. t. 846. 1844-1845; Fl. Brit. India 4: 69. 1883; Fl. Pres. Madras 857. 1923. *C. walkeriae* Wight, Ic. t. 1266. 1848; Fl. Brit. India 4: 69. 1883; Fl. Pres. Madras 857. 1923.

Twiners. Leaves to 4 x 3 cm, ovate, lanceolate, apex acute, base slightly cordate, membranous; petiole 1.5 cm. Cymes axillary; peduncles 1.5 cm; pedicels 1 cm; calyx 2 mm. Linear; corolla base bulbous, mouth broadly widened, tube, 1.8 cm long, curved, lobes 5, 1 x 0.6 cm, triangular, ovate, obtusely apiculate; outer corona lobes 5, deeply 2-fid, 2 mm; inner lobes 5, 2 mm, linear.

*Fl. & Fr.* June-October

*D i s t.* Common in dry deciduous forests

Kombakkayam, *KKS 15717*

**Ceropegia juncea** Roxb., Pl. Cor. t. 10. 1795; Wight, Ic. t. 1260. 1848; Fl. Brit. India 4: 68. 1883; Fl. Pres. Madras 856. 1923; Matthew, Fl. TN. Carnatic 937. 1983 & Fur. Ill. Fl. TN. Carnatic t. 369. 1988.

Leafless twiners, sap watery, stem striated. Cymes axillary; peduncles 1 cm; pedicels 1 cm long. calyx 5-lobed, 5 x 1 mm, lanceolate; corolla basally inflated, curved, tube 2.5 cm long, widened at mouth, lobes 5, 3 cm long, fused at apex, inside with brown hairs; outer corona 5, with 2-fid lobes, 3 mm; inner of 5 subulate lobes; pollinia erect, pellucid along the margins; ovaries 2 mm, stigma truncate. Follicles paired, 20 x 1 cm, linear-lanceolate, hooked at apex.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 15925*



**Ceropegia omissa** Huber in Mem. Soc. Brot. 12: **67. 1957.** **C. intermedia** Wight var. **wightii** Hook. f., Fl. Brit. India **4: 71. 1883;** Fl. Pres. Madras **858. 1923.**

'Twiners. Leaves to 11 x 2 cm, lanceolate, acute, base obtuse, membranous; petiole 1.3 cm. Cymes axillary; peduncles 1.5 cm; pedicels 1.5 cm; flowers purplish; calyx 5-lobed, 3.5 mm, linear lanceolate; corolla curved, base bulbous, tube 2.3 cm, lobes fused at the apex, lobes 8 mm, ciliate; outer corona cupular, 5-lobed, 1 mm, inner 2 mm, spatulate.

*FZ & Fr.* September-December

*D i s t.* Common in shola forests; endemic to Peninsular India.

Paradipolla, *KKS 27439*

#### **CRYPTOLEPIS R. Br.**

1. Lateral nerves more than 15 pairs, parallel

: **C. buchananii**

1. Lateral nerves less than 8 pairs, oblique

: **C. grandiflora**

**Cryptolepis buchananii** Koem. & Schult., Syst. Veg. **4: 409. 1819;** Wight, Ic. t. **494. 1840;** Fl. Brit. India **4: 5. 1883;** Fl. Pres. Madras **826. 1923;** Matthew, **Fl. TN. Carnatic 939. 1983 & Ill. Fl. TN. Carnatic t. 441. 1982.**

Climbers; branchlets lenticellate. Leaves to 15 x 6 cm, oblong or elliptic, apex obtusely acuminate, base acute, transverse nerves many, parallel, jointed in loops marginally, membranous; petiole 1.5 cm. Racemes axillary; bracts and bracteoles 2 mm, ovate; calyx lobes imbricate, 2.5 mm, oblong, ciliate; corolla tube 2.5 mm, lobes imbricate, twisted, 7 x 2.5 mm. lanceolate; corona single, corolline; ovaries depressed, stigma subsessile.

*FZ & Fr.* February-June

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15571*

**Cryptolepis grandiflora** Wight, Ic. t. 831. **1844-45 & Ill. Ind. Bot. 169. t. 155(2)B. 1850;** Fl. Brit. India **4: 5. 1883;** Fl. Pres. Madras **862. 1923;** Matthew, **Fl. TN. Carnatic 940. 1983 & Fur. Ill. Fl. TN. Carnatic t. 370. 1988.**

'Twiners; branchlets lenticellate, latex milky. Leaves to 7 x 4 cm, oblong-elliptic, apex obtuse, apiculate or acuminate, lateral nerves ca. 7 pairs, arched upwards; petiole 1.5 cm. Racemes axillary, umbellate; peduncles to 1.5 cm, bracts 2 mm. ovate; pedicels 1-1.5 cm; calyx 4 x 2 mm, ovate; corolla twisted, tube 5 mm, lobes 1.3 cm, lanceolate; corona 2.5 mm, corolline, obtuse; ovaries 0.6 mm.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 25928*

#### **DECALEPIS Wight & Arn.**

**Decalepis hamiltonii** Wight & Arn. in Wight, Contrib. Bot. India **64. 1834;** Wight, Ic. t. 1285. 1848; Fl. Brit. India **4: 11. 1883;** Fl. Pres. Madras **828. 1923;** Matthew, **Fl. TN. Carnatic 944. 1983 62 Ill. Fl. TN. Carnatic t. 443. 1982 [Fig. 7].**

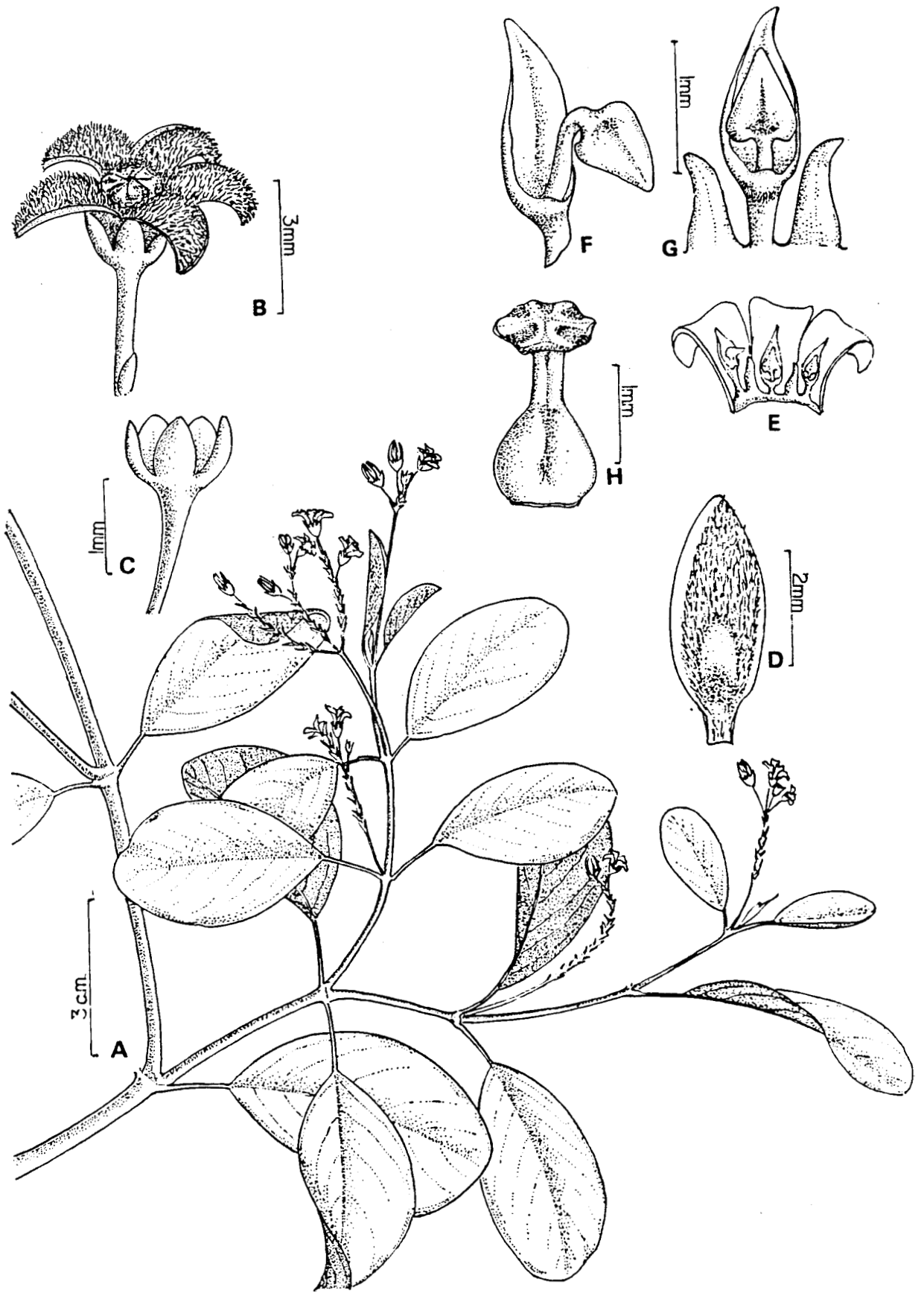


Fig. 7. *Decalepis hamiltonii* Wight & Arn. A. flowering branch, B. flower, C. calyx, D. corolla lobe, E. portion of corolla split open, F. stamen, G. stamen with staminal corona, H. pistil

Twining shrubs; branchlets jointed. Leaves to 6 x 4.5 cm, obovate-elliptic or orbicular, apex obtuse, base cuneate, membranous: petiole to 1.5 cm. Cymes trichotomously branched; calyx deeply 5 lobed, 2 mm, oblong; corolla tube 1 mm, lobes 3 x 2 mm, oblong, recurved, white pubescent inside; corona of 10 scales, alternately long hooked and short; filaments 1 mm, anthers attached to the style apex; ovaries 1 mm.

*Fl. & Fr.* May-August

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Gellimala, *KKS 15706*

#### **GYMNEMA R. Br.**

1. Leaves glabrous, acuminate at apex

: *G. elegans*

1. Leaves pubescent, acute at apex

: *G. sylvestre*

**Gymnema elegans** Wight & Arn. in Wight, Contrib. Bot. India 46. 1834; Wight, Ic. t. 830. 1844-1845; Fl. Brit. India 4: 32. 1883; Fl. Pres. Madras 839. 1923; Matthew, Fl. TN. Carnatic 946. 1983 & Ill. Fl. TN. Carnatic t. 444. 1982.

Slender twiners. Leaves to 7 x 3.5 cm, ovate, lanceolate, apex acuminate, base shallowly cordate, membranous, lowest two pairs of nerves starting from the bases; petiole 1.5 cm. Umbels axillary, about 10-15 flowered; calyx lobes 3 x Imm, linear, oblong, glandular inside; corolla campanulate, tube 3 mm, lobes overlapping, elliptic; corona corolline, of 10 fleshy process, 1 mm long, brown; pollinia erect, staminal column 2 mm, filaments dilated.

*Fl. & Fr.* October-January

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS 18210*

**Gymnema sylvestre** (Retz.) R. Br. ex Schult. in Roem. & Schult., Syst. Veg. 6: 57. 1820; Wight, Contrib. 44. 1834 & Ic. t. 349. 1840; Fl. Brit. India 4: 29. 1883; Fl. Pres. Madras 839. 1923; Matthew, Fl. TN. Carnatic 946. 1983 & Ill. Fl. TN. Carnatic t. 445. 1982.

Stragglers, tomentose. latex milky. Leaves 6 x 3.5 cm, ovate-elliptic, pubescent, apex acute, nerves ca. 6 pairs, membranous. Umbels axillary, pubescent; peduncles to 1 cm, pedicels 0.5 cm; flowers yellow; calyx lobes 2 mm, oblong, hairy; corolla campanulate, tube 2 mm; lobes, 1 mm, triangular; corona single corolline, adnate to the tube, fleshy, produced beyond the corolla tube, ciliate; pollinia erect; ovaries 1 mm, style 1 mm, stigma obconic.

*Fl. & Fr.* November-March

*D i s t.* Common in dry deciduous forests

Chinnar. *KKS 11610*

#### **HEMIDESMUS R. Br.**

**Hemidesmus indicus** (L.) R. Br. var. **pubescens** (Wight & Arn.) Hook. f. in Hook. f., Fl. Brit. India 4: 5. 1883; Fl. Pres. Madras 825. 1923; Matthew, Fl. TN. Carnatic 948. 1983 & Ill. Fl. TN. Carnatic t. 446. 1982.

Twiners, pubescent. Leaves opposite, rarely ternate, to 9 x 2.5 cm oblong-elliptic, apex acute, tip apiculate, sub coriaceous, pubescent ; petiole 0.5 cm, pubescent. Flowers in axillary subsessile fascicles, bracts 1 mm, lanceolate; calyx lobes, 2 mm, ovate, margins ciliate; corolla rotate, deeply lobed, lobes 4 x 2 mm, ovate, acute, rugose within; pollinia granular; corona single, corolline; ovaries 2 mm, style 1 mm.

*Fl. & Fr.* July-December

D i s t. Common in dry deciduous forests

Karimutty, *KKS 15782*

#### LEPTADENIA R. Br.

**Leptadenia reticulata** (Retz.) Wight & Arn. in Wight, Cat. 89. 1834 & Contrib. Bot. India 47. 1834; Wight, Ic. t. 350. 1840; Fl. Brit. India 4: 63. 1883; Fl. Pres. Madras 850. 1923; Matthew, Fl. TN. Carnatic 950. 1983 & Ill. Fl. TN. Carnatic t. 449. 1982. *Cynanchum reticulatum* Retz., Obs. Bot. 2: 15. 1781.

Woody climbers, latex milky, mealy pubescent. Leaves to 9 x 7 cm, broadly ovate, oblong, gradually acute at apex, base truncate or shallowly cordate, stellate hairy; petiole to 3 cm. Umbels axillary; peduncles to 0.5 cm, pubescent; flowers yellow, pedicels to 7 mm; bracts 4 mm hairy; calyx cupular, 2 mm, pubescent, ovate; corolla tube 1.5 mm, lobes 3 mm triangular ovate, margins folded, pubescent; corona double, outer corolline, bifid; inner staminal; pollinia suberect, pellucid; ovary 1 mm. Follicles paired, 6 x 2 cm, bluntly acute at both ends.

*Fl. & Fr.* July-October

D i s t. Common in dry deciduous forests

Champakkad, *KKS 17421, 11897*

#### MARSDENIA R. Br.

**Marsdenia brunoniana** Wight & Arn. in Wight, Contrib. 40. 1834; Wight, Ic. t. 356. 1840; Fl. Brit. India 4: 36. 1883; Fl. Pres. Madras 846. 1923; Matthew, Fl. TN. Carnatic 952. 1983 & Ill. Fl. TN. Carnatic t. 450. 1982.

Twiners. Leaves to 10 x 7 cm, orbicular or broadly oblong, apex acuminate, base truncate or slightly cordate, glandular at the base of the lamina, membranous, puberulus below, nerves 5-6 pairs; petiole puberulus, to 2.5 cm. Cymes axillary, few flowered; calyx lobes, 4 x 2 mm, oblong, apex acute, glandular within; corolla rotate tube 5 mm, lobes 4 x 3 mm, oblong, emarginate at apex, fleshy. corona single, staminal, base with two buttresses and with lanceolate tip, 5 mm; pollinia erect.

D i s t. Common in dry deciduous forests

Churullipetty, *KKS 15900*

#### PERGULARIA L.

**Pergularia daemia** (Forssk.) Chiov. in Result. Sci. Misc. Stefan. Paoli Somal. Ital. 1: 16. 1916; Matthew, Fl. TN. Carnatic 955. 1983 & Ill. Fl. TN. Carnatic t. 453. 1982. *Asclepias daemia* Forssk., Fl. Aeg.-Arab. 51. 1775. *Daemia extensa* (Jacq.) R. Br. in Ait., Hort. Kew ed. 2. 2 :

76. 1811; Wight, Ic. t. 596. 1842; Fl. Brit. India 4: 20. 1833. *Cynanchum extensum* Jacq. Misc. 2: 353. 1781. *Pergularia extensa* (Jacq.) N. E. Br. in Dyer, Fl. Cap. 4: 758. 1908; Fl. Pres. Madras 2: 837. 1923.

Twining, hirsute, latex milky. Leaves to 7 x 8 cm, broadly ovate, acuminate at apex, deeply cordate at base, pubescent, membranous; petiole 5 cm. Racemes axillary, umbellate; peduncles to 12 cm; pedicels to 2 cm; flowers greenish; calyx lobes 2 mm, hirsute; corolla campanulate, tube 3.5 mm, lobes 10 x 5 mm, lanceolate; pollinia pendulous, oblong; corona double, outer flap like, lobes truncate or bifid, 1.5 mm, membranous; inner staminal, erect, spurred at base, produced above, curved, tooth to 2.5 mm; ovaries 1 mm, basally connate. Follicles paired, 6 x 2 mm, softly echinate, curved.

*Fl. & Fr.* December-May

*D i s t.* Common in dry deciduous forests

Alampetty, NS 5900; Kalladuthupurai, KKS 11697

#### **SARCOSTEMMA R. Br.**

**Sarcostemma brunonianum** Wight & Arn. in Wight, Contrib. 59. 1834; Wight, Ic. t. 1282. 1848; Fl. Brit. India 4: 27. 1883; Fl. Pres. Madras 838. 1923; Matthew, Fl. TN. Carnatic 957. 1983.

Leafless twining, latex milky, dark green. Umbels lateral, 10-15 flowered, green; calyx lobes 1 mm, ovate; corolla deeply lobed, valvate, 5 x 2.5 mm, oblong, obtuse at apex, fleshy; pollinia pendulous; corona double, outer cupular, 10 lobed, wavy; inner staminal, lobes 5, fleshy; ovaries 1.5 mm, distinct, basally connate. Follicles 2, 13 cm long.

*Fl. & Fr.* March-June

*D i s t.* Very common in dry deciduous forests

Palapetty, KKS 15523

#### **SECAMONE R. Br.**

**Secamone emetica** (Retz.) R. Br. ex Schultes in Roem. & Schultes, Syst. 6: 124. 1820; Wight, Ic. t. 1283. 1848; Fl. Brit. India 4: 13. 1883; Fl. Pres. Madras 829. 1923; Matthew, Fl. TN. Carnatic 958. 1983 & Ill. Fl. TN. Carnatic t. 455. 1982. *Periploca emetica* Retz., Obs. Bot. 2: 14. 1781.

Scandent subshrubs, latex milky. Leaves to 5.5 x 1 cm., linear-elliptic, apex acute, base decurrent, margins recurved, pubescent beneath, lateral nerves indistinct, sessile. Cymes axillary, trichotomously branched; peduncles 0.5 cm; calyx lobes 0.5 mm, ovate, ciliate; corolla lobes twisted either to the left or right, 2 x 1 mm, oblong, ovate or acute at apex; corona staminal, of 5 scales; ovary 0.7 mm. Follicles paired, 7.5 x 0.8 cm, blunt at the base and tapering at apex.

*Fl. & Fr.* May-August

*D i s t.* Common in dry deciduous forests

Alanipetty, NS 5886; Churullipetty, KKS 11858; Chinnar, 15700

### TYLOPHORA R. Br.

1. Flowers in umbels; plants glabrous : **T. capparidifolia**  
1. Flowers in racemes; plants pubescent : **T. mollissima**

**Tylophora capparidifolia** Wight & Arn. in Wight, Contrib. 51. 1834; Fl. Brit. India 4: 41. 1883; Fl. Pres. Madras 2: 843. 1923; Matthew, Fl. TN. Carnatic 962. 1983 [Fig. 8].

Twining, sap watery. Leaves 5.5-7 x 2.5-3.5 cm, elliptic-oblong or obovate, apex acute, mucronate, base cordate. subcoriaceous, nerves 6-7 pairs; petiole to 9 cm. Umbels axillary, sessile; pedicels filiform, 2 cm; flowers pink; calyx lobes 1.5 mm, lanceolate; corolla rotate, tube 1 mm, lobes oblong, acute; corona staminal, narrowed above, 0.7 mm; pollinia horizontal; ovaries 1 mm, oblong. Follicle 4.5 cm, lanceolate, long beaked

*Fl. & Fr.* March-June

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikudy, *KKS 17320*; Vanchikulam, *15889*

**Tylophora mollissima** Wight & Arn., in Wight, Contrib. 49. 1834; Wight, Ic. t. 1275. 1848; Fl. Brit. India 4: 48. 1883; Fl. Pres. Madras 843. 1923.

Densely hirsute twining. Leaves to 7 x 3.5 cm, lanceolate-oblong, apex acute, mucronate, base slightly cordate, hairs tubercle based; petiole 1.5 cm, densely hirsute. Flowers in axillary racemes or small umbels of racemes, greenish; calyx lobes 0.2 mm, lanceolate; corolla 0.3 mm across. Follicles to 5 x 0.7 cm, lanceolate, long beaked.

*Fl. & Fr.* April-June

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 18280*

### WATTAKAKA Hassk.

**Wattakaka volubilis** (L. f.) Stapf, Bot. Mag. sub. t. 8976. 1923; Matthew, Fl. TN. Carnatic 963. 1983 & Ill. Fl. TN. Carnatic t. 458. 1982. Huber in Dassan. & Fosb., Rev. Handb. Fl. Ceylon 4: 108. 1983. ***Dregea volubilis*** (L. f.) Benth. ex Hook. f., Fl. Brit. India 4: 46. 1883. ***Marsdenia volubilis*** (L. f.) Cooke, Fl. Pres. Bombay 2: 166. 1904; Fl. Pres. Madras 846. 1923. ***Hoya viridiflora*** R. Br., Mem. Wern. Nat. Hist. Soc. 1: 27. 1811; Wight, Ic. t. 586. 1842.

Twining. Leaves to 8 x 5 cm, ovate, acuminate, base cordate, membranous, puberulus along the nerves; petiole glandular, above the junction of lamina; petiole 2 cm. Umbels axillary 4.5 cm, many flowered; pedicels 2 cm, pubescent; calyx lobes unequal, 2 mm, lanceolate; corolla rotate, tube 3 mm, lobes 4 x 4 mm, orbicular; corona single, staminal, with 2 globular masses above the anthers; pollinia erect.

*Fl. & Fr.* February-May

*D i s t.* Occasional in shola forests

Olikudy, *KKS 17286*

### LOGANIACEAE

1. Leaves 3-5 ribbed; calyx not accrescent : **Strychnos**  
1. Leaves penninerved; calyx accrescent : **Fagraea**

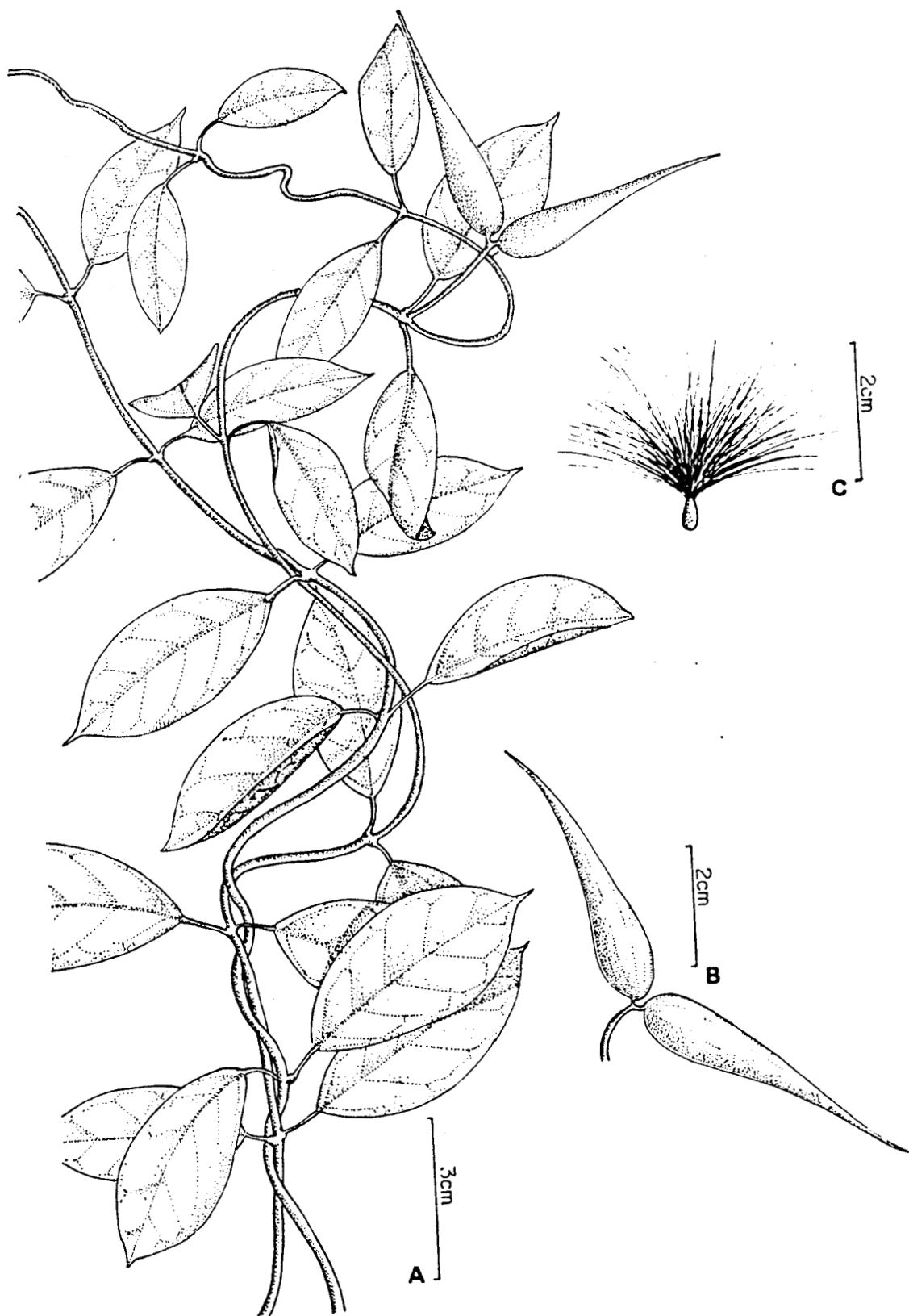


Fig. 8. *Tylophora capparidifolia* Wight & Arn. **A.** fruiting branch, **B.** fruit, **C.** seed.

## FAGRAEA Thunb.

**Fagraea ceylanica** Thunb., Vetensk. Acad. Handl. 3: 132. 1782; Fl. Brit. India 4: 83. 1883 "zeylanica"; Gamble, Fl. Pres. Madras 865. 1923. *F. obovata* Wall., in Roxb., Fl. India 2: 33. 1824; Fl. Brit. India 4: 83. 1883; Fl. Pres. Madras 865. 1923.

Trees. epiphytic at the beginning, stem 4 -angled. Leaves to 25 x 10 cm, obovate, apex obtuse, fleshy, petiole dilated at the base into auricles, sheathing. Cymes terminal; peduncles 2 cm, angular; bracts 10 mni. ovate, bracteoles 2-5 mm; calyx tube 1 mm, lobes 1 cm, obtuse; corolla mouth widened. tube 6 cm, lobes 3.5 cm, yellowish white; stamens included; ovary obovoid Fruit 3 cm across, globose, fleshy.

*FZ & Fr.* June-August

*D i s t.* Common in shola forests

Ollavayal, *KKS 17417*; Olikudy, *17257*

## STRYCHNOS L.

1. Berry less than 2 cm across; corolla lobes and tube equal in length : **S. potatorum**  
1. Berry more than 5 cm across; corolla tube longer than the lobes : **S. nux-vomica**

**Strychnos nux-vomica** L., Sp. Pl. 189. 1753; Bedd., Fl. Sylv. t. 243. 1872; Fl. Brit. India 4: 90. 1883; Fl. Pres. Madras 868. 1923; Matthew, Fl. TN. Carnatic 966. 1983 & Ill. Fl. TN. Carnatic t. 461. 1982.

Trees. Leaves to 7-9 x 4.5-7 cm, broadly ovate to orbicular, apex acute, base rounded, coriaceous, 5-nerved; petiole 1.5 cm. Berry 6 cm across, rind woody, orange when ripe.

*FZ & Fr.* July-October

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15802*

**Strychnos potatorum** L. f., Suppl. Pl. 148. 1781; Wight, Ill. 2: t. 156. 1850; Fl. Brit. India 4: 90. 1883; Fl. Pres. Madras 868. 1923; Matthew, Fl. TN. Carnatic 967. 1983 & Fur. Ill. Fl. TN. Carnatic t. 371. 1988.

Small to medium trees. Leaves opposite to 7 x 4 cm ovate, apex acute, base obtuse or rounded, membranous. 5 nerved, subsessile. Cymes from the axils of leafscars, 3 cm across, flowers white: calyx 5 lobed, 1.5 cm, ovate: corolla tubular, 3 mm, lobes 3 mm, oblong, pubescent inside: stamens anthers oblong, 1.5 mm; ovary 1.5 mm, style 1, 5 mm. stigma bifid. Berry *ca.* 1.5 cm across. blue when ripe.

*FZ & Fr.* March-May

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 15613*

## BUDDLEJACEAE

### UDDLEJA L.

**Buddleja asiatica** Lour., Fl. Cochinch. 1: 72. 1790; Fl. Brit. India 4: 82. 1883; Fl. Pres. Madras 865. 1923; Matthew, Fl. TN. Carnatic 968. 1983 & Ill. Fl. TN. Carnatic t. 459. 1982.



Large shrubs, branchlets pubescent. Leaves to 14 x 2.5 cm, oblanceolate, apex long acuminate, base cuneate, entire to serrate, white pubescent beneath; petiole 0.5 cm; stipule small, deciduous. Panicles axillary and terminal, pubescent; bracts and bracteoles 5 mm, linear, glandular hairy; calyx 2 mm, pubescent; corolla tube 2 mm, lobes 1 mm, pubescent; stamens 4, included; ovary 1 mm, style 1 mm, stigma 2 lobed. Capsule 4 x 2 mm, 2-lobed.

*Fl. & Fr.* July-November

*D i s t.* Occasional in evergreen forests

Karumala, *KKS 15831*; Kathitheetimala, *11826*

## GENTIANACEAE

- |                                         |                   |
|-----------------------------------------|-------------------|
| 1. Ovary 2-celled                       | : <b>Exacum</b>   |
| 1. Ovary 1-celled                       | : <b>2</b>        |
| 2. Stigma deeply lobed; flowers pink    | : <b>Canscora</b> |
| 2. Stigma lightly lobed; flowers yellow | : <b>Hoppea</b>   |

### CANSCORA Lam.

**Canscora perfoliata** Lam. *Encycl.* 1: 601. 1785; *Fl. Brit. India* 4: 1094. 1884; *Fl. Pres. Madras* 879. 1923. ***C. grandiflora*** Wight,  *Ic. t.* 1326. 1848.

Dichotomously branched herbs, stem 4-winged. Leaves opposite, to 2.5 x 0.9 cm lanceolate, acute, basally 3-nerved, sessile; Cymes terminal and axillary; bracts perfoliate, 1 x 1.5 cm; pedicel 1 cm, winged; flowers pink, 4-merous; calyx lobes 1 cm, linear, acute; corolla lobes overlapping, 7 x 4 mm; stamens 3 + 1, unequal, longer filaments with fertile anther, oblong; ovary many ovuled, style filiform, 4 mm, stigma deeply lobed.

*Fl. & Fr.* January-April

*D i s t.* Common in wet areas in moist deciduous forests; endemic to Peninsular India.

Mulangampetty, *KKS 11888*; Kalladuthupurai, *11696*;

### EXACUM L.

- |                                                   |                            |
|---------------------------------------------------|----------------------------|
| 1. Stems terete; leafbase clasping the stem       | : <b>E. anamallayanurn</b> |
| 1. Stems 4-winged; leafbase not clasping the stem | : <b>E. wightianum</b>     |

**Exacum anamallayanum** Bedd.,  *Ic. t.* 154. 1874; *Fl. Pres. Madras* 874. 1923; Klack. in *Opera Bot.* 84: 69. 1985. ***E. atropurpureum*** Bedd. var. ***anamallayanam*** (Bedd.) Clarke in *Hook. f., Fl. Brit. India* 4: 97. 1883.

Shrubs, stem terete, lenticellate. Leaves opposite, to 5 x 3 cm, broadly ovate, acute, base clasping the stem, coriaceous, margins thickened, 5-ribbed from the base, sessile. Cymes terminal and axillary ; pedicels stout, 1 cm long; calyx winged, tube 4 mm, lobes 5 mm, acute; corolla tube 8 mm, lobes 2 x 0.7 cm, obovate, many nerved, apiculate; stamens 5, filaments 5 mm; ovary many ovuled, 7 mm, style 2 cm, stigma, globose.

*Fl. & Fr.* April-June

*D i s t.* Common in shola forests; endemic to Peninsular India and rare.

Pothumala; *KKS 17358*

**Exacum wightianum** Arn. in Ann. Sci. Nat Bot. 11: 176. 1839; Wight, Ic. t. 840. 1844; Fl. Brit. India 4: 97. 1883; Fl. Pres. Madras 873. 1923; Klack. in Opera Bot. 84: 74. 1985. *E. atropurpureum* Bedd. var. *palghatense* Gamble, Fl. Pres. Madras 874. 1923.

Shrubs, stem 4-winged. Leaves opposite, 6 x 4 cm, broadly ovate, lanceolate, acuminate, membranous, 5-nerved, sessile. Cymes axillary and terminal; calyx lobes winged, 12 mm, lanceolate, wings to 4 mm broad; corolla rotate, tube 6 mm, lobes 2 cm, oblanceolate, apiculate; stamens 5, filaments 4 mm; ovary many ovuled, style 8 mm, stigma sub capitate.

*Fl. & Fr.* January - April

D i s t. Occasional in shola forests; endemic to Peninsular India.

Olikudy; *KKS 18232*

#### HOPPEA Willd.

**Hoppea fastigiata** (Griseb.) Clarke in Hook. f., Fl. Brit. India 4: 100. 1883; Fl. Pres. Madras 877. 1923; Matthew, Fl. TN. Carnatic 977. 1983 & Fur. Ill. Fl. TN. Carnatic t. 375. 1988. *Cicendia fastigiata* Griseb., Gen. Sp. Gent. 158. 1839.

Small branched herbs. Leaves opposite, 4-8 x 2-5 mm, ovate, subsessile. Cymes terminal and axillary; peduncles to 5 mm, calyx tube 4 mm, teeth 2 mm, lanceolate, acuminate; corolla tube 4 mm, lobes unequal, lanceolate; stamen 1 perfect, 3 sterile; ovary ellipsoid, one celled, many ovuled, stigma 2 lobed.

*Fl. & Fr.* April - June

D i s t. Common in high altitude grasslands

Pothumala; *KKS 17392*

### HYDROPHYLLACEAE

#### HYDROLEA L.

**Hydrolea zeylanica** (L.) Vahl, Symb. Bot. 2 : 46. 1791; Wight, Ic. t. 601. 1842; Fl. Brit. India 4: 133. 1883; Fl. Pres. Madras 884. 1923. *Nama zeylanica* L., Sp. Pl. 226. 1753; Matthew. Fl. TN. Carnatic 981. 1983 & Ill. Fl. TN. Carnatic t. 467. 1982.

Annual herbs, rooting at the nodes. Leaves alternate, to 7 x 1.5 cm, elliptic or lanceolate, apex acute. base cuneate, membranous, young parts partly hirsute. Racemes axillary and terminal. pedicels to 0.5 cm; calyx lobes 6 x 1.5 mm, lanceolate, glandular, acute; corolla lobes 6.5 mm, ovate, obtuse, deep blue; stamens 5, filaments basally dilated; ovary 2.5 mm, oblong, many ovuled. sparsely liispid, styles 2, 3 mm, stigma globose. Capsule 5 x 2 mm, ovoid.

*Fl. & Fr.* January - April

D i s t. Common in wet sandy areas near the streams

Chinnar; *KKS 15973*

### BORAGINACEAE

- |                    |     |
|--------------------|-----|
| 1. Herbs or shrubs | : 2 |
| 1. Trees           | : 5 |

2. Styles 2; shrubs	: Carmona
2. Style 1; herbs	: 3
3. Stamens united, connectives produced above	: Trichodesma
3. Stamens free, connective not produced above	: 4
4. Fruit smooth	: Heliotropium
4. Fruit with glochidiate hairs	: Cynoglossum
5. Style arms 2	: Ehretia
5. Style arms 4	: Cordia

#### CARMONA Cav.

*Carmona retusa* (Vahl) Masamune in Trans. Nat. Hist. Soc. Taiwan 30: 61. 1940; Raizada in Indian Forester 94: 437. 1968; Matthew, Fl. TN. Carnatic 998. 1983 & Fur. Ill. Fl. TN. Carnatic t. 353. 1988. *Ehretia microphylla* Lam., Tabl. Encycl. 2: 425. 1792; Fl. Pres. Madras 891. 1923. *E. buxifolia* Roxb., Pl. Cor. t. 57. 1796; Fl. Brit. India 4: 144. 1883.

Shrubs. Leaves to 2.5 x 1 cm, obovate, retuse at apex, scabrous, crowded at the spur of the branchlets, sessile. Cymes axillary; calyx lobes 3 mm, spatulate; corolla tube 2 mm, lobes 3 mm, oblong, white; stamens 5, exserted. ovary 4 celled. Drupe 3 mm across, globose.

**Fl. & Fr.** May-August

**D i s t.** Common in dry deciduous forests

Chinnar. **KKS 15695**

#### CORDIA L.

1. Calyx glabrous; leaves not scabrous	: <i>C. obliqua</i>
1. Calyx tomentose; leaves scabrous	: 2
2. Filaments hairy at base; leaves subopposite	: <i>C. gharaf</i>
2. Filaments glabrous; leaves alternate	: <i>C. monoica</i>

*Cordia gharaf* (Forssk.) Ehrenb. ex Asch. in Sitzungsber. Ges. Naturf. Freunde Berlin 46. 1879; Matthew, Fl. TN. Carnatic 998. 1983 & Fur. Ill. Fl. TN. Carnatic t. 384. 1988. *Cordia rothii* Roem. & Schultes, Syst. 4: 798. 1819; Wight, Ic. t. 1379. 1848; Fl. Brit. India 4: 138. 1883; Fl. Pres. Madras 888. 1923.

Trees, bark peeling, fissured, white; young branchlets densely brown tomentose. Leaves subopposite, to 7 x 5 cm, oblanceolate, apex obtuse, *ca.* 4 nerved, lower side hirsute, ferruginous; petiole to 2 cm, tomentose. Cymes axillary and terminal; calyx tube 7 mm, tomentose, lobes 2 mm. corolla tube 7 mm, lobes recurved, creamy white; filaments hairy at the base; ovary ovoid, style 6 mm.

**Fl. & Fr.** November-March

**D i s t.** Common in dry deciduous forests

Chinnar, **NS 5915; KKS 11687**

*Cordia monoica* Rosb., Pl. Cor. t. 58. 1796; Fl. Brit. India 4: 137. 1883; Fl. Pres. Madras 888. 1923; Matthew, Fl. TN. Carnatic 999. 1983 & Fur. Ill. Fl. TN. Carnatic t. 385. 1988.

Small trees, branchlets lenticellate, tomentose. Leaves alternate, 8-10 x 5-7 cm, ovate-elliptic, nerves 4-5 pairs, basal pair opposite, upper surface scabrous, puberulus beneath; petiole to 2 cm. Corymbs terminal, pubescent; calyx tube 5 mm, tomentose, lobes 2 mm, hairy; corolla tube 8mm, lobes 5mm, white; filaments attached to the mouth of the corolla tube, 3mm, anthers 1.5mm; ovary 4-celled, hairy, stigma clavate. Fruit 2.5 x 1.5cm ovoid with mucronate tip.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Alampetty, *NS 5890*; Kalladuthupurai, *KKS 11689*; Chinnar, *11629*

***Cordia obliqua*** Willd., Sp. Pl. 1: 1072. 1798; Fl. Brit. India 4: 137. 1883; Fl. Pres. Madras 887. 1923; Matthew, Fl. TN. Carnatic 1000. 1983 & Ill. Fl. TN. Carnatic t. 469. 1982.

Trees, branchlets lenticellate. Leaves alternate, 10-14 x 7-11 cm, broadly ovate, elliptic, apex obtuse, base rounded or slightly cordate, nerves ca. 5 pairs, pubescent at nerve axils, beneath; petiole to 4.5 cm; Cymes axillary and terminal; flowers polygamous; calyx tube 5 mm, fleshy, lobes 2 mm, ovate; corolla tube 5 mm, lobes 5 mm; alternating filaments glabrous; ovary 4 celled, 2.5 mm, style coiled, 6 mm.

*Fl.* March-August

*D i s t.* Occasional in dry deciduous forests

Ichampetty, *KKS 15603*

#### CYNOGLOSSUM L.

***Cynoglossum zeylanicum*** (Hornem.) Thunb. ex Lehm., Neue Schriften Naturf. Ges. Halle 3(2): 20. 1817; Kazmi, J. Arnold Arbor. 52: 344. 1971; Matthew. Fl. TN. Carnatic 983. 1983.

***Cynoglossum denticulatum*** A. DC. var. *zeylanicum* (Hornem.) Clarke in Hook. f., Fl. Brit. India 4: 157. 1883; Fl. Pres. Madras 900. 1923.

Tall scabrous herbs. Leaves to 5 x 2 cm, lanceolate-ovate, scabrous, pubescent beneath, nerves distant, prominent. looped at the margins, lower leaves larger. Racemes one sided. pubescent; pedicel 3 mm, hairy; calyx lobes, 1.5 mm, ovate, hairy, accrescent in fruit; corolla tube 3 mm long, lobes less than 1 mm, bluish white; stamens 0.3 mm long, sessile; ovary 4-celled; Fruit of 4 nutlets with glochidiate hairs, 3-5 mm across.

*Fl. & Fr.* March-June

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15556*; Nellimedu, *11955*

#### EHRETIA L.

- |                                                    |                               |
|----------------------------------------------------|-------------------------------|
| 1. Leaf apex acute, leaves mostly clustered        | : <b><i>E. wightiana</i></b>  |
| 1. Leaf apex obtuse, leaves not clustered          | : <b>2</b>                    |
| 2. Corymbs more than 7 cm long, filaments ca. 4 mm | : <b><i>E. ovalifolia</i></b> |
| 2. Corymbs less than 2 cm, filaments ca. 1 mm      | : <b><i>E. pubescens</i></b>  |

***Ehretia ovalifolia*** Wight, Ic. t. 1383. 1848; Fl. Brit. India 4: 143. 1883; Fl. Pres. Madras 891. 1923; Matthew. Fl. TN. Carnatic 1002. 1983 & Fur. Ill. Fl. TN. Carnatic t. 387. 1988.

Small trees, branchlets lenticellate, terete. Leaves to 7 x 3.5 cm, oblong or elliptic, apex obtuse, nerves 6-8 pairs, pubescent in the nerve axils; petiole 1-1.5 cm; Corymbs terminal and axillary, 8-10 cm; flowers white, slightly pubescent; pedicel 1-2 mm; calyx tube to 1 mm, lobes 1 mm, pubescent; corolla rotate, tube 3 mm, lobes 2 mm; filaments 4 mm; ovary 4 celled; styles 2, fused to 3 mm.

*Fl.* August-November

*D i s t.* Occasional in dry deciduous forests

Alampetty, *KKS 15787*

**Ehretia pubescens** Benth. in Royle, Ill. 1: 306. 1836; *Fl. Pres. Madras* 891. 1923; Matthew, *Fl. TN. Carnatic* 1002. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 388. 1988. *E. laevis* Roxb. var. *pubescens* (Benth.) Clarke in Hook. f., *Fl. Brit. India* 4: 142. 1883.

Large stout shrubs, branchlets woody, lenticellate. Leaves to 7.5 x 3.5 cm, ovate to oblanceolate, apex obtuse, coriaceous, scabrous, nerves 5-6 pairs; petiole to 1.5 cm. Corymbs terminal and axillary. to 1 cm; flowers white calyx tube to 1 mm, lobes 1 mm, ovate; corolla tube to 1.5 mm, lobes 1 mm; filaments scarcely 1 mm long; ovary 4 celled, style bifid, short; stigma minute.

*Fl.* January-February

*D i s t.* Occasional in dry deciduous forests

Sivapura, *KKS 11930*; Chinnar, *NS 5921*; *KKS 17403*

**Ehretia wightiana** Wall. ex G. Don, *Gen. Syst.* 4: 388. 1837-1838; Wight, *lc. t.* 1384. 1848; *Fl. Brit. India* 4: 143. 1883; *Fl. Pres. Madras* 891. 1923.

Shrubs or small trees; branchlets whitish. Leaves mostly clustered, to 4 x 1.5 cm, obovate, elliptic, apex acute, base cuneate. nerves 4-6 pairs, petiole 1 cm. Corymbs terminal, to 4 cm, slightly pubescent. Fruit 0.5 cm across, fruiting calyx tube 1 mm, lobes 2 mm. pubescent..

*Fl. & Fr.* February-April

*D i s t.* Occasional in dry deciduous forests; endemic to Peninsular India.

Gellimala, *KKS 18281*

#### HELIOTROPIUM L.

**Heliotropium marifolium** Retz., *Obs. Bot.* 2: 8. 1781, subsp. **marifolium** ; *Fl. Brit. India* 4: 152. 1883 p.p.; Backer & Bakh. f. *Fl. Java* 2: 462. 1965. **H. scabrum** Retz., *Obs. Bot.* 2: 8. 1781; Wight, *lc. t.* 1389. 1848; *Fl. Brit. India* 4: 152. 1883; *Fl. Pres. Madras* 897. 1923; Matthew, *Fl. TN. Carnatic* 989. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 378. 1988.

Woody herbs. scabrous. Leaves alternate, 2-2.5 x 0.2 cm, lanceolate, elliptic, pubescent, subsessile. Racemes short; calyx lobes 2.5 mm, lanceolate, hairy; corolla funnel shaped, tube to 1.2 cm, with a row of hairs on the outside, mouth widened; anthers apiculate, slightly connate, pubescent; ovary 4 celled, one ovuled each, style 0.4 mm, stigma conical. Fruit 4 lobed. 2 mm across, smooth.

*Fl. & Fr.* July-September

*D i s t.* Common in dry deciduous forests

Ichampetty, *KKS 15740*

### TRICHODESMA R. Br.

1. Calyx lobes sagitate at base : *T. indicum*  
1. Calyx lobes rounded at base : *T. zeylanicum*

**Trichodesma indicum** (L.) R. Br., Prodr. 496. 1810; Wight, Ill. 2: t. 172. 1850; Fl. Brit. India 4: 153. 1883; Fl. Pres. Madras 899. 1923; Matthew, Fl. TN. Carnatic 993. 1983 & Ill. Fl. TN. Carnatic t. 475. 1982. *Borago indica* L., Sp. Pl. 137. 1753.

Scabrous herbs. Leaves opposite and alternate, 4-5 x 0.5-1 cm, linear-oblong, apex obtuse, base auricled, scabrous. Flowers solitary, axillary or in lax racemes; pedicels 1 cm hairy; calyx lobes 8 mm long, acuminate, sagitate, hairy, one nerved; corolla salver shaped, 9 mm long, lobes acuminate; anthers united, pubescent at base and outside, connective 5 mm; ovary 4 lobed, style 5 mm.

*Fl. & Fr.* January-March

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5919*; Mulangampetty, *KKS 11893*

**Trichodesma zeylanicum** (Burm. f.) R. Br. Prodr. 496. 1810; Fl. Brit. India 4: 154. 1883; Fl. Pres. Madras 899. 1923; Matthew, Fl. TN. Carnatic 994. 1983 & Fur. Ill. Fl. TN. Carnatic t. 382. 1988.

Tall scabrous herbs. Leaves mostly opposite, 8-14 x 2-3 cm, elliptic, apex acute, scabrous above, pubescent below. sessile. Racemes to 5 cm, hirsute; calyx lobes 11 x 3 mm, lanceolate, rounded at base. hirsute, 1-ribbed; corolla salver form, widened at mouth, lobes 9 mm, long acuminate, white; anthers connivent, hairy below and outside, connectives produced; ovary 4-celled. style 5 mm.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11514*; Chengamperu. *11702*

### CONVOLVULACEAE

1. Leafless twiners : *cuscuta*  
1. Leafy plants : 2  
2. Fruit indehiscent : 3  
2. Fruit dehiscent : 4  
3. Stigmas 2, globose : *Argyreia*  
3. Stigmas 2, linear : *Rivea*  
4. Pollen grains smooth : 5  
4. Pollen grains spinulose : 6  
5. Flowers yellow to white; leaves oblong : **Merremia**  
5. Flowers white with purple eye; leaves broadly ovate : *Hewittia*  
6. Stigmas 4; stamens equal : *Evolvulus*  
6. Stigmas 2; stamens unequal : *Ipomoea*

### ARGYREIA Lour.

1. Erect shrubs; leaves obtuse or emarginate : *A. cuneata*  
1. Climbers; leaf apex acute : 2

2. Bracts oblong, ca. 4 x 1.5 cm; leaves pubescent above at maturity : *A. sericea*  
 2. Bracts lanceolate, ca. 1 x 0.2 cm; leaves glabrous above at maturity : *A. kondaparthiensis*

*Argyreia cuneata* (Willd.) Ker-Gawl. in Bot Reg. 8. t. 661. 1822; Fl. Brit. India 4: 191. 1883; Fl. Pres. Madras 909. 1923; Matthew, Fl. TN. Carnatic 1007. 1983 & Ill. Fl. TN. Carnatic tt. 476. 974c. 1982. *Convolvulus cuneatus* Willd., Sp. Pl. 1: 873. 1978. *Rivea cuneata* (Willd.) Wight, Ic. t. 890. 1844-45 [Fig. 9].

Erect shrubs, mealy pubescent. Leaves to 10 x 4 cm, oblong-obovate, apex obtuse or emarginate, base cuneate, puberulus above, pubescent below; petiole 1.5 cm. Cymes axillary; peduncles 2 to 6 cm, stout; calyx lobes 5, accrescent, broadly ovate; corolla pink. Berry 2 x 1 cm, ellipsoid, pointed, yellowish brown, shining; seeds 4, 9 x 5 mm, ellipsoid.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Palapetty, *KKS 15512*

*Argyreia kondaparthiensis* Daniel & Vajravelu nom. nov. in Journ. Eco. Tax. Bot. 3: 675. 1982. *A. choisyana* (Wt.) Wt. ex Clarke in Hook. f., Fl. Brit. India 4: 190. 1883, non Regel & Koern. 1858; Fl. Pres. Madras 908. 1923. *Batatas choisyana* Wt. Ic. 491. 1841.

Densely hirsute twiners. Leaves to 5 x 3 cm, ovate, oblong, apex acute, apiculate, base truncate to slightly cordate, strongly hirsute when young, glabrous later on the upper surface; petiole to 1 cm. Cymes axillary; bracts 10 x 2 mm, lanceolate, hirsute; calyx lobes 5, 1.5 x 0.3 cm, lanceolate, apex acute; corolla 5 cm long, funnel shaped, sparsely villous, outside, pink; ovary 1 mm, style 3 cm long, stigma bigiobose.

*Fl.* April-July

*D i s t.* Occasional in high altitude grasslands

Vanchikulam, *KKS 15627*

*Argyreia sericea* Dalz. in *Dalz. & Gibs.*, Bombay Fl. 169. 1861; Fl. Brit. India 4: 188. 1883; Fl. Pres. Madras 908. 1923.

Densely hirsute stout climbing shrubs. Leaves to 13 x 10 cm, deltoid, ovate to lanceolate, apex acute, base truncate, pubescent above, densely hirsute below; petiole to 4 cm. Cymes axillary; bracts 4 x 1.5 cm, oblong, tomentose; peduncles to 10 cm, pubescent; calyx lobes 1 x 0.5 cm, oblong-lanceolate, pubescent, except the overlapping part, slightly unequal; corolla funnel shaped, tube 6 cm long, pink, hirsute on outside, especially on the conduplication. Berry 3 cm across, fruiting calyx enlarged.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests

Nellimedu, *KKS 11943*

#### CUSCUTA L.

1. Styles 2, scales fimbriate, stigma globose : *C. chinensis*  
 1. Style 1, scales not fimbriate, stigma acute : *C. reflexa*



Fig. 9. *Argyreia cuneata* (Willd.) Ker-Gawi. A. fruiting branch, B. fruit.



**Cuscuta chinensis** Lam., Encycl. 2: 1786; Wight, Ic. t. 173. 1849; Fl. Brit. India 4: 227. 1883; Fl. Pres. Madras 931. 1923; Austin in Rev. Handb. Fl. Ceylon 1: 305. 1981; Matthew, Fl. TN. Carnatic 1013. 1983 & Ill. Fl. TN. Carnatic t. 478. 1982.

Stem red to yellow, filiform. Flowers in fascicles, white; bracts 2 mm, ovate; calyx lobes 2 mm, deltoid, concave; corolla 3 mm, lobes ovate, recurved, shortly acuminate; scales 5, 1 mm, fimbriate; stamens exserted; ovary 1 mm, subglobose, style 1 mm, stigma capitate.

*Fl.* December-February

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11737*

**Cuscuta reflexa** Roxb., Pl. Cor. t. 104. 1798; Fl. Brit. India 4: 225. 1883; Fl. Pres. Madras 931 1923; Matthew, Fl. TN. Carnatic 1014. 1983 & Fur. Ill. Fl. TN. Carnatic t. 391. 1988.

Stem reddish. Racemes axillary; bracts ovate-lanceolate; flowers white; calyx 3 mm; corolla 10 mm long, lobes ovate, acute; scales fimbriate, incurved at apex; ovary ovoid, 3 mm, style single, 1 mm, stout, stigmas 2, branches stout, divergent, ovoid.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 11921*

#### EVOLVULUS L.

**Evolvulus alsinoides** (L.) L., Sp. Pl. ed. 2. 1: 392. 1762; Fl. Brit. India 4: 220. 1883; Fl. Pres. Madras 922. 1923; Matthew, Fl. TN. Carnatic 1015. 1983 & Ill. Fl. TN. Carnatic t. 479. 1982.

**Convolvulus alsinoides** L., Sp. Pl. 157. 1753.

Prostrate spreading herbs; branchlets slender, hirsute. Leaves to 2 x 0.5 cm oblong, apex apiculate, base obtuse, pubescent; petiole 3 mm. Flowers solitary or in pairs, axillary, blue; pedicels 0.5 cm, jointed to a filiform stalk, to 3 cm long, hirsute; calyx lobes 5, 4 x 1 mm, pubescent; corolla 1 cm across, rotate; stamens equal, exserted; ovary 0.8 mm, styles 2, each 2-fid, 4 mm. Capsule 5 mm across, 2-celled; seeds 3-4 each.

*Fl. & Fr.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar. *KKS 11589, 11586*

#### HEWITTIA Wight & Arn.

**Hewittia malabarica** (L.) Suresh in Nicols. *et al.*, Interp. Hort. Malab. 88. 1988. **Convolvulus malabarica** L., Sp. Pl. 155. 1753. **C. sublobatus** L. f., Suppl. Pl. 135. 1782. **Hewittia bicolor** (Vahl) Wight & Arn., Madras J. Lit. Sci. 1(5): 22. 1837; Wight, Ic. t. 835. 1844; Fl. Brit. India 4: 216. 1883; Fl. Pres. Madras 924. 1923. **H. sublobata** (L. f.) O. Ktze., Rev. gen. Pl. 2: 441. 1891; Matthew, Fl. TN. Carnatic 1016. 1983 & Fur. Ill. Fl. TN. Carnatic t. 392. 1988.

Pubescent twiners. Leaves to 8 x 7.5 cm, broadly ovate, shallowly lobed, apex acute, base cordate, pubescent; petiole 4 cm. Flowers axillary, 1-3 together; bracts 1.5 cm, linear-lanceolate;

peduncles to 10 cm; calyx lobes unequal, ovate, outer 3, 15 x 9 mm, hairy; corolla 2 cm long, pilose outside, white with a purple centre; ovary globose, pubescent, 2-celled, 2 ovuled each.

*Fl.* January-April

*D i s t.* Occasional in wet regions in dry deciduous forests

Churullipetty, *KKS* 15965

#### **IPOMOEA L.**

1. Flowers in one sided cymes	: <i>I. hederifolia</i>
1. Flowers solitary or in cymes	: 2
2. Leaves simple	: 3
2. Leaves lobed	: 6
3. Stout climbers, glabrous	: <i>I. staphylina</i>
3. Slender climbers, hirsute	: 4
4. Flowers solitary, filaments villous	: <i>I. obscura</i>
4. Flowers in cymes, filaments glabrous	: 5
5. Ovary pubescent; flowers pink	: <i>I. eriocarpa</i>
5. Ovary glabrous; flowers mauve with purple centre	: <i>I. mombassana</i>
6. Stipules pedately lobed	: <i>I. cairica</i>
6. Stipules not pedately lobed	: 7
7. Leaves 3-lobed; flowers not white	: 8
7. Leaves pedately 5-9-lobed; flowers white	: <i>I. pes-tigridis</i>
8. Leaves white tomentose beneath	: <i>I. dichroa</i>
8. Leaves greenish, glabrous beneath	: <i>I. nil</i>

***Ipomoea cairica*** (L.) sweet. Hort. Brit. ed. 1. 287. 1827; Fl. Pres. Madras 918. 1923; Matthew, Fl. TN. Carnatic 1024. 1983. ***Convolvulus cairicus*** L., Syst. Nat. ed. 10. 922. 1759. ***Ipomoea pulchella*** sensu Wight, Ic. t. 156. 1839, non Roth 1821. ***I. palmata*** Forssk. Fl. Aeg.-Arab. 43. 1775; Fl. Brit. India 4: 214. 1883.

Twining. Leaves palmately 5-7 foliate, deeply divided to the base; leaflets to 3.5 x 1 cm, elliptic-obovate, apiculate, mid one larger, side leaflets small; petiole 4 cm; stipular leaves pedately 5-9 foliate. Flowers axillary, solitary or in cymes; peduncle to 6 cm; pedicels to 2 cm; calyx lobes subequal, outer 7 x 3.5 mm, obovate, apiculate; corolla 5 cm across, tube 4 cm long, pink; filaments pilose at the base, included; ovary 1 mm; style 1 cm.

*Fl.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11602

***Ipomoea dichroa*** Choisy in DC., Prodr. 9: 364. 1845; Verdc. in Kew Bull. 33: 165. 1978; Matthew, Fl. TN. Carnatic 1026. 1983. ***I. pilosa*** (Roxb.) Sweet, Hort. Brit. ed. 1. 289. 1827, non Houtt. 1777; Fl. Brit. India 4: 213. 1883; Fl. Pres. Madras 917. 1923. ***Convolvulus pilosus*** Roxb., Fl. Ind. 2: 55. 1824, non Rottl. 1803.

Hirsute climbers. Leaves usually 3-lobed, midlobe 3 x 2.5 cm, ovate, apiculate, base cordate, sparsely strigose above, white tomentose beneath; petiole to 2 cm. Cymes axillary; peduncles to 5 cm; bracts 1 cm, lanceolate, decurrent, hirsute; pedicels to 8 mm, hirsute; calyx lobes

free, 10 s 2 mm, linear, lanceolate. hirsute; corolla 1.8 cm, funnel shaped, pink; stamens included, unequal. to 1 cm; anthers cordate at base; ovary 1 mm, semi-circular, style 9 mm, stigmas 2, capitate.

*Fl.* December-April

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11660*

***Ipomoea eriocarpa*** R. Br.. Prodr. 484. 1810; *Fl. Brit. India* 4: 203. 1883; Austin in *Rev. Handb. Fl. Ceylon* 1: 325. 1980; Matthew. *Fl. TN. Carnatic* 1026. 1983. ***Convolvulus hispidus*** Vahl. *Symb. Bot.* 3: 29. 1794. ***Ipomoea hispida*** (Vahl) Roetn. & Schult.. *Syst.* 4: 238. 1819, non Zucc. 1809; *Fl. Pres. Madras* 915. 1923. ***I. sessiliflora*** Roth, *Nov. Pl. Sp.* 116. 1821; *Wight. Ic. t.* 169. 1839.

Densely hirsute twiners. Leaves to 7 x 3 cm, oblong-ovate, apex acute, mucronate, deeply cordate at base. pubescent: petiole to 3.5 cm. Cymes axillary, short peduncled. many flowered; bracts **S mm**, linear: peduncles to 1 cm; pedicels to 2 mm; calyx lobes 8 mm, lanceolate. densely hirsute; corolla 9 mm long, funnel shaped, pink; anthers 1 mm, sagitate; ovary densely pilose, style 5 mm, stigma biglobose.

*Fl.* October-January

*D i s t.* Common in dry deciduous forests

Mavelipuram, *KKS 15911*; Ichampetty, *15881*

***Ipomoea hederifolia*** L. *Syst. Nat.* (ed. 10) 925. 1759; Austin in *Rev. Handb. Fl. Ceylon* 1: 325. 1980; Matthew, *Fl. TN. Carnatic* 1027. 1983 & *Ill. Fl. TN. Carnatic t.* 481. 1982. ***I. phoenicea*** Rosb.. *Fl. Ind.* 2: **92**. 1824. ***I. coccinea*** sensu Clarke in Hook. f.. *Fl. Brit. India* **4**: 199. 1883. ***Quamoclit phoenicea*** (Roxb.) Choisy, *Mem. Soc. Phys. Geneve* 6: 433. 1834; *Fl. Pres. Madras* 919. 1923.

Sparsely pubescent twiners. Leaves entire or 3-lobed, to 6.5 x 6.5 cm, broadly ovate, long acuminate, apiculate, cordate; petiole to 8 cm. Cymes one sided; bracts lanceolate; peduncles to 15 cm; pedicels 1 cm; calyx lobes 2 mm, oblong, aristate; corolla 3.5 cm, funnel shaped, red; stamens unequal. exerted; ovary 1.5 mm, conical, style 4 cm, exerted. Capsules 8 mm across, globose; seeds 4. oblong.

*Fl. & Fr.* September-December

*D i s t.* Common along the streamsides

Alampetty, *KKS 15866*

***Ipomoea mombassana*** Vatke, *Linnaea.* 43: 515. 1882; Baker & Rendle in *This. -Dyer.*, *Fl. Trop. Africa* 4(2): 184. 1905; Verdc.. *Fl. Trop. E. Africa* 98. 1963; Biju et al., *Jour. Eco. Tax. Bot.* 22(2): 471-473. 1998 [Fig. 10].

Herbaceous twiners. stem hirsute with bulbous based hairs, glabrous when old. Leaves 3-8 x 2-6 cm, triangular-ovate, deeply cordate to sagitate, apex acute, shortly aristate. more pubescent beneath: petiole to 8 cm long; flowers axillary, 1-3 flowered; peduncle 2. **S cm** long, sparsely to



Fig. 10. *Ipomoea mombassana* Vatke A. habit, B. flower, C. fruit

prominently pubescent: bracts 2. linear-elliptic to lanceolate, pubescent; pedicels to 5 cm long, pubescent; sepals subequal. outer 3 larger, 7-8 x 3-4 mm, linear, hastate at base, obtuse to acute at apex, pubescent, inner 3 smaller. 8 x 2 mm. linear, pubescent: corolla mauve with purple centre, funnel shaped, 2-3 cm across; stamens exserted, unequal; ovary conical, 1-1.5 x 1 mm; disc **small**, style subexserted, stigma biglobose. Capsule 5-6 x 6-7 mm, globose; pedicels recurved.

*Fl. & Fr.* August-December

*D i s t.* Rare in rocky areas in disturbed dry deciduous forests

Chinnar, *Biju* 35696

**Note** : The description given is based on the specimen collected by S.D. Biju from Chinnar.

**Ipomoea nil** (L.) Roth. Cat 1: 36. 1797; Austin in Rev. Handb. Fl. Ceylon 1: 332. 1980; Matthew, Fl. TN. Carnatic 1028. 1953. *Convolvulus nil* L., Sp. Pl. (ed. 2) 219. 1762. *Ipomoea hederacea* auct. non (L.) Jncq., 1787; Fl. Brit. India 4: 199. 1883; Fl. Pres. Madras 917. 1923.

Sparsely hirsute twiners. Leaves 3-lobed, 7 x 6 cm, middle lobe 3 x 2.5 cm, acuminate. base cordate, membranous; petiole to 5 cm. Cymes axillary; peduncles 5 cm. sparsely hairy; bracts 1 cm. lanceolate: calyx lobes 2.5 cm. lanceolate. densely hirsute at base: corolla 5 cm long, funnel shaped, blue: ovary 1.5 mm, style 3 cm. stigma biglobose.

*Fl.* November-March

*D i s t.* Common in dry deciduous forests

Chinnar. *KKS* 11637

**Ipomoea obscura** (L.) Ker-Gawl. Bot. Reg. 3. t. 239. 1817; Fl. Brit. India 4: 307. 1883; Fl. Pres. Madras 916. 1923; Austin in Rev. Handb. Fl. Ceylon 1: 333. 1980; Matthew. Fl. TN. Carnatic 1030. 1983 & Fur. III. Fl. TN. Carnatic t. 394. 1988. *Convolvulus obscurus* L.. Sp. Pl. (ed. 2) 220. 1762.

Hirsute twiners. Leaves to 5.5 x 6.5 cm, broadly ovate-orbicular, acuminate, deeply cordate, apiculate, sparsely pubescent; petiole 6 cm long. Flowers solitary or rarely in subumbellate cymes; peduncles 5 cm; bracts 2 mm, linear; pedicels 1.5 cm; calyx lobes unequal, outer 4 mm. ovate, pubescent without; corolla 2.5 cm across. funnel shaped. purple; filaments villous: ovary 1.5 mm, conical.

*Fl.* November-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11575, 11604

**Ipomoea pes-tigridis** L.. Sp. Pl. 162. 1753; Wight. Ic. t. 836. 1844-1845; Fl. Brit. India 4: 204. 1883; Fl. Pres. Madras 918. 1923; Matthew. Fl. TN. Carnatic 1031. 1983 & Fur. III. Fl. TN. Carnatic t. 396. 1988. *I. pes-tigridis* L. var. *hepaticifolia* (L.) Clarke in Hooh. f., Fl. Brit. India 4: 204. 1883. *I. hepaticifolia* L.. Sp. Pl. 161. 1753.

Hispid twiners. Leaves palmately 5-9 lobed. to 7 x 9 cm, midlobe to 5.5 x 2.5 cm, obovate, acuminate, sparsely hairy: petiole to 10 cm. Flowers axillary, in clusters: peduncles to 15 cm,

hirsute; bracts 2.5 x 0.5, oblanceolate, hairy; calyx lobes unequal, inner 2 narrower, acuminate; corolla 4 cm across, white; ovary conical. 1 cm long.

*Fl.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5904; KKS 11539*

***Ipomoea staphylina*** Roem. & Schultes, Syst. 4: 249. 1819; Fl. Brit. India 4: 210. 1883; Fl. Pres. Madras 917. 1923. ***I. racemosa*** Roth, Nov. Pl. Sp. 115. 1821; Wight, Ill. 2: t. 168. **1850.**

Stout stragglers. Leaves to 15 x 10 cm, broadly ovate, base cordate, apex acute, membranous, nerves oblique; petiole 6.5 cm. Panicle of cymes axillary, to 15 cm; pedicels 0.5-1 cm; bracts minute; outer sepals 5 x 4 mm, oblong, obtuse, inner obovate with hyaline margins, 6 x 5 mm; corolla 2 cm long, shallowly 5-lobed, funnel shaped, pink; stamens 5, included, base dilated, hairy, filaments 7-8 mm; anthers 3 mm; ovary 2 mm; style 1.5 cm, stigma 2, globose.

*Fl.* December-January

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS 11636*

#### MERREMIA Dennst.

1. Pedicels less than 2.5 cm long

: ***M. tridentata* ssp. *tridentata***

1. Pedicels more than 2.5 cm long

: ***M. tridentata* ssp. *hastata***

***Merremia tridentata*** (L.) Hall. f., Bot. Jahrb. 16: 552. 1893; ssp. ***hastata*** (Desr.) Ooststr. in Blumea 3: 317. 1939 & in Steenis, Fl. Males. ser. I, 4: 445. 1953. ***C. tridentatus*** L., Sp. Pl. 157. 1753. ***M. hastata*** (Desr.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Fl. Pres. Madras 929. 1923.

***Ipomoea angustifolia*** Clarke in Hook. f., Fl. Brit. India 4: 205. 1883, non Jacq. 1789.

Prostrate many branched herbs. Leaves to 4 x 0.7 cm, oblong-obovate, apex acute or truncate, mucronate, base auricled with many teeth, subsessile. Flowers solitary, axillary, creamy white; pedicels to 5 cm; calyx lobes 5 mm, lanceolate, apiculate; corolla to 2 cm long. Capsule 0.8 cm across. globular with persistent accrescent calyx lobes.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Palapetty, *KKS 15858*

***Merremia tridentata*** (L.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893, subsp. ***tridentata***; Fl. Pres. Madras 928. 1923; Matthew, Fl. TN. Carnatic 1038. 1983. ***Convolvulus tridentatus*** L., Sp. Pl. 157. 1753. ***Ipomoea tridentata*** (L.) Roth in Roem., Arch. Bot. 1(2): 38. 1797; Fl. Brit. India 4: 205. 1883.

Prostrate herbs with many branches radiating from the base. Leaves to 2 x 1 cm, oblong, apex acute, mucronate, pandurate, hastate at the base. margin toothed; petiole 1 cm. Flowers solitary. axillary; pedicels 2 cm; calyx lobes 3 mm, linear. Fruiting pedicels recurved globose. Capsule 4 mm across; seeds many, rugose.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 18282*

**RIVEA Choisy.**

**Rivea ornata** (Roxb.) Choisy., *Convolv. Orient.* 27. 1834; Wight,  *Ic. t.* 1356. 1848; *Fl. Brit. India* 4: 183. 1883; *Fl. Pres. Madras* 903. 1923; Matthew, *Fl. TN. Carnatic* 1042. 1983 & *Ill. Fl. TN. Carnatic t.* 485. 1982. *Lettsomia ornata* Roxb., *Fl. Ind.* 2: 85. 1824.

Climbing shrubs: branchlets woody, white tomentose. Leaves 6 x 5.5 cm, cordiform, apex obtuse shortly apiculate. base deeply cordate, white tomentose beneath, with pits at the base of lamina; petiole to 4.5 cm. tomentose. Flowers axillary, 1-3 flowered; peduncles 1.5 cm, tomentose; bracts 2 cm, lanceolate tomentose; calyx lobes 1.8 x 0.8 cm, oblong, obtuse, densely tomentose, subequal; corolla salver shaped, lobes twisted, 6 cm long, sparsely pubescent; filaments pubescent at the base: ovary 4-celled, style 4 cm, stigmas 2. Berry globose. yellow.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11686*

**SOLANACEAE**

- |                                            |                   |
|--------------------------------------------|-------------------|
| 1. Fruit echinate                          | : <b>Datura</b>   |
| 1. Fruit not echinate                      | : <b>2</b>        |
| 2. Anthers connivent around stigma         | : <b>Solanum</b>  |
| 2. Anthers not connivent                   | : <b>3</b>        |
| 3. Calyx lobes broadly cordate at the base | : <b>Nicandra</b> |
| 3. Calyx lobes not cordate at the base     | : <b>Physalis</b> |

**DATURA L.**

**Datura metel** L., *Sp. Pl.* 179. 1753; Sant., *J. Bombay Nat. Hist. Soc.* 47: 657. 1948; Matthew, *Fl. TN. Carnatic* 1052. 1983 & *Ill. Fl. TN. Carnatic t.* 388. 1982. *D. alba* Nees. *Trans. Linn. Soc. London* 17: 73. 1834; Wight,  *Ic. t.* 852. 1844. *D. fastuosa* non L. 1759, Wight,  *Ic. t.* 1396. 1848; *Fl. Brit. India* 4: 242. 1883; *Fl. Pres. Madras* 941. 1923.

Shrubs. Leaves to 15 x 10 cm. ovate. sinuate, apex acute, base unequal, puberulus, nerves ca. 7 pairs. chartaceous; petiole to 7 cm. Flowers axillary. solitary, purple; pedicels 1 cm; calyx tube 4.5 cm, puberulus. teeth 1.5 cm. lanceolate; corolla to 15 cm long. 3-seriate corolla. teeth to 1 cm, reflexed. puberulus: stamens included in the corolla tube, filaments unequal, with a flap like process at apex; anthers 1.1 cm. pubescent. Fruit 4 cm across. ovoid, with numerous spines.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 11915*

**NICANDRA Adans.**

**Nicandra physalodes** (L.) Gaertn., *Fruct.* 2: 237. t. 131. f. 2. 1791. "*physaloides*"; Clarke in Hook. f., *Fl. Brit. India* 3: 240. 1883; *Fl. Pres. Madras* 941. 1923; Matthew, *Fl. TN. Carnatic* 1054. 1983 & *Ill. Fl. TN. Carnatic t.* 489. 1982.

Herbs, stems grooved. Leaves to 15 x 9 cm, elliptic-acute, sinuate, apex acute, base cuneate, decurrent to the petiole; petiole to 5 cm. Flowers solitary, axillary; calyx lobes 3 x 2.5 cm, cordate, acuminate, accrescent, enclosing the berry, prominently reticulately veined. Berry 3 cm across, yellow.

*Fl. & Fr.* December-April

D i s t. Common in dry deciduous forests

Naduvanasithura, *KKS 11679*

#### PHYSALIS L.

1. Leaves cordiform; flowers yellow with purple spots inside : **P. peruviana**

1. Leaves ovate; flowers yellow : **P. minima**

**Physalis minima** L., Sp. Pl. 183. 1753; Fl. Brit. India 4: 238. 1883; Fl. Pres. Madras 939. 1923; Matthew, Fl. TN. Carnatic 1056. 1983 & Ill. Fl. TN. Carnatic t. 490. 1982. **P. minima** L. var. **indica** Clarke in Hook. f., Fl. Brit. India 4: 238. 1883; Fl. Pres. Madras 939. 1923. **P. pubescens** sensu Wight, 111.2: t. 166 B. f. 6. 1850, non L. 1753.

Slender herbs, sparsely hirsute. Leaves to 6 x 3 cm, ovate, apex acute, membranous, margins irregularly broadly crenulate, sparsely puberulus; petiole to 5 cm. Flowers axillary, solitary; calyx lobes 3 mm, triangular, acute, puberulus; corolla tube 2 mm, lobes 2 mm, triangular, yellow; ovary 1.5 mm, style 4 mm. Berry 7 mm across, enclosed in the accrescent calyx.

*Fl. & Fr.* November-February

D i s t. Common in dry deciduous forests

Chinnar, *KKS 11548*

**Physalis peruviana** L., Sp. Pl. ed. 2: 1670. 1762; Fl. Brit. India 4: 238. 1883; Fl. Pres. Madras 939, 1923; Matthew, Fl. TN. Carnatic 1057. 1983. Hepper in Rev. Handb. Fl. Ceylon 6: 392. 1987.

Pubescent herbs. Leaves to 6 x 4.5 cm, cordiform, apex acute, dentate, nerves *ca.* 5 pairs, pubescent; petiole to 2 cm. Flowers axillary, solitary; pedicels to 8 mm, pubescent; calyx tube 4 mm, lobes 4 mm, triangular, pubescent; corolla tube 5 mm, lobes 5 mm, oblong-obovate, with purple spots inside, broadly campanulate, yellow; ovary 2 mm, style 6 mm, stigma globose. Berry 1.2 cm across, enclosed in enlarged calyx, to 5 x 3 cm.

*Fl. & Fr.* March-May

D i s t. Common in moist deciduous forests

Vanchikulam, *KKS 15635*

#### SOLANUM L.

1. Leaves pinnatifid : **S. seafortianum**

1. Leaves simple : 2

2. Unarmed : 3

2. Armed : 6

3. Flowers blue : **S. pubescens**

3. Flowers white : 4



- |                                                 |                          |
|-------------------------------------------------|--------------------------|
| 4. Plants densely tomentose; leaves coriaceous  | : <i>S. erianthum</i>    |
| 4. Plants pilose or glabrous; leaves membranous | : 5                      |
| 5. Flowers in supra-axillary umbels herbs       | : <i>S. nigrum</i>       |
| 5. Flowers in axillary clusters                 | : <i>S. denticulatum</i> |
| 6. Flowers white, style glabrous                | : <i>S. torvum</i>       |
| 6. Flowers blue/violet; style pubescent         | : <i>S. anguivi</i>      |

**Solanum anguivi** Lam., Encycl. 2: 23. 1794; Hepper in Bot. J. Linn. Soc. 76: 290. 1978; Matthew, Fl. TN. Carnatic 1058. 1983 & Fur. Ill. Fl. TN. Carnatic t. 410. 1988. *S. indicum* auct. non L. 1753; Wight, Ic. t. 346. 1840; Fl. Brit. India 4: 234. 1883; Fl. Pres. Madras 938. 1923. *S. violaceum* Hepper in Rev. Handb. Fl. Ceylon 6: 378. 1987.

Prickly subshrubs. Leaves to 7 x 5 cm, ovate, truncate, sinuate, apex obtuse, base unequally truncate, tomentose; petiole to 2.5 cm. Racemes supra-axillary, peduncles to 4 cm; pedicels to 1.5 cm; calyx cupular, tube 2 mm, lobes 4 mm, triangular, pubescent; corolla tube 5 mm, lobes 1 cm, oblong, pubescent, violet; ovary 2 mm, oblong, style 1 cm, pubescent, stigma globose. Berry 1 cm across, yellow.

*Fl. & Fr.* August-October

*D i s t.* Common in rocky areas in moist deciduous forests

Pallippara, *KKS 15821*

**Solanum denticulatum** Blume, Bijdr. 697. 1826; Wight, Ic. t. 1397. 1848; Fl. Brit. India 4: 231. 1883; Fl. Pres. Madras 2: 936. 1923; Matthew, Fl. TN. Carnatic 1058. 1983 & Fur. Ill. Fl. TN. Carnatic t. 411. 1988.

Unarmed shrubs, pilose. Leaves in unequal pairs, to 15 x 6 cm and to 6 x 3 cm, elliptic-ovate, membranous, long acuminate, base cuneate, often dentate on the upper half, sparsely pilose, nerves 8-10 pairs; petiole to 6 cm. Flowers axillary, clustered; pedicels 1 cm, white; calyx tube 2 mm, lobes 5-10, 2 mm, densely pubescent; corolla lobes 7 mm, pubescent; ovary 2 mm, style 3 mm, stigma capitate. Berry 7 mm across, red.

*Fl. & Fr.* September-December

*D i s t.* Common in shola forests

Karivepinshola, *KKS 17451*, Olikkudy, *17484*

**Solanum erianthum** D. Don, Prodr. 96. 1825; Roe in Taxon 17: 176. 1968; Matthew, Fl. TN. Carnatic 1059. 1983 & Ill. Fl. TN. Carnatic t. 491. 1982; Hepper in Rev. Handb. Fl. Ceylon 6: 370. 1987. *S. verbascifolium* auct. non L. 1753; Wight, Ic. t. 1398. 1848; Fl. Brit. India 4: 230. 1883; Fl. Pres. Madras 936. 1923.

Large shrubs, young parts tomentose. Leaves to 15 x 5 cm, elliptic-ovate, apex acute, base obtuse, tomentose, nerves ca. 8 pairs; petiole to 6 cm. Corymbs terminal, rarely lateral; peduncles to 7 cm; flowers white; pedicels 0.5 cm; calyx tube to 3 mm, lobes 2 mm, broadly ovate, tomentose; corolla tube 4 mm, lobes 8 mm, tomentose outside; anthers 3 mm; ovary tomentose, style 5 mm, stigma capitate. Berry 8 mm across, stellately pubescent.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Palapetty, *KKS 15520*

**Solanum nigrum** L., Sp. Pl. 186. 1753; Fl. Brit. India 4: 229. 1883; Fl. Pres. Madras 936. 1923; Matthew, Fl. TN. Carnatic 1062. 1983 & Fur. Ill. Fl. TN. Carnatic t. 413. 1988. *S. rubrum* Mill., Gard. Dict. ed. 8. n. 4. 1768, non L. 1767; Wight, Ic. t. 344. 1840.

Unarmed herbs, sparsely puberulus. Leaves to 6 x 3 cm, ovate-elliptic, apex acute, base decurrent to the petiole, membranous, bluntly toothed; petiole to 2 cm. Umbels supra-axillary; pedicels to 1 cm; calyx 1 mm, lobes obtuse; corolla tube 1 mm, lobes 3 mm, puberulus, white; ovary 1 mm, tomentose, style pubescent, stigma globose. Berry 5 mm across.

FZ & Fr. April-July

D i s t. Common in disturbed forest areas

Olikkudy, KKS 15665

**Solanum pubescens** Willd., Phytogr. 5. t. 3. 1794; Wight, Ic. t. 1402. 1848; Fl. Brit. India 4: 230. 1883; Fl. Pres. Madras 936. 1923; Matthew, Fl. TN. Carnatic 1062. 1983.

Unarmed pubescent shrubs. Leaves to 12 x 7 cm, ovate-elliptic to deltoid, apex acute, base unequally truncate. membranous, margins entire to wavy; petiole to 8 cm, pubescent. Racemes axillary; peduncle to 5 cm, pubescent; pedicels 2 cm, pubescent; flowers blue: calyx lobes 6 mm, lanceolate, pubescent; corolla tube 5 mm, lobes 6 mm, lanceolate, pubescent: ovary 1.5 mm, style 1 cm, stigma capitate.

FZ November-February

D i s t. Common in dry deciduous forests

Chinnar, NS 5923; KKS 11607

**Solanum seforthianum** Andr., Bot. Repos. 8: t. 504. 1808; Matthew, Fl. TN. Carnatic 1063. 1983 & Fur. Ill. Fl. TN. Carnatic t. 414. 1988.

Scandent shrubs. Leaves pinnatifid, to 7 cm; terminal leaflet largest 4.5 x 1.5 cm, pinnae elliptic, obtuse, membranous; petiole to 3 cm. Panicle leaf opposed and terminal, pendant, to 12 cm; flowers lilac; calyx reduced to ring; corolla lobes 7 mm, ovate, acute; ovary 1 mm, style 5 mm, stigma globose. Berry 1 cm across, red.

FZ & Fr. December-March

D i s t. Common near gully sides

Chengamperu, KKS 11730

**Solanum towum** Sw.. Prodr. 47. 1788; Wight, Ic. t. 345. 1840; Fl. Brit. India 4: 234. 1883: Fl. Pres. Madras 937. 1923; Matthew, Fl. TN. Carnatic 1064. 1983.

Shrubs, prickles scattered, only on stems and petiole, tawny pubescent. Leaves subopposite. 9-15 x 6.5-10 cm. broadly elliptic, ovate, sinuate, apex acute, base cordate, unequal sided, stellately pubescent. densely so beneath, nerves ca. 6 pairs; petiole to 3 cm. Corymbs supra-axillary, to 6 cm: flowers white; pedicels to 15 mm: calyx cupular, lobes 4 mm, oblong, pubescent; corolla tube to 5 mm. lobes 7 mm, oblong, pubescent: ovary 1.5 mm, style 1 cm, stigma obtuse. Berry 1 cm across, greenish yellow.

**Fl.** January-April

**D i s t.** Occasional in dry deciduous forests

Churullipetty, *KKS I/851*

**Nicotiana tabacum** L. - The tobacco plant is grown in homesteads in the settlements at Ichampetty and Palapetty

### SCROPHULARIACEAE

- |                                                                          |                          |
|--------------------------------------------------------------------------|--------------------------|
| 1. Corolla spurred in front at the base, upper leaves alternate, hastate | : <b>Kickxia</b>         |
| 1. Corolla not spurred                                                   | : <b>2</b>               |
| 2. Anthers one-celled                                                    | : <b>Striga</b>          |
| 2. Anthers 2-celled                                                      | : <b>3</b>               |
| 3. Anthers are attached by their tips; leaves pinnatisect                | : <b>Micrargeria</b>     |
| 3. Anthers attached otherwise; leaves simple                             | : <b>4</b>               |
| 4. Racemes terminal, glandular pubescent                                 | : <b>Mazus</b>           |
| 4. Flowers axillary or terminal                                          | : <b>5</b>               |
| 5. Calyx lobes unequal                                                   | : <b>Bacopa</b>          |
| 5. Calyx lobes equal                                                     | : <b>6</b>               |
| 6. Corolla bilabiate                                                     | : <b>7</b>               |
| 6. Corolla rotate; leaves punctuate                                      | : <b>Scoparia</b>        |
| 7. Stamens 2, staminodes 2                                               | : <b>Lindemia (p.p.)</b> |
| 7. Stamens 4                                                             | : <b>8</b>               |
| 8. Anther cells stipitate                                                | : <b>Lirnophila</b>      |
| 8. Anther cells not stipitate                                            | : <b>Lindemia (p.p.)</b> |

### BACOPA Aubl. *nom. cons.*

**Bacopa monnieri** (L.) Pennell in Proc. Acad. Nat. Sci. Philad. 98: 94. 1946; Philcox in Kew Bull. 33: 679. 1979; Matthew, Fl. TN. Carnatic 1071. 1983 & III. Fl. TN. Carnatic t. 494. 1982. **Herpestis monniera** (L.) H. B. K. Nov. Gen. Sp. 2: 366. 1818, nom. illeg.; Fl. Brit. India 4: 272. 1884. **Gratiola monnieri** (L.) L., Syst. Nat. ed. 10. 851. 1759, "*monniera*"; Roxb., Pl. Cor. t. 178. 1805.

Prostrate fleshy herbs, rooting at the nodes. Leaves whorled, 1-2 x 0.3-0.5 cm, oblong, obovate, apex obtuse, base cuneate, fleshy, sessile. Flowers solitary, **axillary**, blue; calyx lobes unequal, 6 x 2.5 mm, outer lanceolate, acute, inner **5** mm, linear; corolla campanulate, tube 5 mm, obscurely 2-lipped; stamens **4**, didynamous, exserted, oblong; ovary 1.5 mm, oblong, style 4 mm, stigma flat.

**Fl.** February-April

**D i s t.** Common in water logged areas

Chinnar, *KKS II/922*

### LIMNOPHILA R. Br.

- |                                             |                       |
|---------------------------------------------|-----------------------|
| 1. Leaves simple, amplexicaule; large herbs | : <b>L. chinensis</b> |
| 1. Leaves pinnatifid; small marshy herbs    | : <b>L. indica</b>    |

**Limnophila chinensis** (Osbeck) Merr. in Amer. J. Bot. 3: 581. 1916; Matthew, Fl. TN. Carnatic 1079. 1983 & III. Fl. TN. Carnatic t. 497. 1982. **Limnophila hirsuta** (Heyne ex Benth.) Benth. in DC., Prodr. 10: 388. 1846; Fl. Brit. India 4: 268. 1884; Fl. Pres. Madras 951. 1923.

Tall erect herbs, stem quadrangular, pubescent. Leaves ternate, to 4 x 1.5 cm, ovate-lanceolate, apex acute, amplexicaule, serrate, pubescent, membranous, sessile. Flowers axillary, solitary, 1-3 per node, violet; pedicels to 1.5 cm; calyx lobes 6 mm, lanceolate, subequal, hirsute; corolla 5 mm across, pubescent; filaments 3-5 mm; ovary 2 mm, style 4 mm, stigma broad. Capsule 6 mm long.

*Fl. & Fr.* January-April

*D i s t.* Occasional in water logged areas

Manala, *KKS 11906*

***Limnophila indica*** (L.) Druce, Rev. Bot. Soc. Exch. Club. Br. Isles 1913, 3: 420. 1914; Cramer in Rev. Handb. Fl. Ceylon 3: 432. 1981; Matthew, Fl. TN. Carnatic 1080. 1983 & Fur. Ill. Fl. TN. Carnatic t. 419. 1988. *L. gratiolooides* R. Br., Prodr. 442. 1810; Fl. Brit. India 4: 271. 1884; Fl. Pres. Madras 952. 1923.

Marshy herbs, rooting at lower nodes. Leaves whorled, pinnatifid, to 1 cm long, linear-lanceolate, upper trifid, base spatulate. Flowers solitary, axillary; pedicels to 2 mm, calyx tube 2 mm, lobes 3 mm, oblong; corolla 8 mm, softly villous within, upper 2-lobed, whitish yellow; anthers free, included; ovary 2 mm, globose, style 3 mm, stigma pilose. Capsule 5 mm, fruiting pedicel to 5 mm.

*Fl. & Fr.* September-November

*D i s t.* Occasional in water logged areas

Champakkad, *KKS 17464*

#### **KICKXIA Dumort.**

***Kickxia ramosissima*** (Wall.) Janchen in Oesterr. Bot. Z. 82: 152. 1933. *Linaria ramosissima* Wall. Pl. Asiat. Rar. 2: 43. t. 153. 1831; Wight, Ill 2: t. 165. 1850; Fl. Brit. India 4: 251. 1883; Fl. Pres. Madras 946. 1923.

Perennial prostrate herbs, slightly pubescent. Leaves variable, shallowly 3-lobed. to 2 x 1 cm, acute, upper leaves hastate, membranous; petiole 1 cm, filiform. Flowers solitary, axillary; pedicel filiform, 1.5 to 2 cm; calyx lobes 4 mm, linear, imbricate; corolla spurred at base, spur 1.5 mm, bilabiate, 7 mm long, upper 3-lobed, lower 2-lobed, yellow; stamens didynamous, included; ovary 4 mm, stigma minute, ovary globose. Capsule many seeded.

*Fl. & Fr.* February-April

*D i s t.* Rare in dry rocky areas

Nellimedu, *KKS 11942*

#### **LINDERNIA Ail.**

- |                                 |                        |
|---------------------------------|------------------------|
| 1. Flowers in terminal racemes  | : <b>L. antipoda</b>   |
| 1. Flowers otherwise            | : 2                    |
| 2. Calyx lobes free to the base | : 3                    |
| 2. Calyx lobes shallowly lobed  | : <b>L. crustacea</b>  |
| 3. Stamens 4                    | : <b>L. caespitosa</b> |
| 3. Stamens 2                    | : 4                    |

- |                                                        |                          |
|--------------------------------------------------------|--------------------------|
| 4. Capsule exerted from the calyx lobes; erect herbs   | : 5                      |
| 4. Capsule included in the calyx lobe; prostrate herbs | : <b>L. rotundifolia</b> |
| 5. Fruiting calyx more than 2 cm long                  | : <b>L. hyssopioides</b> |
| 5. Fruiting calyx less than 1.5 cm long                | : <b>L. parviflora</b>   |

**Lindernia antipoda** (L.) Alston in Trimen., Fl. Ceylon 6: 214. 1931; Matthew, Fl. TN. Carnatic 1085. 1983 & Ill. Fl. TN. Carnatic t. 418. 1982. **Ruellia antipoda** L., Sp. Pl. 635. 1753. **Bonnaya veronicifolia** (Retz.) Urban, Berl. Deutsch. Bot. Ges. 2: 436. 1884; Fl. Pres. Madras 962. 1924. **Gratiola veronicifolia** Retz., Obs. Bot. 4: 8. 1786.

Prostrate herbs, rooting at the nodes. Leaves to 2.5 x 0.5 cm, oblong or oblanceolate apex acute, base cuneate, dentate. Racemes terminal; pedicels 8 mm; calyx lobes 5 mm, oblong-lanceolate; corolla, tube 5 mm, upper lip 7 mm, concave, lower lip 7 mm, orbicular, blue; filaments 2 mm, staminodes 2, hooked, convergent, yellow; ovary 2.5 mm, style 5 mm. Capsule 1.2 x 0.2 cm, linear-lanceolate.

*Fl. & Fr.* April-June

D i s t. Common in wet areas in moist deciduous forests

Ichampetty, *KKS* 15581

**Lindernia caespitosa** (Blume) Panigrahi in Taxon 33: 320. 1984. **Vandellia scabra** Benth., Scroph. Ind. 36. 1835; Fl. Brit. India 4: 281. 1884; Fl. Pres. Madras 959. 1923. **Lindernia pusilla** (Thunb.) Merr. in Philipp. J. Sci. 11: 312. 1916(1911); Matthew, Fl. TN. Carnatic 1092. 1983.

Herbs, pubescent. Leaves to 1.8 x 1.2 cm, ovate or orbicular, acute at apex, serrate, hirsute, sessile. Flowers 2 per node, axillary; pedicel 1 cm; calyx divided to the base lobes 5, 4 mm, lanceolate, glandular pubescent; corolla 7 mm across. violet; stamens 1.5 and 3 mm; ovary 7 mm, style 4 mm. Capsule 3 mm, obovoid, enclosed in calyx lobes.

*Fl. & Fr.* April-June

D i s t. Common in wet areas in moist deciduous forests

Ichampetty, *KKS* 15642

**Lindernia crustacea** (L.) F. Muell., Syst. Cens. Austral. Pl. 1: 97. 1882; Cramer in Rev. Handb. Fl. Ceylon 3: 407. 1981; Matthew, Fl. TN. Carnatic 1088. 1983 & Ill. Fl. TN. Carnatic t. 499. 1982. **Capraria crustacea** L., Mant. Pl. 87. 1767. **Vandellia crustacea** (L.) Benth., Scroph. Ind. 35. 1835; Wight, Ic. t. 863. 1844-45; Fl. Brit. India 4: 274. 1884; Fl. Pres. Madras 959. 1923.

Erect herbs. Leaves to 2 x 1 cm, ovate, apex acute, crenate, ciliate, sparsely hairy on the nerves above and below: petiole 0.5 cm. Flowers axillary, 2 per node; calyx tube 3 mm, lobes 1 mm, acute, pubescent. Capsule 3.5 mm, oblong, ovoid; seeds tuberculate, minute.

*Fl. & Fr.* August-October

D i s t. Common in wet rocky areas in moist deciduous forests

Palapetty, *KKS* 15845

**Lindernia hyssopioides** (Linn.) Haines, Bot. Bih. Or. 635. 1922; Matthew, Fl. TN. Carnatic 1090. 1983 & Fur. Ill. Fl. TN. Carnatic t. 424. 1988. **Gratiola hyssopioides** L., Mant. 174. 1767. **Ilysanthes hyssopioides** (L.) Benth. in DC., Prodr. 10: 419. 1846; Fl. Brit. India 4: 283 1884; Fl. Pres. Madras 961. 1924.

Erect herbs, stem obscurely 4-angled. Leaves to 2.5 x 1.2 cm, lanceolate, ovate, apex acute, membranous, basally 3-5 nerved, sessile. Flowers solitary, axillary; pedicels to 2-5 cm long at the time of fruiting; calyx lobes 2.5 mm, linear; corolla 2-lipped, tube 9 mm, upper lip 4 mm, lower lip 5 mm, pale blue or white; filaments 2.5 mm; ovary 2 mm, style 2 mm, stigma widened. Capsule 5 mm, oblong-ovoid, oblique, longer than calyx, with persistent style.

*Fl. & Fr.* January-April

*D i s t.* Common in wet rocky areas in dry deciduous forests

Champakkad, *KKS 11911*

**Lindernia parviflora** (Rosb.) Haines, Bot. Bih. Or. 645. 1922; Matthew, Fl. TN. Carnatic 1091. 1983 & Fur. Ill. Fl. TN. Carnatic t. 426. 1988. **Gratiola parviflora** Roxb., Cor. Pl. 3: 3, t. 204. 1811. **Ilysanthes parviflora** (Roxb.) Benth., Scroph. Ind. 34. 1835; Fl. Brit. India 4: 283. 1884; Fl. Pres. Madras 961. 1924.

Erect herbs. Leaves to 1 x 0.3 cm, parallel, 3-nerved, oblong-ovate, acute at apex, sessile. Flowers axillary, solitary or rarely 2; pedicels to 1.5 cm; calyx lobes 2.5 mm, lanceolate: corolla bilobed, 2.5 mm across, white; staminodes 2, bifid; ovary 1.5 mm. Capsule 5 mm, oblong globose, longer than calyx.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11711*

**Lindernia rotundifolia** (L.) Mukerjee, J. Indian Bot. Soc. 24: 132. 1945. **Gratiola rotundifolia** L., Mant. 274. 1967. **Ilysanthes rotundifolia** (L.) Benth. in DC., Prodr. 10: 420. 1846; Fl. Brit. India 4: 254. 1885; Fl. Pres. Madras 962. 1924.

Prostrate herbs, rooting at lower nodes. Leaves to 7 x 5 mm, broadly ovate to rounded, apes acute, serrate, puberulus, sessile. Flowers solitary, axillary, pedicels to 3 mm; calyx lobes 2.5 mm, elliptic; corolla tube 9 mm, throat villous, white with blue blotches inside; staminodes 2, clavate, dark blue at the apex, hairy. Capsule 2.5-3.5 mm, ovoid, included.

*Fl. & Fr.* December-February

*D i s t.* Common in wet areas

Kuttar. *KKS 15951*

#### MAZUS Lour.

**Mazus pumilus** (Burm. f.) Steenis, Nova Guinea n. s. 9: 31. 1958; Cramer in Rev. Handb. Fl. Ceylon 3: 444. 1981. **Lobelia pumila** Burm. f., Fl. Ind. 186. t. 60. 1768. **Mazus rugosus** Lour.. Fl. Cochinch. 2: 385. 1790; Fl. Brit. India 4: 259. 1584; Fl. Pres. Madras 947. 1923.

Small erect herbs; stem puberulus. Leaves rosetted below, opposite above, to 2.5 x 0.7 cm, obovate, apex obtuse, base cuneate, margins unequally serrate; petiole to 1 cm. Racemes terminal, lax, 7-8 cm; pedicels 0.5 cm, glandular-pubescent; calyx tube 4 mm, lobes 3 mm, oblong, 3 veined each, glandular pubescent; corolla bilabiate, 6-8 mm long, upper white, lower blue, yellow spots inside the corolla; stamens didynamous, included; ovules many, style lamellate. Capsule globose, enclosed in the enlarged calyx.

*Fl. & Fr.* December-February

*D i s t.* Rare in wet areas

Kuttar, *KKS 15948*

### MICRARGERIA Benth.

**Micrargeria wightii** Benth. in DC.. Prodr. 10: 509. 1846; Wight, Ic. t. 1417. 1849; Fl. Brit. India 4: 303. 1884; Fl. Pres. Madras 970. 1924; Matthew, Fl. TN. Carnatic 1098. 1983 & Ill. Fl. TN. Carnatic t. 501. 1982.

Erect branched herbs, black when dry. Leaves opposite, upper sometimes alternate, pinnatisect, 3.5 cm long, puberulus. Flowers in spikes or racemes, terminal or on the upper axils: calyx tube 1.5 cm, campanulate, lobes spreading above, 5 mm; stamens didynamous; filaments 1-2 mm; anthers attached by their tips, 1.5 mm, obtuse; ovary 1 mm, globose, style 3 mm, stigma clavate. Capsule 3 mm across, loculicidal.

*Fl. & Fr.* December-February

*D i s t.* Common in dry rocky areas; endemic to Peninsular India.

Churullipetty, *KKS 11663*

### SCOPARIA L.

**Scoparia dulcis** L., Sp. Pl. 116. 1753; Fl. Brit. India 4: 289. 1884; Fl. Pres. Madras 964. 1924; Cramer in Rev. Handb. Fl. Ceylon 3: 439. 1981; Matthew, Fl. TN. Carnatic 1100. 1983 & Ill. Fl. TN. Carnatic t. 504. 1982.

Erect branched herbs. Leaves whorled or opposite, 1-2.5 x 0.5-1 cm, oblong-elliptic. apex acute, base cuneate, punctuate. serrate; petiole 0.5 cm. Flowers axillary, solitary, in groups of 2-3; pedicel 0.5 cm; calyx tube 3 mm. lobes 2 mm, oblong, **3-nerved**, ciliate; corolla 5 mm across. rotate, densely pubescent at the mouth, white; stamens equal, exerted. Capsule 3 mm long, globose, septical.

*Fl. & Fr.* November-January

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11613*

### STRIGA Lour.

- |                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| 1. Calyx lobes 5-nerved; leaves reduced to scales              | : <b>S. gesnerioides</b> |
| 1. Calyx lobes 10-15 nerved                                    | : <b>2</b>               |
| 2. Calyx 10-ribbed, only 5 ribs extend to the tip of the lobes | : <b>S. asiatica</b>     |
| 2. Calyx 15-ribbed. all extend to the tip of the lobes         | : <b>S. angustifolia</b> |

**Striga angustifolia** (D. Don) Sald., Bull. Bot. Surv. India. 5: 70. 1963; Cramer in Rev. Handb. Fl. Ceylon 3: 401. 1981; Matthew, Fl. TN. Carnatic 1104. 1983 & Fur. III. Fl. TN. Carnatic t. 429. 1988. **Buchnera angustifolia** D. Don, Prodr. 91. 1825. **Striga euphrasioides** auct. non Benth. excl. basionym.; Hook. f., Fl. Brit. India 4: 299. 1884; Fl. Pres. Madras 968. 1924. Erect herbs. Leaves to 4 x 0.3 cm, linear-oblong, base decurrent. Spikes terminal, to 20 cm; bracts 3 mm, lanceolate; bracteoles 2 mm, lanceolate; calyx tube 5 mm, lobes lanceolate, puberulus; corolla tube bent above the middle, 1 cm, white, lobes 7 mm, obtuse, hirsute on the upper part; stamens included; ovary 2 mm, oblong, style 5 mm, stigma thick. Capsule 6 mm long, loculicidal; seeds oblong, many.

*Fl. & Fr.* December-February

*D i s t.* Common in rocky areas in dry deciduous forests

Churullipetty, *KKS 12662*

**Striga asiatica** (L.) O. Ktze., Rev. Gen. Pl. 2: 466. 1981; Hepper, Rhodora 76: 46. 1974; Matthew, Fl. TN. Carnatic 1104. 1983 & Ill. Fl. TN. Carnatic t. 507. 1982. **Buchnera asiatica** L., Sp. Pl. 1630. 1753. **Striga lutea** Lour., Fl. Cochinch. 1: 22. 1790; Fl. Brit. India 4: 299. 1884; Fl. Pres. Madras 968. 1924.

Erect hirsute herbs. Lower leaves opposite, upper alternate, to 3 x 2 cm, oblong, decurrent to the petiole, hirsute. Flowers axillary, solitary; bracts 4 mm, lanceolate; bracteoles 2 mm, linear, with bulbous based hairs; calyx tube 4 mm, lobes 1.5 mm, lanceolate, acute; corolla bent above the middle, tube 9 mm, lobes 6 mm, obtuse; stamens included; ovary 2 mm, oblong, style 6 mm, stigma thickened. Capsule 5 mm.

*Fl. & Fr.* April-July

*D i s t.* Common in grasslands

Karumpara, *KKS 11817*; Pothumala, *I7377*

**Striga gesnerioides** (Willd.) Vatke in Oesterr. Bot. Z. 11. 1875; Matthew, Fl. TN. Carnatic 1105. 1983. **Buchnera gesnerioides** Willd., Sp. Pl. 3: 338. 1800. **Buchnera orobanchoides** R. Br. ex Endlicher in Flora 15: 388. t. 2. 1832. **Striga orobanchoides** (R. Br. ex Endlicher) Benth. in Companion Bot. Mag. 1: 361. 1836, "orobanchoides"; Wight, Ic. t. 1414. 1849; Fl. Brit. India 4: 299. 1884; Fl. Pres. Madras 967. 1924.

Erect parasitic herbs; dark brown when dry. Leaves reduced to scales, 8 mm long, lanceolate, obtuse, sessile. Spikes terminal, to 20 cm long; bracts 6 mm; bracteoles 2 mm; flowers pink; calyx tube 5 mm, lobes 2 mm, lanceolate, acute, hairy; corolla tube 11 mm, slightly pubescent above the middle, lobes 6 mm, subequal, obovate; filaments 1 mm; anthers 1 mm; ovary 2 mm, oblong, style 4 mm, stigma thickened. Capsule 6 x 4 mm, beaked with persistent style.

*Fl. & Fr.* August-November

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 15839*; Chinnar, *I7398*

**Note:** Parasitic on the roots of *Euphorbia antiquorum*



## LENTIBULARIACEAE

### UTRICULARIA L.

1. Bracts mid fixed; flowers pink : **U. rosea-purpurea**  
1. Bracts basifixed; flowers yellow : **U. scandens**

**Utricularia rosea-purpurea** Stapf ex Gamble, Fl. Pres. Madras 983. 1924; Subram. & Banerjee in Bull. Bot. Surv. India 10: 103. 1968; Janarthanam & Henry, Bladdenvorts India 95. 1992. **U. racemosa** sensu Wight, Ic. t. 1584. f. 1. 1850, non Wall. ex Walp. 1843. **U. rosea** sensu Clarke in Hook. f., Fl. Brit. India 4: 333. 1884, non Edgew. 1847.

Slender herbs. Foliar organs to 5 x 1.5 mm, spatulate to obovate, 1 nerved. Racemes terminal, to 15 cm: flowers very distant, 1-9, pink; bracts mid-fixed, 3 mm, elliptic, acute, limbs unequal; calyx lobes unequal, to 2.5 x 2 mm. broadly ovate. Capsule 2.5 mm, globose; seeds many, papillose.

*Fl. & Fr.* September-November

*D i s t.* Occasional near water courses in shola forests

Karivepinshola, KKS 17459

**Utricularia scandens** Benj. in Linnaea 20: 309. 1847; Matthew, Fl. TN. Carnatic 1120. 1983; Janarthanam & Henry, Bladdenvorts India 97. 1992. **U. wallichiana** Wight, Ic. t. 1572. f. 1. 1850, non Benj. 1845; Fl. Brit. India 4: 332. 1884; Fl. Pres. Madras 982. 1924.

Slender herbs, twining over themselves. Foliar organs I-nerved, linear. Racemes to 20 cm long, 1-8 flowered, yellow; bracts basifixed, 0.6 cm, ovate I-nerved; calyx lobes in fruit, 5 x 4 mm, broadly ovate, orbicular, upper lobe acute to acuminate, lower bifid at apex. Capsule 3 mm, orbicular; seeds many, minute, reticulate.

*Fl. & Fr.* December-February

*D i s t.* Common in wet areas in dry deciduous forests

Chengamperu. KKS II 739

## GESNERIACEAE

1. Terrestrial herbs, stamens 2, leaves radical : **Didymocarpus**  
1. Epiphytic herbs, stamens 4, leaves cauline : **Aeschynanthus**

### AESCHYNANTHUS Jack. *nom. cons.*

**Aeschynanthus perrottetii** A. DC. in DC., Prodr. 9: 261. 1845; Fl. Brit. India 4: 339. 1884; Fl. Pres. Madras 985. 1923. **A. ceylanica** sensu Wight, Ic. t. 1347. 1848, non Gard. 1846. **A. perrottetii** A. DC. var. **planiculmis** Clarke in Hook. f., Fl. Brit. India 4: 340. 1884, "**platyculmis**". **A. planiculmis** (Clarke) Gamble. Fl. Pres. Madras 985. 1924.

Fleshy epiphytic herbs, rooting at lower nodes. Leaves 8 x 1.5 cm, linear-lanceolate. acuminate at apex, cuneate at the base. fleshy; petiole to 1 cm. Flowers in fascicles on axillary

and terminal peduncles; calyx deeply 5-lobed, 1 x 0.2 cm, lanceolate, 3-nerved; corolla ventricose, slightly bilabiate, tube 3.5 cm, lobes 3 mm, oblong, red; stamens connate in pairs by anthers, filaments 2.5 cm, anthers 2 mm; disc annular; ovary oblong, stipitate, style included, stigma dilated. Capsule 12 cm long, linear, terete.

*Fl. & Fr.* October-November

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikudy, *KKS 17480*

#### **DIDYMOCARPUS** Wall. *nom. cons.*

**Didymocarpus tomentosa** Wight, Ic. t. 1349. 1848; Fl. Brit. India 4: 353. 1884; Fl. Pres. Madras 989. 1924; Matthew, Fl. TN. Carnatic 1125. 1983 & Ill. Fl. TN. Carnatic t. 511. 1982.

Scapigerous herbs, densely tomentose. Leaves rosetted, to 10 x 6 cm, ovate-elliptic, tomentose on the lower node, broadly and shallowly crenate; petiole broadened, to 1 cm, decurrent. Corymbs to 15 cm, puberulus; peduncles and pedicels glandular pubescent; calyx lobes, 3 mm, lanceolate, acute, glandular pubescent; corolla tube 8 mm, ventricose, lobes 7 x 5 mm, obovate to orbicular, violet; stamens connivent by anthers, filaments 3 mm, anthers 1.5 mm; ovary 4 mm, oblong hirsute. style 3 mm, stigma oblique. Capsule 2 x 0.2 cm, elongate hirsute, tipped with persistent style.

*Fl. & Fr.* February-April

*D i s t.* Common in rocky areas upto 1000 m altitude

Vanchikulam, *KKS 15628*

### **BIGNONIACEAE**

- |                                                    |                        |
|----------------------------------------------------|------------------------|
| 1. Leaves once pinnate                             | : 2                    |
| 1. Leaves bi-tri-pinnate                           | : <b>Radermachera</b>  |
| 2. Calyx spathaceous                               | : 3                    |
| 2. Calyx not spathaceous                           | : <b>Stereospermum</b> |
| 3. Corolla white, tube greatly exceeding the calyx | : <b>Dolichandrone</b> |
| 3. Corolla red, tube barely exceeding the calyx    | : <b>Spathodea</b>     |

#### **DOLICHANDRONE** (Fenzl) Seemann.

**Dolichandrone arcuata** (Wight) Clarke in Hook. f., Fl. Brit. India 4: 380. 1884; Fl. Pres. Madras 996. 1924; Matthew, Fl. TN. Carnatic 1128. 1983. *Spathodea arcuata* Wight, Ic. t. 1340. 1848.

Medium trees. Leaves opposite, leaflets 3-5-7, 7.5 x 4 cm, oblong, elliptic, apex acute to obtuse, pubescent; petiole to 3 cm. Flowers few, in terminal corymbs or panicles; calyx spathaceous, split on inside and recurved to 2.5 cm; corolla tubular, widened at the mouth, tube to 6 cm, lobes fringed, white; filament pairs 5 and 7 cm; ovary 5 mm, style to 2 cm. Capsule 4.5 x 1.5 cm, linear, terete, pubescent, speckled with white dots, curved; seeds 0.7 cm across, wings to 1 cm, winged.

*Fl. & Fr.* December-March

*D i s t.* Occasional in dry deciduous forests; endemic to Peninsular India

Churullipetty. *KKS 11685*

RADERMACHERA Zoll. & Moritz.

Radermachera *xylocarpa* (Roxb.) K. Schum. in Engl. & Prantl, Pflanzenf. 4(3b): 243. 1895; Fl. Pres. Madras 999. 1924; Matthew, Fl. TN. Carnatic 1132. 1983 & Ill. Fl. TN. Carnatic t. 513 & 975a,b. 1982. *Bignonia xylocarpa* Roxb., Fl. India 3: 108. 1832; Wight, Ic. t. 1335, 1336. 1848; Bedd., Fl. Sylv. t. 70. 1870. *Stereospermum xylocarpum* (Roxb.) Benth. in Benth. & Hook. f., Gen. Pl. 2: 1047. 1876; Fl. Brit. India 4: 383. 1884.

Large trees. Leaflets 7-11 pairs, to 10 x 4.5 cm, elliptic, acuminate, base cuneate; petiole to 2 cm. Flowers in terminal panicles or corymbs; calyx, 1.5 cm long, campanulate, bilabiate; corolla funnel shaped, bilabiate, tube 3.5 cm, lobes spreading, crisped, 1.5 cm, obtuse, white; filaments 2 and 2.5 cm, hairy; ovary 2 mm. Capsule 40-50 x 1.5-2 cm linear, terete, tuberculate; seeds winged on either side.

Fl. & Fr. February-May

D i s t. Occasional in dry deciduous forests

Palapetty, KKS 15519

SPATHODEA Pal.

Spathodea *campanulata* Beauv., Fl. Owar. 1: 47. t. 27 & 28. 1805; Fl. Pres. Madras 1000. 1924; Matthew, Fl. TN. Carnatic 1133. 1983. *S. niloticum* Seem. in J. Bot. 3: 333. 1865.

Trees. Leaflets, 13-19, 5-12 x 4-5 cm, elliptic-oblong, obovate, apex acute, base cuneate, pubescent below. Racemes terminal: flowers orange red; bracteoles 2, lanceolate, 1.2 cm long; calyx spathaceous, 5-6 x 2-2.5 cm, brownish tomentose; corolla tube broadly enlarged slightly above the calyx, to 9 cm, glandular, lobes 5, deltoid, 3-4 x 3-4 cm; bright red; stamens included.

Fl. & Fr. June-September

D i s t. Introduced, now runs wild.

Karimutty, KKS 15736

STEREOSPERMUM Cham.

*Stereospermum colais* (Buch.-Ham. ex Dillw.) Mabber., Taxon 27: 553. 1979. *Bignonia colais* Buch.-Ham. ex Dillw., Rev. Hort. Malab. 28. 1839. *Stereospermum tetragonum* DC., Prodr. 9: 210. 1845; Fl. Pres. Madras 998. 1924. *S. chelonoides* sensu Wight, Ic. t. 1341. 1845, non (L. f.) DC. 1838; Fl. Brit. India 4: 383. 1884. *S. personatum* (Hassk.) Chatter., Bull. Bot. Soc. Bengal 2: 70. 1948; Matthew, Fl. TN. Carnatic 1133. 1983 & Ill. Fl. TN. Carnatic t. 514. 1982. *Dipterosperma personatum* Hassk., Flora 25(2): Biebl. 28. 1842.

Tree. Leaflets 5-9, to 13 x 4.5 cm, elliptic-oblong, long acuminate, membranous, the odd one largest; petiole 1.5 to 2 cm. Panicles axillary and terminal, to 10 cm long; calyx campanulate, lobes 5-8 mm; corolla ventricose, tube to 2 cm long; filaments basally villous, 0.7 cm, anthers divergent, 2 mm; disk cupular; ovary oblong; stigma small, broad. Capsule 50 cm long, curved, spirally twisted, angles thickened; seeds, to 8 mm, winged.

Fl. & Fr. May-August

D i s t. Occasional in moist deciduous forests

Alampetty, KKS 15705

## ACANTHACEAE

1. Stamens 2	: 2
1. Stamens 4	: 11
2. Corolla bilabiate	: 6
2. Corolla subequally 5 lobed	: 3
3. Calyx 4-lobed	: Barleria
3. Calyx 5-lobed, toothed	: 4
4. Corolla tubular, lobes spreading	: 5
4. Corolla ventricose	: Strobilanthes
5. Bracts smaller than calyx lobes	: Pseuderanthemum
5. Bracts larger than calyx lobes	: Eranthemum
6. Seeds more than 2 in each cell	: Andrographis
6. Seeds 2 in each cell	: 7
7. Anther cells with a spur at the base	: 8
7. Anther cells without spur	: 9
8. Bracts 4-farious; placenta separating elastically	: Rungia
8. Bracts not 4-farious; placenta not separating elastically	: Justicia
9. Bracts obovate-oblong, mucronate	: Dicliptera
9. Bracts linear	: 10
10. Corolla tube twice as long as the lobes, white	: Rhinacanthus
10. Corolla tube as long as or less than the lobes, pink	: Peristrophe
11. Calyx lobes 4; upper lip reduced	: Blepharis
11. Calyx lobes 5	: 12
12. Capsule more than 4 seeded	: Dipteracanthus
12. Capsule 4-seeded	: 13
13. Corolla bilabiate; head terminal; bracts spinescent	: Lepidagathis
13. Corolla 5-lobed; inflorescence otherwise	: 14
14. Inflorescence a spike; bracts spinescent; anthers one celled	: Crossandra
14. Inflorescence a unilateral raceme; bracts not spinescent; anthers 2-celled	: Asystasia

### ANDROGRAPHIS Wall. ex Nees

1. Flowers white	: A. affinis
1. Flowers pink	: A. neesiana

**Andrographis affinis** Nees in DC., Prodr. 11: 517. 1847; Fl. Pres. Madras 1050. 1924; Matthew, Fl. TN. Carnatic 1150. 1983. *A. neesiana* Wight var. *affinis* (Nees) Clarke in Hook. f., Fl. Brit. India 4: 504. 1884.

Subshrubs. Leaves to 4 x 2 cm, elliptic-lanceolate, coriaceous, margins thickened, sparsely strigose above, sessile. Racemes axillary and terminal, glandular pubescent, to 5 cm; pedicels 2 mm; bracts 3 mm, lanceolate, bracteoles 2, minute; calyx lobes 4 mm, glandular-pubescent; corolla tube 9 mm, bilabiate, glandular hairy, white; ovary 1 mm, puberulus. Capsule 1.5 cm, oblong, glandular-pubescent.

oblong, *Fl. & Fr.* March-May

D i s t. Common in shola forests: endemic to Peninsular India.

Olikudy, KKS 17325

**Andrographis neesiana** Wight, Ic. t. 1561. 1850; Fl. Brit. India 4: 504. 1884; Fl. Pres. Madras 1049. 1924.

Large herbs. Leaves to 9 x 2 cm, elliptic-lanceolate, acute at apex and base, scattered with stiff hairs, margin ciliate; petiole 0.5 cm. Panicles terminal, glandular-pubescent, to 5 cm long; bracts 2 mm, barcaroles minute; calyx tube 1 cm, lobes 3 mm, lanceolate, glandular, pubescent. corolla bilabiate, glandular pubescent, 5 mm, pink; ovary 2 mm, oblong, style 8 mm, hairy. Capsule oblong, glandular pubescent.

*Fl. & Fr.* January-March

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikkudy, *KKS* 18237

#### ASYSTASIA Blume

1. Flowers yellow, plants pubescent

: **A. gangetica**

1. Flowers blue, plants glabrous

: **A. chelonoides**

**Asystasia chelonoides** Nees in Wall., Pl. Asiat. Rar. 3: 89. 1832; Fl. Brit. India 4: 493. 1884; Matthew, Fl. TN. Carnatic 1154. 1983. **A. chelonoides** Nees var. **quadrangularis** Clarke in Hook. f., Fl. Brit. India 4: 494. 1884; Fl. Pres. Madras 1063. 1924.

Large herbs, sparsely puberulus. Leaves to 10 x 4.5 cm, elliptic-lanceolate, apex shortly acuminate, base acute, membranous; petiole to 4 cm. Racemes terminal, one sided, to 5 cm; pedicels to 1 cm; bracts 2 mm, bracteoles 2, ; calyx lobes 5 mm, lanceolate, pubescent; corolla tube 2.5 cm, lobes 1 cm; filaments 9 mm, hairy towards the apex; ovary 3 mm. hairy, style 2 cm long. Capsule 3 mm, elliptic with a contracted solid base.

*Fl. & Fr.* March-May

*D i s t.* Occasional in wet areas in dry deciduous forests

Kurukku, *KKS* 11987

**Asystasia gangetica** (L.) T. Anders. in Thw., Enum. Pl. Zeyl. 235. 1860; Fl. Pres. Madras 1063. 1924; Matthew, Fl. TN. Carnatic 1157. 1983 & Ill. Fl. TN. Carnatic t. 521. 1982. **Justicia gangetica** L., Cent. Pl. 2: 3. 1756. **Asystasia coromandeliana** Wight ex Nees in Wall., Pl. As. Rar. 3: 89. 1832; Wight, Ic. t. 1506. 1850; Fl. Brit. India 4: 493. 1884.

Subshrubs, pubescent. Leaves to 3.5-6 x 2-3.5 cm, broadly ovate, acuminate, base rounded, pubescent; petiole to 2 cm long, pubescent. Racemes terminal to subterminal, to 20 cm, pubescent; bracts 3 mm, bracteoles 2. minute; pedicels 3 mm; calyx lobes 6 mm, lanceolate, glandular pubescent; corolla tube 2.5 cm, hairy, lobes 1.5 cm; filaments in pairs, 5 mm; anthers 3.5 mm; ovary 3 mm, oblong, pubescent, style 1.8 cm, hairy. Capsule 1.5 x 0.5 cm, pubescent.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS* 11736; Chinnar, 11535

#### BARLERIA L.

1. Plants unarmed

: 2

1. Plants armed

: 4

- |                                                                          |                                           |
|--------------------------------------------------------------------------|-------------------------------------------|
| 2. Flowers in cymes, outer calyx lobes spine tipped along the margins    | : <b>B. cristata</b>                      |
| 2. Flowers <del>in</del> one sided racemes; calyx lobes not spine tipped | : 3                                       |
| 3. Bracts glandular pubescent; flower white with violet shade            | : <b>B. acuminata</b>                     |
| 3. Bracts not glandular pubescent; flowers blue                          | : <b>B. involucreta</b> var. <b>elata</b> |
| 4. Flowers solitary, blue                                                | : <b>B. mysorensis</b>                    |
| 4. Flowers in cymes, yellow                                              | : <b>B. prionitis</b>                     |

**Barleria acuminata** Nees in Wall., Pl. As. Rar. 3: 93. 1832; Wight, Ic. t. 450. 1841; Fl. Pres. Madras 1059. 1924; Matthew, Fl. TN. Carnatic 1159. 1983 & Fur. Ill. Fl. TN. Carnatic t. 441. 1988. **B. tomentosa** Roth var. **acuminata** (Nees) Clarke in Hook. f., Fl. Brit. India 4: 485. 1884.

Tawny pubescent shrubs. Leaves to 4-5 x 2.5-3 cm, ovate, orbicular, apex acute, apiculate, base rounded, tomentose; petiole to 3.5 cm. pubescent. Racemes axillary and terminal: bracts 1.3 x 1.3 cm. lanceolate, glandular, pubescent, acute; outer calyx lobes larger, 1.3 x 0.2 cm: inner smaller 6 x 2 mm, lanceolate, pubescent; corolla tube to 3 cm, lobes 1 cm, obovate, obtuse, imbricate: filaments 7 mm; ovary 3 mm, ovoid, style 3.5 cm long, hairy at the base.

*Fl. & Fr.* October-January

*D i s t.* Very common in dry deciduous forests; endemic to Peninsular India.

Chinnar, *KKS 11546*

**Barleria cristata** L., Sp. Pl. 636. 1753; Wight, Ic. t. 453. 1841; Fl. Brit. India 4: 488. 1884; Fl. Pres. Madras 1060. 1924; Matthew. Fl. TN. Carnatic 1162. 1983.

Pubescent shrubs. Leaves to 6.5 x 2.5 cm, elliptic, apex acute, base decurrent on the petiole pubescent; petiole 1 cm. Cymes axillary, dense; flowers pink; bracts 1.2 cm, linear, ciliate; calyx lobes dissimilar, outer two larger. elliptic, many nerved from the base, scarious, spine tipped along the margins inner two 7 x 2 mm, oblong, ciliate; corolla 4 cm across. pink filaments 2 cm long. Capsule 14 mm. oblong.

*Fl. & Fr.* January-March

*D i s t.* Occasional in abandoned settlements in moist deciduous forests

Ichampetty, *KKS 15984*

**Barleria involucreta** Nees var. **elata** (Dalz.) Clarke in Hook. f., Fl. Brit. India 4: 486. 1884: Fyson, Fl. South India Hill St. 2: t. 393. 1932; Fl. Pres. Madras 1060. 1924; Matthew, Fl. TN. Carnatic 1163. 1983 & Fur. Ill. Fl. TN. Carnatic t. 445. 1988. **B. elata** Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 227. 1851.

Shrubs, puberulus. Leaves to 15 x 6 cm, elliptic, acuminate at apex and base, strigose, nerves ca. 8 pairs; petiole to 5 cm. Racemes axillary and terminal, pubescent; bracts elliptic, 1.5 cm; outer two calyx lobes 2.5 x 0.5 cm, oblong-lanceolate, pubescent, anterior lobe bifid at apex, inner pair 13 x 2.5 mm, pubescent; corolla tube to 5 cm long, lobes 2 x 1.5 cm, ovate, blue: filaments 2.5 cm, hairy at the base; style 5 cm, dilated above. Capsule 4 seeded.

*Fl. & Fr.* October-December

*D i s t.* Occasional in shola forests: endemic to Peninsular India.

Karivepinshola, *KKS 17437*

**Barleria mysorensis** Heyne ex Roth, Nov. Pl. Sp. 313. 1821; Fl. Brit. India 4: 484. 1884; Fl. Pres. Madras 1059. 1924.

Spinescent silky pubescent shrubs. Leaves to 2.5 x 1.8 cm, obovate, elliptic, apex obtuse, mucronate, base cuneate, *ca.* 5 nerved; petiole 0.5 cm. Flowers solitary, axillary, subsessile, blue; outer two calyx lobes 1.2 x 0.8 cm, ovate, silky pubescent, inner 0.5 cm, lanceolate; corolla tube to 2 cm, lobes 1 cm, obovate; filaments 1 cm; ovary ovoid, acute at apex.

*Fl.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11593*

**Barleria prionitis** L., Sp. Pl. 636. 1753; Wight, Ic. t. 452. 1841; Fl. Brit. India 4: 482. 1884; Fl. Pres. Madras 1058. 1924; Matthew, Fl. TN. Carnatic 1166. 1983 & Fur. Ill. Fl. TN. Carnatic t. 448. 1988.

Erect armed shrubs, spines *ca.* 1.2 cm long. Leaves to 5-9 x 2.5-4 cm, elliptic, acute, mucronate, base cuneate, sparsely puberulus, ciliate on the margins, gland dotted beneath; petiole to 2 cm. Cymes axillary; bracts 2, 1.5 cm, oblong mucronate; outer calyx lobes 1.3 x 0.4 cm, inner 1.1 x 0.2 cm, mucronate. hirsute; corolla tube 2.5 cm, lobes, 2 cm obovate; filaments 1.3 cm, staminodes 2, included at the base of the corolla tube; ovary 2.5 mm, style 2.5 cm.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11647*

#### **BLEPHARIS** Juss.

1. Plant spinescent; leaves oblong

: **B. repens**

1. Plant not spinescent; leaves obovate

: **B. maderaspatensis**

**Blepharis maderaspatensis** (L.) Heyne ex Roth, Nov. Pl. Sp. 320. 1821; Matthew, Fl. TN. Carnatic 1167. 1983 & Fur. Ill. Fl. TN. Carnatic t. 449. 1988. *Blepharis boerhaviaefolia* Pers., Syn. 2: 180. 1806, "boerhaviaefolia"; Wight, Ic. t. 458. 1841; Fl. Brit. India 4: 478. 1884; Fl. Pres. Madras 1013. 1924.

Prostrate herbs. Leaves ternate, unequal, to 5 x 2.2 cm, obovate, apiculate, puberulus, margins distantly serrate; petiole to 3 cm. Flowers axillary; bracts 4 pairs, 4, 6, 9 and 1.2 cm, obovate, margins dentate with stiff elongated hairs, bracteoles 1.5 cm, spatulate; outer calyx lobes 1.3 cm and 1.8 cm, oblong, 2 and 3 veined, inner 8 mm; corolla tube urceolate, 5 mm, lower lip reduced, upper lip 3 lobed, 18 x 12 mm, white with pink nerves; filaments 4 and 5 mm, anthers 1-celled, apiculate, bearded; ovary 2.5 mm, oblong, style 1 cm, with a basal ring.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11540*

**Blepharis repens** (Vahl) Roth. Nov. Pl. Sp. 321. 1821. *B. mulluginifolia* Pers., Syn. 2: 180. 1806; Fl. Brit. India 4: 479. 1884; Fl. Pres. Madras 1013. 1924; Matthew, Fl. TN. Carnatic 1168. 1983 & Ill. Fl. TN. Carnatic t. 523. 1982.

Prostrate herbs. Leaves ternate, 1-2.5 x 0.5 - 0.8 cm, oblong, apex obtuse, base narrowed hirsute. Flowers axillary; bracts in 4 opposite pairs, 3, 4, 6 and 6 mm, margins dentate, bracteoles 0.8 cm, lanceolate; calyx lobes 4, dissimilar, outer 1 cm, emarginate, 2 nerved; corolla tube 2 mm, lip 3 lobed, 7 mm, hairy; filaments 1 mm; ovary oblong, 2 mm, style 2 mm.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11594*

#### **CROSSANDRA** Salisb.

***Crossandra infundibuliformis*** (L.) Nees in Wall., *Pl. Asiat. Rar.* 3: 98. 1832; Wight, *Ic. t.* 461. 1841; Matthew, *Fl. TN. Carnatic* 1169. 1983. ***Crossandra undulaefolia*** Salisb. in W. Hooker, *Parad. Lond. t.* 12. 1805; *Fl. Brit. India* 4: 492. 1884; *Fl. Pres. Madras* 1055. 1924.

Subshrubs. Leaves ternate, to 9 x 5 cm, elliptic-oblong, apex obtuse, base cuneate, puberulus; petiole to 3.5 cm. Spikes axillary and terminal; peduncles to 4-10 cm; bracts imbricate, 4-farious, 1.3 x 0.4 cm, elliptic, pubescent, spinescent at the tip; bracteoles 2, 1.1 cm. linear, strongly ciliate; calyx lobes 8 mm, oblong, ciliate along the margins, bifid, upper to 6 x 3 mm, oblong, mucronate, ciliate, inner to 5 x 1.5 mm, oblong, ciliate along the margins; corolla split on one side, tube 2.5 cm, lobes 5, subequal, orange; filaments 0.7 mm; anthers 1.5 mm, one celled, the imperfect cell bearded; ovary 3 mm, oblong. Capsule oblong.

*Fl. & Fr.* October-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11630*

#### **DICLIPTERA** A. Juss. *nom. cons.*

***Dicliptera cuneata*** Nees in Wall., *Pl. As. Rar.* 3: 111. 1832; Wight, *Ic. t.* 1552. 1850; *Fl. Brit. India* 4: 552. 1884; *Fl. Pres. Madras* 1073. 1924; Matthew, *Fl. TN. Carnatic* 1170. 1983 & III. *Fl. TN. Carnatic t.* 524. 1982.

Diffuse herbs. Leaves to 7 x 3.5 cm, ovate, apex acuminate, base obtuse, membranous; petiole to 3 cm. Cymes axillary; flowers pink; peduncles to 5 cm; bracts 1 cm, mucronate; bracteoles 4 mm, linear, pubescent; calyx tube 1.5 mm, lanceolate, lobes 3 mm, pubescent; corolla tube 1 cm long, pubescent, pink, lobes 7 mm, obovate; filaments 7 mm, hairy, anther cells muticous, superposed; ovary 2 mm, oblong.

*Fl. & Fr.* December-February

*D i s t.* Common in wet areas in dry deciduous forests; endemic to Peninsular India.

Churullipetty, *KKS 11671*

#### **DIPTERACANTHUS** Nees

***Dipteracanthus patulus*** (Jacq.) Nees in Wall., *Pl. Asiat. Rar.* 3: 82. 1832; Wight, *Ic. t.* 1505. 1850; Matthew. *Fl. TN. Carnatic* 1171. 1983 & Fur. III. *Fl. TN. Carnatic t.* 450. 1988. ***Ruellia patula*** Jacq., *Misc.* 3: 358. 1781; *Fl. Brit. India* 4: 412. 1884; *Fl. Pres. Madras* 1017. 1924.



Pubescent herbs. Leaves 5.5 x 4 cm, broadly ovate, apex acute, base truncate, pubescent; petiole to 2 cm. Flowers axillary, solitary, blue; bracteoles 1.2 x 1 cm, ovate, pubescent; calyx lobes 1.3 cm, narrow linear, hairy; corolla funnel shaped, tube to 1 cm, lobes 5 mm, spreading; filaments basally united in pairs. Capsule 1.5 cm, clavate, beaked at the base.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Charkapetty, *KKS 22744*; Chinnar, *25768*

### ECBOLIUM Kurz

**Ecbolium viride** (Forssk.) Alston in Trimen, Handb. Fl. Ceylon 6 (Suppl.): 229. 1931; Matthew, Fl. TN. Carnatic 1174. 1983 & Ill. Fl. TN. Carnatic t. 527. 1982. **Ecbolium linneanum** Kurz in J. Asiat. Soc. Bengal 40: 75. 1871; Fl. Brit. India 4: 544. 1885; Fl. Pres. Madras 1074. 1924. **Justicia ecbolium** L., Sp. Pl. 15. 1753; Wight, Ic. t. 463. 1841.

Undershrubs. Leaves to 15 x 6 cm, elliptic, lanceolate, acuminate at apex, base attenuate, puberulus; petiole to 4 cm. Spikes terminal, to 10 cm; bracts imbricate, 1.5 to 2 cm, obovate, bracteoles 2, 2 mm; calyx tube to 1 mm, lobes 3 mm, lanceolate; corolla tube curved, 4 cm long, lobes 2 lipped; filaments flattened, 1 mm, anthers unequal, muticous; ovary 3 x 1 mm, oblong.

*Fl.* March-July

*D i s t.* Occasional in dry deciduous forests

Alampetty, *KKS 15704*

### ERANTHEMUM L.

**Eranthemum capense** L., Sp. Pl. 9. 1753; Sant., J. Bombay Nat. Hist. Soc. 51: 355. 1953; Matthew, Fl. TN. Carnatic 1176. 1983 & Ill. Fl. TN. Carnatic t. 529. 1982. **E. montanum** Roxb., Fl. India 1: 100. 1820; Wight, Ic. t. 466. 1841; Fl. Pres. Madras 1025. 1924. **Daedalacanthus montanus** (Roxb.) Anders. in Thw., Enum. Pl. Zeyl. 229. 1860; Fl. Brit. India 4: 421. 1884.

Subshrubs. Leaves to 15 x 6 cm, elliptic, long acuminate, base cuneate, sericeous, nerves 7-8 pairs; petiole to 3.5 cm. Panicles of spikes terminal, to 15 cm, glandular pubescent; bracts 2 cm, lanceolate, glandular pubescent, bracteoles linear; calyx lobes 5 mm, lanceolate; corolla tube 3 cm, lobes 8 x 5 mm, obovate; filaments 3 mm; anthers 3 mm, oblong; ovary 2 x 1 mm, oblong. Capsule 1.5 x 0.4 cm, oblong.

*Fl. & Fr.* February-April

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 12975*

### JUSTICIA L.

1. Calyx lobes 5	: 2
1. Calyx lobes 4	: 5
2. Inflorescence panicle	: 3
2. Inflorescence spikes	: 4

- |                                                                         |                              |
|-------------------------------------------------------------------------|------------------------------|
| 3. Leaves ovate, entire; panicles glandular pubescent                   | : <b>J. glabra</b>           |
| 3. Leaves elliptic, crenate; panicles pubescent                         | : <b>J. santapau</b>         |
| 4. Bracts white with green nerves                                       | : <b>J. betonica</b>         |
| 4. Bracts green ovate, orbicular                                        | : <b>J. tranquebariensis</b> |
| 5. Erect tall herbs; leaves greater than 4 cm                           | : <b>J. latispica</b>        |
| 5. Prostrate herbs, rooting at the lower nodes, leaves less than 2.5 cm | : <b>J. procumbens</b>       |

**Justicia betonica** L., Sp. Pl. 15. 1753; Fl. Brit. India 4: 4: 525. 1885; Fl. Pres. Madras 1078. 1924; Matthew, Fl. TN. Carnatic I 184. 1983 & III. Fl. TN. Carnatic t. 534. 1982.

Shrubs. Leaves to 9 x 5.5 cm, ovate-elliptic, apex obtusely acuminate, margins crenate; petiole to 3 cm. Spikes 1-3, terminal; bracts white with green nerves, 1.5 x 0.8 cm, ovate. acuminate, bracteoles similar to bracts; calyx lobes 5 x 1 mm, elliptic-lanceolate, ciliate acuminate; corolla tube 6 mm, pubescent, lobes 9 mm; filaments 8 mm; ovary 3 mm, oblong, style 1 cm hairy.

Fl. January-March

D i s t. Common in dry deciduous forests

Churullipetty, KKS 11853

**Justicia glabra** Koen. ex Roxb., Fl. Ind. 1: 132. 1820; Fl. Brit. India 4: 535. 1885; Fl. Pres. Madras Matthew, Fl. TN. Carnatic 1186. 1983 & Fur. III. Fl. TN. Carnatic t. 457. 1988.

**Rhaphidospora glabra** (Koen. ex Roxb.) Nees in Wall., Pl. Asiat. Rar. 3: 115. 1832; Wight. Ic. t. 1554. 1850.

Large herbs. Leaves to 10 x 6.5 cm, broadly ovate, apex acute, base rounded or cuneate, upper sessile; petiole 3 cm. Panicles axillary and terminal, to 15 cm long, glandular pubescent: bracts and bracteoles 1.5 mm, linear; calyx lobes 4 mm, lanceolate, puberulus; corolla tube to 4 mm, pubescent, bilabiate, upper 5 mm, lower 8 mm, white with reddish blotches; filaments 4 mm; ovary 1.5 mm, style 6 mm, hairy.

Fl. December-February

D i s t. Common in dry deciduous forests

Kathitheetimala, KKS 11537

**Justicia latispica** (Clarke) Gamble. Fl. Pres. Madras 1080. 1924. **J. procumbens** var. **latispica** Hook. f., Fl. Brit. India 4: 539. 1885. **Rostellularia procumbens** Wight, Ic. t. 1539. 1850.

Large herbs. Leaves to 4 x 2.5 cm, ovate, apex acute, hirsute; petiole 1-1.5 cm. Spikes terminal, 4 cm long; bracts 6 mm, lanceolate; bracteoles 4 mm, lanceolate; calyx 4 mm, lanceolate; corolla bilabiate, lower orbicular, broadly 3-lobed, 3 x 3 mm, upper narrowly 2-lobed, bluish with pink dots; anthers with white spur at the base; ovary 1 mm, oblong, style bearded at apex. Fruit 5 x 1 mm, oblong.

Fl. & Fr. January-April

D i s t. Occasional in dry deciduous forests

Nellimedu, KKS 11951

*Justicia procumbens* L., Sp. Pl. **15. 1753**; Fl. Brit. India **4: 539. 1884**; Fl. Pres. Madras **1080. 1924**; Matthew, Fl. TN. Carnatic **1188. 1983** & Fur. Ill. Fl. TN. Carnatic t. **460. 1988**. *Rostellularia procumbens* (L.) Nees in Wall., Pl. As. Rar. **3: 101. 1832**.

Prostrate herbs, rooting at the lower nodes. Leaves to **2 x 1.3** cm, ovate, elliptic, obtuse at both ends, hirsute; petiole to **0.5** cm. Spikes terminal, to **2.5** cm; bracts **3** mm, lanceolate, pubescent; bracteoles similar to bracts; calyx **4** mm, lanceolate; corolla tube **2** mm, lower lobes **4 x 3** mm, upper **4** mm, white with pink blotches; filaments **2** mm; ovary **1** mm, oblong, style **3.5** mm, hairy. Capsule oblong, hairy.

Fl. & Fr. January-March

D i s t. Common in dry deciduous forests

Chinnar, *KKS I1964*

*Justicia santapau* Bennet in J. Bombay Nat. Hist. Soc. **67: 358. 1970**. *J. montana* (Nees) Wall. ex T. Anders., J. Linn. Soc. Bot. **9: 509. 1867**; Fl. Brit. India **4: 525, 1885**; Fl. Pres. Madras **1078. 1924**. *Hemichoriste montana* Nees in Wall., Pl. Asiat. Rar. **3: 102. 1832**. Wight, Ic. t. **1538. 1850**.

Large shrubs. Leaves to **26 x 9** cm, elliptic, apex obtusely acuminate, base cuneate, crenate; petiole stout, **2.5** cm. Cymes terminal and axillary to **15** cm, pubescent; bracts **1** cm long, ovate; bracteoles linear, **5** mm; calyx lobes **5** mm oblong, hairy; corolla tube to **1.5** cm long, lower **3** lobed, upper two lobed white; filaments dilated, **5** mm long, hairy at the base; ovary **2** mm, oblong, pubescent.

Fl. March-May

D i s t. Occasional in shola forests

Olikkudy, *KKS 17379*

*Justicia tranquebariensis* L. f., Suppl. Pl. **85. 1781**; Fl. Brit. India **4: 530. 1885**; Fl. Pres. Madras **1079. 1924**; Matthew, Fl. TN. Carnatic **1190. 1983** & Fur. Ill. Fl. TN. Carnatic t. **463. 1988**. *Gendarussa tranquebariensis* (L. f.) Nees in Wall., Pl. Asiat. Rar. **3: 105. 1832**.

Subshrubs. Leaves **2.5-3 x 2** cm, obovate, orbicular, apex obtuse, base cuneate, membranous, pubescent; petiole **1.5** cm. Spikes terminal and axillary, to **10** cm; bracts **1 x 0.7** cm, broadly ovate; calyx teeth **5** mm, lanceolate, 3-nerved; corolla bilabiate, tube **5** mm, pubescent, villous inside, upper lobe **7 x 5** mm, lower narrow, white with pink blotches; filaments dilated, **2** mm; ovary **1.5** mm, ciliate along the margins, style ciliate. Capsule **8** mm, widened above the middle, puberulus.

Fl. & Fr. November-January

D i s t. Common in dry deciduous forests

Alampetty, *NS 5862*; Cliinnar, *KKS 11529*

#### LEPIDAGATHIS Willd.

*Lepidagathis scariosa* Nees in Wall., Pl. Asiat. Rar. **3: 95. 1832**; Wight, Ic. t. **457. 1841**; Fl. Brit. India **4: 520. 1885**; Fl. Pres. Madras **1068. 1924**.

Woody prostrate herbs, pubescent. Leaves to 3.5 x 2 cm, ovate, elliptic, apex acute, base cuneate, pubescent; petiole 1-1.5 cm. Heads terminal 3 cm long, ovoid; bracts obovate, hairy; bracteoles 7 mm, hairy, mucronate; calyx lobes 5, upper 1 x 3 cm, obovate, ciliate, lower 8 x 2 mm, basally connate, spinescent, the lateral 2, 6 x 1 mm, lanceolate, ciliate; corolla tube 1 cm hairy, lobes 5 mm, white; filaments 5 mm, anthers 1.5 mm; ovary 2 mm, oblong.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11583*

#### PERISTROPHE Nees

**Peristrophe paniculata** (Forssk.) Brummitt in Kew Bull. 38: 451. 1983. *P. bicalyculata* (Retz.) Nees in Wall., Pl. Asiat. Rar. 3: 113. 1832; Fl. Brit. India 4: 554. 1885; Fl. Pres. Madras 1084. 1924; Matthew, Fl. TN. Carnatic 1193. 1983 & Ill. Fl. TN. Carnatic t. 538. 1982. *Dianthera bicalyculata* Retz. in Acta Holm. 1775: 297. t. 9. 1776.

Erect branched herbs. Leaves 4.5-2 x 0.5-1 cm, ovate, apex acute, hirsute. Panicles axillary; pedicels to 2 cm: bracts 2, unequal, 11 and 8 mm, bracteoles 4, 6 mm, linear, hirsute; calyx lobes 4 mm, linear; Corolla tube 5 mm, hairy, lobes 7 mm; filaments 5 mm, hairy, cells mucicous; ovary 1 mm, oblong. Capsule ellipsoid.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15928*

#### PSEUDERANTHEMUM Radlk.

**Pseuderanthemum malabaricum** (Clarke) Gamble, Fl. Pres. Madras 1064. 1924. *Eranthemum malabaricum* Clarke in Hook. f., Fl. Brit. India 4: 497. 1884.

Large herbs. Leaves to 9 x 4 cm, elliptic, acuminate, apiculate, base cuneate, crenate. puberulus; petiole 0.5 to 1 cm. Racemes terminal, interrupted; bracts and bracteoles 2 mm, linear; calyx lobes 5, to 4 mm, lanceolate, pubescent; corolla tube 2 cm, lobes spreading 1 x 0.6 cm, oblong, white; filaments 2 mm; ovary tomentose.

*Fl. & Fr.* January-March

*D i s t.* Common near streams in dry deciduous and moist deciduous forests

Nellimedu, *KKS 11959*

#### RHINACANTHUS Nees

**Rhinacanthus nasutus** (L.) Kurz in J. Asiat. Soc. Bengal 39: 79. 1870; Matthew, Fl. TN. Carnatic 1196. 1983 & Ill. Fl. TN. Carnatic t. 539. 1982. *R. communis* Nees in Wall., Pl. Asiat. Rar. 3: 109. 1832; Wight, Ic. t. 464. 1841; Fl. Brit. India 4: 541. 1885; Fl. Pres. Madras 1083. 1924.

Large herbs. Leaves to 12 x 6 cm. elliptic, ovate, apex obtusely acuminate, base cuneate. puberulous; petiole to 3 cm, pubescent. Cymes axillary, 4-10 cm long, pubescent; bracts 1.5

mm, linear, pubescent; bracteoles 2, 2 mm, linear; calyx tube 1 mm, lobes, 3 mm, lanceolate, pubescent; corolla tube to 2.5 cm, hirsute, lower 3 lobed, 13 x 12 mm, oblong, upper 2 lobed, 8 x 2 mm, linear; ovary 3 x 1 mm, hirsute.

*Fl. & Fr.* February-April

*D i s t.* Occasional in wet areas in moist deciduous forests; endemic to Peninsular India.

Alampetty, *KKS 15957*

### RUNGIA Nees

**Rungia apiculata** Bedd.,  *Ic. t. 247. 1868-1874, Fl. Brit. India 4: 548. 1884; Fl. Pres. Madras 1070. 1924.*

Erect herbs, puberulus. Leaves to 10 x 4 cm, elliptic-ovate, acuminate at apex and base, membranous; petiole to 4 cm. Spikes axillary and terminal, 4 cm; bracts 8 x 3 mm, elliptic, acute; bracteoles 2, 11 x 1.5 mm, linear, pubescent; calyx tube to 5 mm, lobes lanceolate, upper 5 mm, emarginate, lower 6 mm, white blotted with blue; filaments 4 mm; ovary 1 mm. Capsule 3 mm, ovate.

*Fl. & Fr.* February-April

*D i s t.* Common in shola forests

Olikkudy, *KKS 17270, 18227*

### STROBILANTHES Blume

**Strobilanthes cuspidatus** T. Anders. in *J. Linn. Soc. 9: 465. 1867; Fl. Brit. India 4: 435. 1884; Fl. Pres. Madras 1036. 1924; Bedd., Ic. t. 221. 1868-1874; Matthew, Fl. TN. Carnatic 1203. 1983. Endopogon versicolor Wight,  *Ic. t. 1497. 1849. Phlebophyllum versicolor* (Wight) Bremek. in *Verh. Kon. Ned. Akad. Wetensch. 41: 170. 1944.**

Large shrubs. Leaves to 15 x 9 cm, ovate, apex long acuminate, base decurved to the long petiole crenate, glabrous when nature; petiole to 6 cm. Spikes axillary, branched; bracts 7 x 2.5 mm, ovate, glandular; bracteoles 2, 6 mm, lanceolate, pubescent; calyx tube 1 mm, lobes 8 mm, lanceolate, glandular, pubescent; corolla tube 5 mm, 1 cm long, pubescent, lobes 3 mm, blue; filaments 5 mm; anthers 2 mm, oblong; ovary 2 mm, oblong.

*Fl. & Fr.* December-February

*D i s t.* Occasional in dry deciduous forests

Kathitheetimala, *KKS 11828*

### VERBENACEAE

- |                                           |           |
|-------------------------------------------|-----------|
| 1. Leaves 3-7 digitate                    | : Vitex   |
| 1. Leaves simple                          | : 2       |
| 2. Inflorescence spicate                  | : 3       |
| 2. Inflorescence cymose or paniculate     | : 6       |
| 3. Shrubs                                 | : Lantana |
| 3. Herbs                                  | : 4       |
| 4. Fruit sticky pubescent; leaves cordate | : Priva   |
| 4. Fruit not so                           | : 5       |

5. Stamens 4	: <b>Lippia</b>
5. Stamens 2	: <b>Stachytarpheta</b>
6. Corolla regular; stamens equal; fruiting calyx inflated	: <b>Tectona</b>
6. Corolla irregular; stamens unequal; fruiting calyx not inflated	: 7
7. Fruit with 4 pyrenes, 1 seeded	: <b>Clerodendrum</b>
7. Fruit with a pyrene; 4 seeded	: 8
8. Corolla more than 2 cm across	: <b>Gmelina</b>
8. Corolla less than 1 cm across	: <b>Premna</b>

#### CLERODENDRUM L.

1. Leaves whorled; flowers blue	: <b>C. serratum</b>
1. Leaves opposite; flowers white	: 2
2. Calyx tube lobed half way down; leaf base truncate	: <b>C. phlomidis</b>
2. Calyx tube deeply lobed; leaf base cordate	: <b>C. viscosum</b>

**Clerodendrum phlomidis** L. f., Suppl. Pl. 292. 1781; Wight, Ic. t. 1473. 1849; Fl. Brit. India 4: 590. 1885; Fl. Pres. Madras 1099. 1924; Matthew, Fl. TN. Carnatic 1220. 1983 & Ill. Fl. TN. Carnatic t. 549. 1982.

Shrubs. branchlets hairy, pubescent. Leaves to 5 x 4 cm, ovate, obtuse, base truncate to acute, membranous; petiole 2.5 cm. Panicles axillary, occasionally terminal; bracts 5 mm. ovate; pedicels to 1 cm; calyx tube 6 mm, lobes 6 mm, triangular; corolla tube 2 to 2.5 cm. lobes 0.8 cm, oblong, subequal; stamens exerted; ovary 4-lobed, 1-ovuled each.

*Fl. & Fr.* July-October

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 15837*

**Clerodendrum serratum** (L.) Moon, Cat. Pl. Ceylon 46: n. 382. 1824; Wight, Ic. t. 1472. 1849; Fl. Brit. India 4: 592. 1885; Fl. Pres. Madras 1100. 1924; Matthew, Fl. TN. Carnatic 1220. 1983 & Fur. Ill. Fl. TN. Carnatic t. 468. 1988.

Shrubs. branchlets pubescent. Leaves whorled, to 15 x 8 cm, obovate-lanceolate. acuminate, margins doubly serrate along the upper half, puberulus; petiole to 1 cm. Panicles terminal. to 30 cm; bracts 1 cm, lanceolate; calyx cupular, truncate, 4 mm, minutely toothed: corolla tube to 1 cm, lobes 1 cm, oblong, unequal; stamens long exerted. Drupe 4-lobed, 1 cm across, muricate.

*Fl. & Fr.* June-October

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS 15746*

**Clerodendrum viscosum** Vent., Jard. Mal. 1: t. 25. 1803; H.N. & A. L. Moldenke in Dassan. & Fosb., Rev. Handb. Fl. Ceylon 4: 473. 1983. **C. infortunatum** auct. non. L.; Wight, Ic. t. 1471. 1849. "*infortzmata*"; Fl. Brit. India 4: 594. 1885; Fl. Pres. Madras 1100. 1924.

Shrubs, branchlets densely fulvous. Leaves to 20 x 15 cm, broadly ovate. orbicular, caudate acuminate. base cordate to truncate. puberulus above. tomentose below; petiole to 6 cm. Panicles terminal. to 15 cm; flowers white; bracts to 1 cm, ovate; pedicel to 1 cm; calyx lobes 1

cm, lanceolate, pubescent; corolla tube 1 mm, lobes 1 cm, subequal; filaments 2.5 cm; ovary, 2 mm, pubescent.

**Fl. & Fr.** July-September

**D i s t.** Occasional in dry deciduous forests

Churullipetty, *KKS 15837*

#### **GMELINA L.**

- |                                             |                      |
|---------------------------------------------|----------------------|
| 1. Calyx lobes 4, branchlets spinescent     | : <b>G. asiatica</b> |
| 1. Calyx lobes 5, branchlets not spinescent | : <b>G. arborea</b>  |

**Gmelina arborea** Roxb., Pl. Cor. t. 246. 1815; Wight, Ic. t. 1470. 1849; Fl. Brit. India 4: 581. 1885; Fl. Pres. Madras 1097. 1924; Matthew, Fl. TN. Carnatic 1222. 1983 & Ill. Fl. TN. Carnatic t. 550. 1982; H. N. & A. L. Moldenke in Rev. Handb. Ceylon 4: 340. 1983.

Large trees. Leaves to 20 x 13 cm, broadly ovate-cordate, tomentose below; petiole 9 cm long. Panicles axillary and terminal, to 10 cm long, pubescent; bracts 8 mm, tomentose; flowers golden yellow; pedicel 2 mm, tomentose; calyx 3.5 cm long; filaments 1.5 cm; ovary 4 mm.

**Fl. & Fr.** January-March

**D i s t.** Occasional in dry deciduous forests

Churullipetty, *KKS 11862*

**Gmelina asiatica** L., Sp. Pl. 626. 1753; Wight, Ill. 2: t. 174. 1850; Fl. Brit. India 4: 582. 1885; Fl. Pres. Madras 1098. 1924; Matthew, Fl. TN. Carnatic 1222. 1983 & Fur. Ill. Fl. TN. Carnatic t. 470. 1988. **G. parvifolia** Roxb., Pl. Cor. t. 162. 1802.

Small trees, branchlets ferruginous pubescent, aborted branches spiny. Leaves to 4 x 3 cm, ovate, apex acute, slightly pubescent on the nerves beneath, glaucous; petiole to 2 cm. Racemes terminal or axillary, 3-5 cm long, pubescent; flowers golden yellow; calyx tube 6 mm long, campanulate, with large glands, tomentose; corolla tube 1.5 cm, ventricorse, lobes 2.5 cm, pubescent; largest stamen to 1.7 cm; ovary 4 mm. Drupe 2.5 x 2 cm.

**Fl. & Fr.** January-April

**D i s t.** Common in dry deciduous forests

Champakad, *KKS 11894*

#### **LANTANA L.**

- |                                           |                    |
|-------------------------------------------|--------------------|
| 1. Unarmed shrubs; bracts ovate-acuminate | : <b>L. indica</b> |
| 1. Armed shrubs; bracts lanceolate        | : <b>L. camara</b> |

**Lantana camara** L., Sp. Pl. 627. 1757; Fl. Brit. India 4: 502. 1885; Fl. Pres. Madras 1087. 1924; Matthew, Fl. TN. Carnatic 1224. 1983 & Fur. Ill. Fl. TN. Carnatic t. 472. 1988; H. N. & A. L. Moldenke in Rev. Handb. Fl. Ceylon 4: 220. 1983.

Shrubs; spines recurved. Leaves to 6 x 3.5 cm, ovate, apex acute, base truncate to cordate, crenate, rugose above. pubescent below; petiole to 2 cm. Spikes axillary, to 2 cm; peduncles to

6 cm; flowers red; bracts 8 mm, lanceolate, pubescent; calyx tube 2 mm, mouth entire; corolla tube 8 mm, puberulus, mouth oblique, lobes 4 mm, obovate.

*Fl. & Fr.* April-June

*D i s t.* Abundant in open areas in forests

Chinnar, *KKS 11665*

**Lantana indica** Roxb., *Fl. India* 3: 89. 1832; Wight, *Ic. t.* 1464. 1849; *Fl. Brit. India* 4: 562. 1885; *Fl. Pres. Madras* 1087. 1924; Matthew, *Fl. TN. Carnatic* 1224. 1983.

Shrubs. Leaves to 5.5 x 3.5 cm, broadly ovate, apex acute, base truncate, crenate, puberulus above, tomentose below; petiole to 1.5 cm. Spikes axillary, to 2.5 cm; peduncles to 5 cm; bracts to 1 cm, broadly ovate, pubescent; calyx tube 1.5 mm, entire, ciliate; corolla tube to 7 mm, curved, lobes to 2.5 mm, violet; filaments 0.7 and 11 mm. Berry 5 mm long, ovoid, enclosed by the bracts.

*Fl. & Fr.* December-February

*D i s t.* Very common in open areas in forest

Chinnar, *KKS 15582*

#### LIPPIA L.

**Lippia javanica** (Burm. f.) Spreng. *Syst. Veg.* 2: 752. 1825. **Verbena javanica** Burm. f., *Fl. Ind.* 12. t. 6. f. 2. 1768. **Lippia geminata** H.B.K. *Nov. Gen. Sp.* 2: 266. 1818; *Fl. Brit. India* 4: 563. 1885; *Fl. Pres. Madras* 1088. 1924. **Lippia unica** Ramakr. in *J. Bombay Nat. Hist. Soc.* 54: 925. 1957 [Fig. 11].

Large herbs. Leaves to 1.5-4.5 x 1-2 cm, ovate-elliptic or oblong, apex acute, base rounded, crenate, strigose; petiole to 1 cm long, hairy. Spikes axillary, 2.5 x 0.5 cm, cymose; peduncles 2-4 cm; flowers yellowish white; bracts 3 x 2 mm, broadly ovate; calyx 2-lobed, 2 mm long, hirsute; corolla tube 4 mm long, pubescent; stamens included. Pyrenes 2, 1 x 1.5 mm, enclosed in accrescent calyx lobes.

*Fl. & Fr.* January-March

*D i s t.* Rare in dry deciduous forests; endemic to Peninsular India.

Sivapura, *KKS 11928*

#### PREMNA L.

- |                                                     |                                               |
|-----------------------------------------------------|-----------------------------------------------|
| 1. Leaves densely tomentose; flowers yellow         | : <b>P. tomentosa</b>                         |
| 1. Leaves glabrous; flowers white                   | : <b>2</b>                                    |
| 2. Cymes in thyrsoid panicles; fruit tubercled      | : <b>P. wightiana</b>                         |
| 2. Cymes in corymbs; fruit smooth                   | : <b>3</b>                                    |
| 3. Leaves entire, with a cup-like structure at base | : <b>P. latifolia</b> var. <b>latifolia</b>   |
| 3. Leaves serrate, base naked                       | : <b>P. latifolia</b> var. <b>viburnoides</b> |

**Premna latifolia** Roxb., *Fl. Ind.* 3: 76. 1832, var. **latifolia**; Wight, *Ic. t.* 869. 1845; *Fl. Brit. India* 4: 577. 1885; *Fl. Pres. Madras* 1096. 1924; Matthew, *Fl. TN. Carnatic* 1228. 1983 & *Fur. III. Fl. TN. Carnatic t.* 474. 1988.



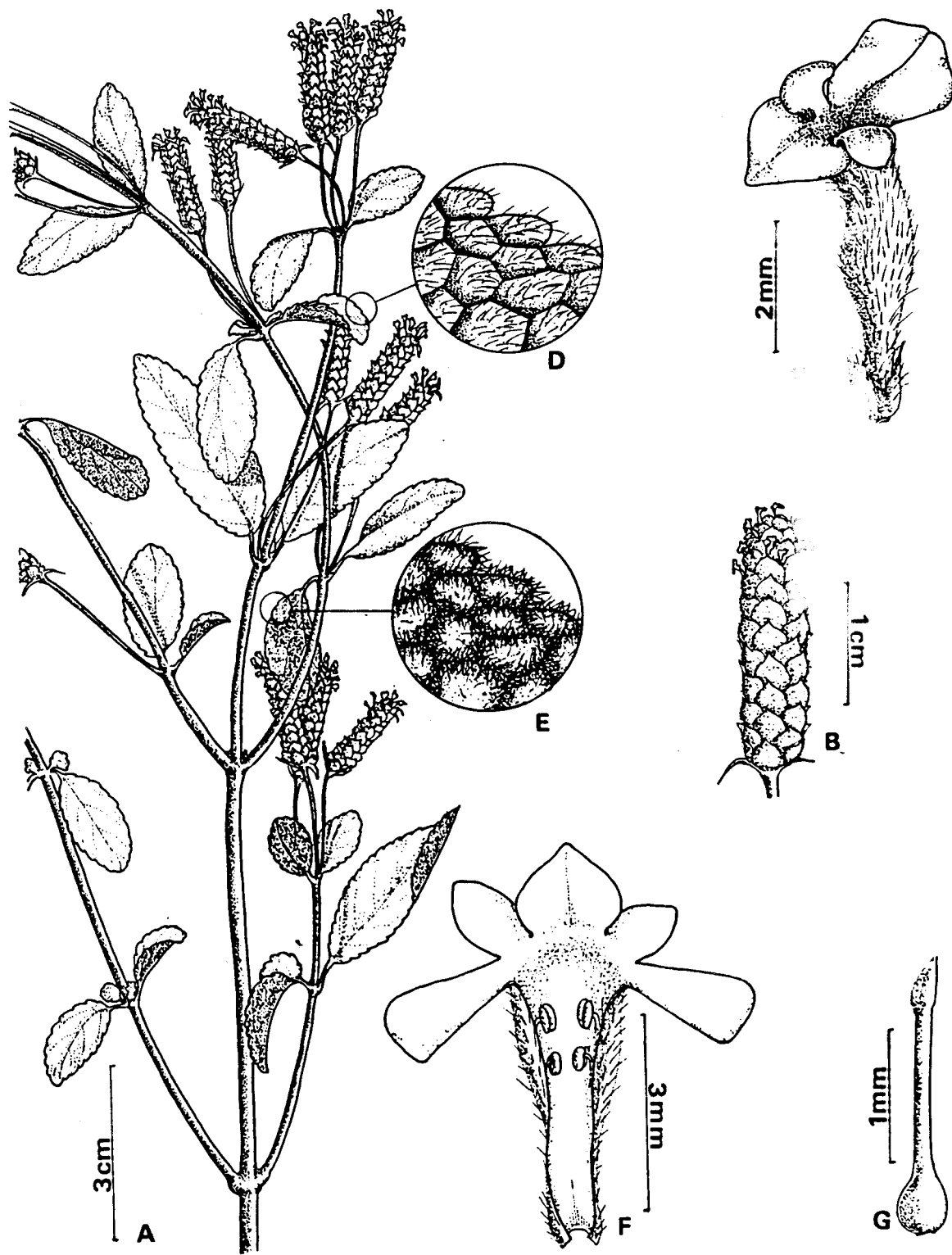


Fig. 11. *Lippia javanica* (Burm. f.) Spreng. A. flowering branch, B. inflorescence, C- flower, D. enlarged view of the upper side of the leaf, E. enlarged view of the lower side of the leaf, F. corolla split open, G. pistil.

Trees. Leaves to 8 x 5 cm, ovate, apex abruptly acuminate, base rounded or cordate, entire or serrate; petiole 3-3.5 cm long. Corymbs terminal, to 7 cm long; calyx obscurely 2-lipped, 1.5 mm; corolla tube 2 mm, densely villous inside; stamens exserted. Pyrenes 4 mm across.

*Fl. & Fr.* November-February

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS 11627*

***Premna latifolia*** Roxb. var. ***viburnoides*** Clarke in Hook. f., *Fl. Brit. India* 4: 578. 1885; *Fl. Pres. Madras* 1096. 1924.

Small trees. Leaves to 8 x 4 cm, elliptic-ovate, obtuse or acuminate; petiole to 3 cm. Corymbs axillary and terminal; flowers white; calyx 2 mm, lobes ovate; corolla 4 mm, larger lobe inflexed at the tip; stamens included; ovary 1 mm, globose, style 3 mm, stigma shortly bifid.

*Fl.* April-June

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 17397*

***Premna tomentosa*** Willd., *Sp. Pl.* 3: 314. 1800; Wight,  *Ic. t.* 1468. 1849; *Fl. Brit. India* 4: 576. 1885; *Fl. Pres. Madras* 1095. 1924; Matthew. *Fl. TN. Carnatic* 1229. 1983 & *Ill. Fl. TN. Carnatic t.* 554. 1982. ***Cornutia corymbosa*** Lam., *Encycl.* 1: 54. 1783, non *Burm. f.* 1768

Trees; young branchlets tomentose. Leaves 6-18 x 5-15 cm, ovate cordate, acuminate, thick, densely tomentose below. Corymbs axillary and terminal, to 7 cm long; flowers yellow; calyx 2 mm long, pubescent; corolla 4 mm long, hairy at the throat, bilabiate; stamens 2 mm long; ovary hairy at the apex, style 3 mm. Fruit 4 mm across, pubescent.

*Fl. & Fr.* February-April

*D i s t.* Very common in dry deciduous forests

Alampetty, *NS 5927; KKS 11974*

***Premna wightiana*** Schauer in DC., *Prodr.* 11: 635. 1847; *Fl. Brit. India* 4: 578. 1885; *Fl. Pres. Madras* 1096. 1924.

Trees; branchlets pubescent. Leaves to 10 x 5 cm, ovate elliptic, acuminate, base cuneate, serrate on the upper half; petiole to 3 cm. Panicles terminal; calyx obscurely 5-lobed, 2 mm, hairy; corolla 3.5 mm long, long villous inside, yellowish white; longest filaments 2 mm; ovary villous at apex. Fruit 5 x 5 mm, obovoid, tubercled.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Churullipetty, *KKS 11645*

#### **PRIVA Adans.**

***Priva cordifolia*** (L. f.) Druce in *Bot. Soc. Exch. Club. Brit. Isles* 1916: 641. 1917; Matthew, *Fl. TN. Carnatic* 1230. 1983 & *Ill. Fl. TN. Carnatic t.* 555. 1982. ***Priva leptostachya*** Juss. in

Ann. Mus. Hist. Nat. 7: 70. 1806; Fl. Brit. India 4: 565. 1885; Fl. Pres. Madras 1091. 1924.  
*Streptium asperum* Roxb., Pl. Cor. t. 146. 1800.

Erect herbs; stem quadrangular. Leaves to 5 x 4 cm, broadly ovate, apex acute, base truncate, crenate, membranous, pilose; petiole to 4 cm. Racemes terminal, to 15 cm; bracts 2 mm, lanceolate; flowers white; calyx 6 mm, 5-ribbed, pubescent; corolla tube obscurely 2-lipped, 8 mm, curved, lobes 4 mm, orbicular; filaments subequal; ovary oblong,. Fruit enclosed in calyx tube, sticky, pubescent.

*Fl. & Fr.* October-January

*D i s t.* Very common in dry deciduous forests

Alampetty, NS **5867**; Chinnar, **KKS 22525**

#### STACHYTARPHETA Vahl *nom. cons.*

*Stachytarpheta jamaicensis* (L.) Vahl, Enum. Pl. 1: 206. 1804. *Verbena jamaicensis* L., Sp. Pl. 19. 1753. *Stachytarpheta indica* var. *jamaicensis* (L.) Trimen, Cat. Pl. Ceylon 68. 1885 & Handb. Fl. Ceylon 3: 348. 1895; Fl. Pres. Madras 1090. 1924. *S. indica* sensu Clarke in Hook. f., Fl. Brit. India 4: 564. 1885, p.p.; non (L.) Vahl 1804.

Shrubs. Leaves to 7 x 4 cm, elliptic-ovate, appressed hirsute above, acute, crenate; petiole to 2 cm long. Spikes terminal, to 20 cm long; flowers sunken in the rachis; bracts 6 mm long, obovate-lanceolate; calyx tubular, 6 mm long, ridged, lobes acuminate; corolla tube 1.5 cm, sparsely hairy without, blue; stamens 2; ovary 2 mm, style slender, stigma globose. Pyrenes 8 mm, linear-oblong.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in dry forests

Chinnar, **KKS 11527**

#### , TECTONA L. f. *nom. cons.*

*Tectona grandis* L. f., Suppl. Pl. 151. 1781; Bedd., Fl. Sylv. t. 250. 1872; Fl. Brit. India 4: 570. 1885; Fl. Pres. Madras 1092. 1924.

Large trees; branchlets 4-gonous, puberulus. Leaves to 45 x 30 cm, broadly elliptic, stellate pubescent below, apex obtuse to acute, nerves 8-10 pairs. Panicle cymose, terminal, to 50 x 40 cm; flowers to 7 mm across, white; calyx 5 mm long, lobes 6, ovate, tomentose; corolla 6 mm long, lobes 6, spreading; stamens 6, erect; ovary densely hairy, 4-celled, style slender, bifid at apex. Drupes 1.5 cm across; globose. densely floccose hairy, covered by the inflated calyx.

*Fl. & Fr.* June-September

*D i s t.* Planted

Chinnar, **KKS 11658**

#### VITEX Lour. ex L.

- |                                                                      |                        |
|----------------------------------------------------------------------|------------------------|
| 1. Petioles winged; leaflets sessile                                 | : <b>V. altissima</b>  |
| 1. Petioles not winged; leaflets petioled                            | : <b>2</b>             |
| 2. Leaflets grey pubescent beneath; panicles terminal or subterminal | : <b>V. negundo</b>    |
| 2. Leaflets glabrous; panicles axillary                              | : <b>V. leucoxydon</b> |

*Vitex altissima* L. f., Suppl. Pl. 294. 1781; Wight, Ic. t. 1466. 1849; Fl. Brit. India 4: 584. 1885; Fl. Pres. Madras 1102. 1923; Matthew, Fl. TN. Carnatic 1239. 1983 & Fur. Ill. Fl. TN. Carnatic t. 479. 1988. *V. alata* Heyne ex Roth, Nov. Pl. Sp. 316. 1821; Fl. Brit. India 4: 584. 1885.

Trees; branchlets pubescent. Leaves trifoliate, middle leaflets 14 x 5 cm, obovate-lanceolate, lateral ones elliptic, apex acuminate, pubescent below on the nerves; petiole to 6 cm. Panicles terminal or on the upper axils, to 20 cm long, pubescent; bracts 2.5 mm, pubescent; calyx tube 2 mm long, tomentose; corolla tube 4 mm, puberulus, throat villous; filaments 3.5 mm, hairy; ovary globose, hairy at apex, style 5 mm. Drupe 5 mm across.

*Fl. & Fr.* December-April

*D i s t.* Common along streamsides in dry deciduous forests

Muthuvanala, *K. K. S. 11750*

*Vitex leucoxylon* L. f. Suppl. Pl. 293. 1781; Fl. Brit. India 3: 587. 1885; Fl. Pres. Madras 1103. 1923; Matthew. Fl. TN. Carnatic 1239. 1983 & Ill. Fl. TN. Carnatic t. 559. 1982. *Wallrothia leucoxylon* (L. f.) Roth, Nov. Pl. Sp. 391. 1821; Wight, Ic. t. 1467. 1849.

Trees. Leaves palmately compound; leaflets 5-7, to 14 x 5 cm, elliptic, lanceolate, apex acute or acuminate; petiole 7 cm long, petiolule 2.5 cm. Panicles to 15 cm long; flowers white; calyx tube 3 mm; corolla bilabiate. tube 5 mm, shallowly lobed, with violet hairs inside: filaments 4 and 2 mm, hairy; ovary 2 mm, style obliquely attached to the ovary. Drupe 2.5 x 1.5 cm, obovoid.

*Fl. & Fr.* February-May

*D i s t.* Common along the streamsides

Athiyodai, *KKS 15723*; Champakkad, *15533*

*Vitex negundo* L., Sp. Pl. 638. 1753; Wight, Ic. t. 519. 1842; Fl. Brit. India 4: 583. 1885; Fl. Pres. Madras 1102. 1924; Matthew, Fl. TN. Carnatic 1240. 1983.

Small trees; branchlets grey pubescent. Leaves 3-5 foliate, leaflets to 13 x 2.5 cm, lanceolate, grey pubescent: petiole to 7 cm long, petiolule 2 cm long. Panicles terminal and axillary, to 29 cm long, pubescent; calyx 3 mm, cup shaped, pubescent; corolla tube 4 mm long, hairy inside; filaments 4 and 5 mm; ovary 1 mm. style 6.5 mm, stigma bifid. Drupe 4 mm across, globose.

*Fl. & Fr.* March-June

*D i s t.* Common in dry deciduous forests

Samplampetty, *KKS 15608*

## LAMIACEAE

- |                               |                      |
|-------------------------------|----------------------|
| 1. Staminal filaments connate | : <b>Coleus</b>      |
| 1. Staminal filaments free    | : <b>2</b>           |
| 2. Flower whorls capitate     | : <b>Anisochilus</b> |
| 2. Flower whorls not capitate | : <b>3</b>           |

3. Calyx 6-10 toothed	: 4
3. Calyx 5 lobed	: 5
4. Calyx spinescent; flowers pink	: Leonotis
4. Calyx not spinescent; flowers white	: Leucas
5. Lower lip of calyx with an outwardly curved pouch	: Scutellaria
5. Lower lip of calyx without an appendage	: 6
6. Stamens declinate	: 7
6. Stamens erect	: 10
7. Stigma bifid	: 8
7. Stigma capitate	: Orthosiphon
8. Inflorescence a congested spike	: Geniosporum
8. Inflorescence panicles or raceme	: 9
9. Lower lip of corolla longer than the upper lip	: Plectranthus
9. Lower lip of corolla equal to or smaller than the upper lip	: Ocimum
10. Corolla one labiate	: Teucrium
10. Corolla bilabiate, equally lobed	: 11
11. Corolla lobes 4	: Pogostemon
11. Corolla lobes 5	: Anisomeles

#### ANISOCHILUS Wall. ex Benth.

1. Leaf base obtuse, intercostae areolate	: A. wightii
1. Leaf base cordate, intercostae not areolate	: A. carnosus

**Anisochilus carnosus** (L. f.) Wall. ex Benth. in Wall., Pl. Asiat. Rar. 2: 18. 1831; Fl. Brit. India 4: 627. 1885; Fl. Pres. Madras 1127. 1924; Matthew, Fl. TN. Carnatic 1248. 1983 & ill. Fl. TN. Carnatic t. 561. 1982. *Lavandula carnosa* L. f., Suppl. Pl. 273. 1781.

Herbs, pubescent, stems tetragonous. Leaves to 4 x 2 cm, ovate, base slightly cordate crenate, puberulus above and hoary pubescent below; petiole to 3.5 cm. Spikes 3 cm long, peduncles to 10 cm, pubescent; flowers violet; calyx tube 1.5 mm, pubescent; corolla 5 x 1 mm across; filament pairs 2 and 3 mm.

**Fl. & Fr.** December-February

**D i s t.** Common in dry deciduous forests

Churullipetty, *KKS 11651*

**Anisochilus wightii** Hook. f., Fl. Brit. India 4: 628. 1885; Fl. Pres. Madras 1127. 1924.

Fleshy herbs; stem tetragonous. Leaves to 4 x 2.5 cm, ovate, oblong, obtuse, crenate, puberulus above, white tomentose beneath; petiole to 1 cm. Spikes 3.5 x 1 cm; peduncle to 15 cm; bracts 2 mm, ovate; calyx tube 3 mm, upper lip 3 mm, lower lip 1 mm; corolla 4 mm across; filaments 2.5 and 1.5 mm; style 7 mm, bifid apex.

**Fl.** July-September

**D i s t.** Occasional in rocky areas in dry deciduous forests

Ichampetty, *KKS 15741*

#### ANISOMELES R. Br.

**Anisomeles indica** (L.) O. Ktze., Rev. Gen. Pl. 512. 1891, var. **indica**; Fl. Pres. Madras 1140. 1924; Cramer in Rev. Handb. Fl. Ceylon 4: 176. 1981; Matthew, Fl. TN. Carnatic 1250. 1983 &

III. Fl. TN. Carnatic t. 562. 1982. *Nepeta indica* L., Sp. Pl. 571. 1753. *Anisomeles ovata* R. Br. in Ait., Hort. Kew. ed. 2,3 : 364. 1811. Fl. Brit. India 4: 672. 1885.

Large herbs; stem quadrangular, acutely angular, tomentose. Leaves to 8 x 5 cm, ovate apex acute, base truncate, broadly crenate. pubescent; petiole 4 cm. Flowers violet; bracts 6 mm subulate: calyx tube 6 mm, lobes 3 mm, acute, pubescent; corolla tube 6 mm, lower lip 1 mm; filaments bearded, 1.2 cm; ovary 0.5 mm; Nutlets 2 mm, smooth.

Fl. & Fr. November-March

D i s t. Common in dry deciduous forests

Chinnar, KKS 11536

#### COLEUS Lour.

- |                                                            |                        |
|------------------------------------------------------------|------------------------|
| 1. Calyx tube with a ring of hairs inside                  | : 2                    |
| 1. Calyx tube naked inside                                 | : <i>C. amboinicus</i> |
| 2. Leaves obovate, bracts punctuate, racemes dense         | : <i>C. spicatus</i>   |
| 2. Leaves ovate, bracts not punctuate, racemes interrupted | : <i>C. barbatus</i>   |

*Coleus amboinicus* Lour. Fl. Cochinch. 2: 372. 1790; Fl. Pres. Madras 1124. 1924. *C. aromaticus* Benth. in Wall. Pl. Asiat. Rar. 2: 15. 1830-1831; Wight, Ill. 2: t. 175. 1850; Fl. Brit. India 4: 625. 1885.

Fleshy herbs, aromatic. Leaves to 7 x 6 cm, broadly ovate, apex obtuse, base truncate, crenate, fleshy, densely pubescent below; petiole to 2 cm, pilose. Racemes terminal and axillary, to 20 cm, whorls distant, to 2-2.5 cm; bracts 5mm, ovate, pubescent; calyx tube 1 mm. upper lobe 3 mm, ovate, lower 2 mm. pubescent outside; corolla tube 3 mm, lower lip concave, 6 mm, upper lip 3 mm, pubescent outside, violet; ovary 0.5 mm.

Fl. January-March

D i s t. Common in dry deciduous forests

Manala, KKS 11902

*Coleus barbatus* (Andr.) Benth. in Pl. As. Rar. 2: 15. 1831: Fl. Brit. India 4: 625. 1885; Fl. Pres. Madras 1124. 1924; Cramer in Kew Bull. 32: 555. 1978. *Plectranthus barbatus* Andr. Bot. Rep. 9: t. 594. 1809.

Pubescent herbs. Leaves to 8 x 4 cm, ovate, elliptic, apex obtuse, base cuneate, crenate. pubescent; petiole to 3 cm. Racemes terminal, to 20 cm long; bracts 4 mm, broadly ovate, acuminate. ciliate; calyx inside with a ring of hairs upper lip 4 mm, ovate, acuminate, lower 4 toothed, 2 mm, all ciliate; corolla tube 6 mm, lower lip broadly ovate, 6 mm, violet; staminal sheath to 4 mm; style 1.5 cm, bifid.

Fl. January-March

D i s t. Common in dry deciduous forests

Manala, KKS 11903; Nellimedu, 11944

*Coleus spicatus* Benth. in Wall. Pl. Asiat. Rar. 2: 15. 1830-1831; Wight, Ic. t. 1431. 1849; Fl. Brit. India 4: 624. 1885; Fl. Pres. Madras 1123. 1924.

Profusely branched herbs, clothed with soft hairs. Leaves to 3 x 2.5 cm, obovate, crenate, pubescent below, fleshy; petiole to 1 cm. Spikes terminal, to 7 cm, tomentose, bracts 8 x 5 mm, ovate, mucronate, punctuate with red glands, deciduous; calyx pubescent out side, upper orbicular, ciliate, the lower 4 toothed, 2 mm; corolla tube 5 mm, lower lip 5 mm, blue; staminal tube 8 mm; style 1.5 cm, stigma bifid.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Charkapetty, *KKS 11743*

#### **GENIOSPORUM Wall. ex Benth.**

**Geniosporum elongatum** Benth., *Labiata. Gen. Sp.* 21. 1832; *Fl. Brit. India* 4: 610. 1885 excl. syn. *G. indicum* sensu Gamble, *Fl. Pres. Madras* 11 16. 1924.

Erect herbs, pilose. Leaves to 3.5 x 1 mm, oblong-obovate, apex acute, base cuneate, distantly serrate. hirsute, punctuate; petiole 0.5 cm. Spikes terminal, pubescent; bracts 4 x 3 mm, ovate, ciliate; calyx lobes 1.5 mm, membranous, ciliolate; corolla tube 3.5 mm, violet; filaments 3 and 4 mm; ovary 0.4 mm, style exserted.

*Fl.* December-February

*D i s t.* Occasional in dry deciduous forests

Churullipetty, *KKS 11640*; Chengamperu, *11707*

#### **HYPTIS Jacq. nom. cons.**

**Hyptis suaveolens** (L.) Poit., *Ann. Mus. Hist. Nat.* 7: 472. t. 27. f. 2. 1806; *Fl. Brit. India* 4: 630. 1885; *Fl. Pres. Madras* 1129. 1924; Matthew, *Fl. TN. Carnatic* 1256. 1983 & *Ill. Fl. TN. Carnatic* t. 567. 1982. *Ballota suaveolens* L., *Syst. Nat.* (ed. 10) 1100. 1759.

Subshrubs, stem pilose. aromatic. Leaves to 2-7 x 1-4 cm, ovate, apex acute, base truncate, shortly serrate, sparsely pubescent; petiole 2 cm. Racemes axillary and terminal; calyx 5-toothed, 10-ribbed, tube 2 mm, pubescent, teeth 1 and 1.5 mm; corolla tube 4 mm, blue, pubescent inside; filaments 2 mm, bearded; ovary 1 mm, style 5 mm.

*Fl.* March-May

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15563*

#### **LEONOTIS (Pers.) R. Br.**

**Leonotis nepetiifolia** (L.) R. Br., *Prodr.* 504. 1810, "nepetaefolia"; Wight, *Ic.* t. 867. 1845; *Fl. Brit. India* 4: 691. 1885; *Fl. Pres. Madras* 1155. 1924; Matthew, *Fl. TN. Carnatic* 1257. 1983 & *Ill. Fl. TN. Carnatic* t. 568. 1982. *Phlomis nepetiifolia* L., *Sp. Pl.* 586. 1753. "nepetaefolia".

Shrubs, pilose. Leaves to 11 x 8 cm, ovate, apex acute, base truncate, deeply crenate, minutely punctuate, pubescent, basally tri-nerved; petiole to 9 cm. Thyrsus axillary and terminal, 5 cm across; flowers red; bracts 1.5 cm, linear, spinescent, pubescent; calyx oblique, tube 1.3 cm long, 7-toothed, spinescent; corolla tube 1 cm long, lower lip 1.5 cm, concave, densely villous; filaments 3 and 4 mm. flattened; ovary 1 mm, style 2 cm.

Fl. November-March

D i s t. Common in dry deciduous forests

Chinnar, KKS 11538

#### LEUCAS L.

- |                                                                                    |                           |
|------------------------------------------------------------------------------------|---------------------------|
| 1. Calyx mouth straight                                                            | : 2                       |
| 1. Calyx mouth oblique                                                             | : 4                       |
| 2. Flowers 2-6 in each whorl, axillary                                             | : 3                       |
| 2. Flowers more than 6 in each whorl, terminal                                     | : <b>L. hirta</b>         |
| 3. Flowers usually 2 in a whorl; plants rooted at the lower nodes                  | : <b>L. biflora</b>       |
| 3. Flowers 4-6 in a whorl                                                          | : <b>L. angularis</b>     |
| 4. Calyx glabrous on the lower half and with bulbous based hairs in the upper half | : <b>L. aspera</b>        |
| 4. Calyx ciliate or glabrous throughout                                            | : 5                       |
| 5. Anterior lobes of calyx longer                                                  | : <b>L. urticaefolia</b>  |
| 5. Posterior lobes of calyx longer                                                 | : 6                       |
| 6. Whorl terminal and subterminal; leaf-apex obtuse                                | : <b>L. indica</b>        |
| 6. Whorls axillary; leaf apex acuminate                                            | : <b>L. martinicensis</b> |

**Leucas angularis** Benth. in Wall. Pl. Asiat. Rar. 1: 62. 1830; Fl. Brit. India 4: 684. 1885; Fl. Pres. Madras 1151. 1924. **L. marrubioides** Desf. var. **pulneyensis** Hook. f., Fl. Brit. India 4: 684. 1885.

Prostrate branching herbs, pubescent. Leaves to 3.5 x 1.5 cm, ovate, obtuse, base rounded or truncate, serrate. pubescent; petiole 0.5 cm. Whorls axillary, 4-6 flowered; bracts 3 mm, linear. ciliate; calyx tube 8 mm, 10 toothed, unequal, to 2 mm, ciliate; corolla tube 9 mm, subequal; filaments 5 and 7 mm, pubescent; ovary 1 mm, style 1.3 mm.

Fl. January-March

D i s t. Common in dry deciduous forests

Alampetty, KKS 11799

**Leucas aspera** (Willd.) Link, Enum. Pl. Hort. Berol. 2: 113. 1822; Fl. Brit. India 4: 690. 1885; Fl. Pres. Madras 1150. 1924; Matthew, Fl. TN. Carnatic 1259. 1983 & Fur. Ill. Fl. TN. Carnatic t. 483. 1988. **Phlomis aspera** Willd., Enum. Pl. Hort. Berol. 621. 1809.

Herbs, pubescent. Leaves to 5.5 x 0.8 cm, elliptic, apex obtuse, base cuneate, distantly serrate. membranous, pubescent. Whorls axillary and terminal, 2 cm across; flowers white; bracts 8 mm long, linear, ciliate, acute; calyx mouth oblique, 5 mm, 10-toothed, ciliate with bulbous based hairs at apex; corolla tube 8 mm, upper lobe 4 mm, lower 8 mm; filaments 4 and 5 mm, pubescent; ovary 1 mm, style 8 mm.

Fl. & Fr. December-February

D i s t. Common in dry deciduous forests

Chengamperu, KKS 11703



*Leucas biflora* (Vahl) R. Br., Prodr. 504. 1810; Wight, Ic. t. 866. 1844-45; Fl. Brit. India 4: 683. 1885; Fl. Pres. Madras 1150. 1924; Matthew, Fl. TN. Carnatic 1260. 1983 & Fur. Ill. Fl. TN. Carnatic t. 484. 1988.

Prostrate herbs, rooting at the lower nodes. Leaves to 2.5 x 2 cm, ovate, broadly crenate, sparsely hirsute, ciliate along the margins; petiole 8 mm. Flowers axillary, usually 2; bracts 2 mm, linear; calyx tube 5 mm, 10-ribbed, hirsute, 10-toothed, 2 mm, hairy; corolla tube 6 mm, upper lip 4 mm, lower lip 6 mm; filaments 3 and 4 mm, style 7 mm. Nut 2 x 1 mm, truncate at the apex.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11524*

*Leucas hirta* (Heyne ex Roth) Spreng., Syst. Veg. 2: 743. 1825; Fl. Brit. India 4: 687. 1885; Fl. Pres. Madras 1153. 1924; Matthew, Fl. TN. Carnatic 1261. 1983 & Fur. Ill. Fl. TN. Carnatic t. 486. 1988. *Phlomis hirta* Heyne ex Roth, Nov. Pl. Sp. 264. 1821.

Prostrate subshrubs, pubescent. Leaves to 4 x 1 cm, elliptic, apex acute, base cuneate, distantly serrate towards the apex, pubescent; petiole 3 mm. Whorls terminal, many flowered; bracts many, 8 mm, linear, ciliate; calyx mouth straight, 8 mm, pubescent, 10-toothed, alternately long and short, 1 and 2 mm; corolla tube 10 mm, upper lip densely tomentose, upper lobe 3 mm, lower 7 x 5 mm; filaments 4 and 6 mm, hairy; ovary 1 mm, oblong, style 12 mm.

*Fl.* February-April

*D i s t.* Common in shola forests; endemic to Peninsular India.

Vanchikulam, *KKS 15992*

*Leucas indica* (L.) R. Br. ex Vatke in Oesterr., Bot. Zeits. 25: 95. 1875; Matthew, Fl. TN. Carnatic 1262. 1983. *Leonurus indicus* L., Syst. Nat. (ed. 10) 1101. 1759. *Leucas lavandulifolia* Smith in Rees, Cyclop. 20: n. 2. 1812; Matthew, Ill. Fl. TN. Carnatic t. 569. 1982. *L. linifolia* (Roth) Spreng., Syst. Veg. 2: 743. 1825; Fl. Brit. India 4: 690. 1885; Fl. Pres. Madras 1149. 1924. *Phlomis linifolia* Roth, Nov. Pl. Sp. 260. 1821.

Erect herbs. Leaves to 9 x 1 cm, elliptic-lanceolate, apex obtuse, base cuneate, margins distantly serrate, slightly pubescent; petiole to 0.5 cm. Whorls terminal and subterminal, 2.5 cm across; flowers white; bracts 5 mm, linear, pubescent; calyx 8 mm, oblique, pubescent; corolla tube 1 cm, upper lip 4 mm, densely pubescent, lower lip 3-lobed, 1 cm long; filaments 3 and 5 mm, pubescent; ovary 1 mm, oblong, style 1 cm.

*Fl.* December-February

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 15686*

*Leucas martinicensis* (Jacq.) R. Br., Prodr. 504. 1810; Fl. Brit. India 4: 688. 1885; Fl. Pres. Madras 1149. 1923; Matthew, Fl. TN. Carnatic 1263. 1983 & Fur. Ill. Fl. TN. Carnatic t. 488.

1988. *Clinopodium martinicense* Jacq., Enum. Syst. Pl. 25. 1760 & Select. Am. t. 177. f. 75. 1763.

Erect herbs, pubescent. Leaves to 7 x 2.5 cm, elliptic, apex acuminate, base cuneate, distantly serrate, pubescent; petiole to 1 cm. Whorls axillary; bracts many, 8 mm, linear, aristate; calyx tube 5 mm, oblique, hairy; corolla lobes 5 mm, subequal, pubescent; filaments 1 and 1.5 mm, attached at the mouth of the corolla; ovary 1 mm, style 4 mm. Nut truncate.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chinnar, *NS 5912*; Alampetty, *KKS 15927*

**Leucas urticaefolia** (Vahl) R. Br., Prodr. 504. 1810; Wight. Ic. t. 1451. 1849; Fl. Brit. India 4: 680. 1885; Fl. Pres. Madras 1149; Matthew, Fl. TN. Carnatic 1266. 1983. **Phlomis urticaefolia** Vahl, Symb. Bot. 2: 76. 1794.

Erect herbs, pubescent. Leaves to 4 x 2.5 cm, ovate, oblanceolate, apex acute, crenate, pubescent; petiole 1.5 cm, tomentose. Whorls axillary, 3 cm across flowers white; bracts 1.5 cm, lanceolate, ciliate; calyx tube 8 mm, mouth oblique, 10-toothed, spinescent, transverse nerves prominent, ciliate; corolla tube 5 mm, lower 3 mm, pubescent, upper 3 mm, side lobes 2 mm; filaments 1 and 1.5 mm, style 6 mm. Nutlets trigonous, obliquely truncate and glandular at the apex.

*Fl. & Fr.* January-March

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 18283*

#### OCIMUM L.

- |                                                   |                           |
|---------------------------------------------------|---------------------------|
| 1. Bracts linear                                  | : <b>O. basilicurn</b>    |
| 1. Bracts elliptic or ovate                       | : <b>2</b>                |
| 2. Leaves greater than 8 cm long; petals glabrous | : <b>O. gratissirnurn</b> |
| 2. Leaves less than 4 cm long; petiole pubescent  | : <b>O. arnericanurn</b>  |

**Ocimum americanum** L., Cent. Pl. 1: 15. 1755; Paton, Kew Bull. 47: 425. 1992. **O. canum** Sims, Bot. Mag. 51: t. 3452. 1824; Fl. Brit. India 4: 607. 1885; Fl. Pres. Madras 1111. 1924; Matthew, Fl. TN. Carnatic 1269. 1983 & Fur. Ill. Fl. TN. Carnatic t. 494. 1988.

Branched herbs, pilose. Leaves to 3 x 1.5 cm, elliptic, apex acute, base cuneate, gland dotted. entire to coarsely serrate. membranous, pubescent; petiole 1 cm, with long white hairs. Racemes terminal, to 10 cm, pubescent; whorls *ca.* 6 flowered; bracts elliptic, 0.5 cm, long ciliate along the margins; calyx 2 mm, pubescent, villous inside; corolla 4 x 1 mm; filaments 4 and 5 mm. style 5 mm. stigma bifid.

*Fl.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11596*

*Ocimum basilicum* L., Sp. Pl. 597. 1753; Fl. Brit. India 4: 608. 1885; Fl. Pres. Madras 1111. 1924.

Woody herbs, pubescent. Leaves to 3 x 1.8 cm, ovate-oblong, apex acute, base cuneate, crenate, gland dotted; petiole to 1.5 cm. Racemes terminal, to 15 cm; flowers ca. 6 in a whorl; pedicels 2 mm; bracts linear, hairy; calyx tube 4 mm, pubescent; corolla 4 mm, upper lip 3-4 fid; filaments 5-7 mm; ovary 0.5 cm, style 1 cm.

Fl. July-September

D i s t. Common in dry deciduous forests

Chinnar, KKS 11573

*Ocimum gratissimum* L., Sp. Pl. 1197. 1753; Fl. Brit. India 4: 608. 1885; Fl. Pres. Madras 1111. 1924; Matthew, Fl. TN. Carnatic 1270. 1983 & Ill. Fl. TN. Carnatic t. 570. 1982.

Subshrubs. Leaves to 9 x 5.5 cm, broadly ovate, apex acute, base cuneate, crenate, gland dotted, ciliate along the margins, membranous, pubescent; petiole to 5 cm. Racemes terminal, usually solitary, to 13 cm; bracts 0.5 cm, broadly ovate; calyx 3 mm; corolla 4 mm, 4 mm across, white-greenish yellow; filaments 4 mm, style 5 mm.

FZ December-February

D i s t. Common in dry deciduous forests

Chengamperu, KKS 15940

#### ORTHOSIPHON Benth.

*Orthosiphon thymiflorus* (Roth) Sleensen in Reinwardtia 5: 42. 1959. *Orthosiphon tomentosus* Benth. in Wall. Pl. Asiat. Rar. 2: 14. 1830-1831; Fl. Brit. India 4: 613. 1885, incl. vars. *O. diffuses* (Benth.) Benth. in DC., Prodr. 12: 50. 1848; Fl. Brit. India 4: 613. 1885; Fl. Pres. Madras 1113. 1924; Matthew, Ill. Fl. TN. Carnatic t. 571. 1982.

Woody branched herbs, glandular pubescent. Leaves 1.5-2 x 1 cm, ovate to orbicular, apex obtuse, crenate, viscosely pubescent; petiole to 8 mm. Racemes terminal, 6-9 cm; flowers violet; calyx tube 3 mm, upper lip ovate, lower two lobes aristate, villous within; corolla 4.5 x 2.5 mm; filaments 2 mm, style 3 mm.

FZ July-September

D i s t. Common in dry deciduous forests

Chinnar, K. K. S 15810

#### PLECTRANTHUS L'Herit. nom. cons.

1. Leaves white pubescent below

: *P. japonicus*

1. Leaves puberulus

: *P. coleoides*

*Plectranthus coleoides* Benth. in DC., Prodr. 12: 64. 1848; Fl. Brit. India 4: 622. 1885; Fl. Pres. Madras 1122. 1924. *Coleus wightii* Benth. Labiat. Gen. Sp. 58. 1832, non *Plectranthus wightii* Benth. 1832; Wight, Ic. t. 1433. 1849.

Fleshy subshrubs, pubescent. Leaves to 18 x 12 cm, ovate-elliptic, membranous, puberulus, acuminate. base obtuse or slightly truncate, margin coarsely and prominently truncate; petiole

to 10 cm. Panicles of racemes terminal, to 25 cm long, racemes to 3.5 cm; flowers pink. Fruiting calyx 2-lipped to 8 mm, upper lip entire, ovate, lower lip 4-toothed, teeth unequal, glabrous. Nutlets 4, oblong, 2 x 2 mm, brown, shining.

*Fl. & Fr.* August-October

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17482*

**Plectranthus japonicus** (Burm. f.) Koidz. in Bot. Mag. (Tokyo) 43: 386. 1929; Santapau & Wagh in Bull. Bot. Surv. India 5: 107. 1964. **Scutellaria japonica** Burm. f. Fl. Ind. 130. 1768. **Plectranthus coesta** (Bunch.-Ham.) ex D. Don, Prodr. 117. 1825: Fl. Brit. India 4: 619. 1885: Fl. Pres. Madras 1121. 1924.

Large herbs, hirsute. Leaves to 7 x 3 cm, ovate, acute at apex, base obtuse, crenate, slightly decurrent to the petiole, scabrous above, white pubescent below; petiole to 2 cm. Panicles axillary and terminal, to 20 cm: flowers blue: bracts 1 mm, ovate; calyx tube 1 mm, lobes 1 mm, ovate. 5-ribbed, pubescent outside; corolla tube 2 cm, slightly curved, pubescent outside: filaments 3 mm; ovary 1 mm. oblong.

*Fl.* January-April

*D i s t.* Common in shola forests

Olikudy, *KKS 17220*

#### **POGOSTEMON Desf.**

- |                                               |                          |
|-----------------------------------------------|--------------------------|
| 1. Leaves sessile; herbs with long soft hairs | : <b>P. auricularius</b> |
| 1. Leaves petioled; shrubs                    | : 2                      |
| 2. Plants pubescent; flowers violet           | : <b>P. benghalensis</b> |
| 2. Plants glabrous; flowers white             | : <b>P. pubescens</b>    |

**Pogostemon auricularius** (L.) Hassk. in Tijdsch. Nat. Gesch. 10: 127. 1843; Press in Enum. Fl. Pl. Nepal 3: 162. 1982; Matthew, Fl. TN. Carnatic 1278. 1983 & Ill. Fl. TN. Carnatic t. 573. 1982. **Mentha auricularia** (L., Mant. Pl. 1: 81. 1767. **Dysophyla auricularia** (L.) Blume, Bijdr. 826. 1826; Fl. Brit. India 4: 638. 1885; Fl. Pres. Madras 1135. 1924.

Erect herbs, with long soft tawny hairs. Leaves to 6 x 4 cm, ovate, apex obtusely acute, crenate, densely tomentose, sessile. Spikes to 5 cm; bracts 2 mm, lanceolate, long ciliate; calyx tooth 1.5 mm, ciliate, triangular; corolla tube 3.5 mm, lobes 4, equal; filaments subequal, 5 mm. bearded. style 5 mm.

*Fl.* July-September

*D i s t.* Rare in wet rocky areas

Ichampetty, *KKS 15738*

**Pogostemon benghalensis** (Burm. f.) O. Ktze., Rev. Gen. Pl. 2: 529. 1891; Matthew, Fl. TN. Carnatic 1275. 1983 & Ill. Fl. TN. Carnatic t. 574. 1982. **P. plectranthoides** Desf. in Ann. Mus. Natl. Hist. Nat. 2: 156. t. 6. 1808; Fl. Brit. India 4: 632. 1885; Fl. Pres. Madras 1133. 1924.

Shrubs, young parts tawny pubescent. Leaves 6-8 x 3-4 cm, ovate, apex acute, base cuneate, doubly crenate, pubescent; petiole 2 cm. Panicles 6-7 cm; bracts 5 x 2 mm, ovate-oblong, pubescent; calyx tube 3 mm, tooth 1.5 mm, triangular, pubescent; corolla tube 4 mm, upper lip 3 mm, 3 lobed, lower entire; filaments 6 mm, subequal, bearded; ovary 0.5 mm, style 8 mm.

*Fl.* February-April

*D i s t.* Common in shola forests

Olippara, *KKS* 17248, 18240

**Pogostemon pubescens** Benth. in DC., Prodr. 12: 152. 1848; *Fl. Pres. Madras* 1133. 1924. **P. parviflorus** Benth. in Wall., *Pl. Asiat. Rar.* 1: 31. 1830 p.p.; *Fl. Brit. India* 4: 632. 1885 p.p.

Shrubs. Leaves to 8 x 4 cm, ovate. apex acute, base cuneate, doubly crenate membranous, sparsely hirsute; petiole to 3.5 cm. Panicles axillary and terminal; bracts 5 x 1 mm, oblong, ciliate; calyx tube 4 mm, tooth 1 mm, pubescent; corolla tube 3 mm, upper lip, 3-lobed, 5 mm, lower lip 5 mm; filaments 6 mm. bearded

*Fl.* March-June

*D i s t.* Occasional in shola forests

Olikkudy, *KKS* 17293

#### SCUTELLARIA L.

**Scutellaria violacea** Heyne ex Benth. in Wall., *Pl. As.* *Rar.* 1: 66. 1830; Wight, *l.c.* t. 1449. 1849; *Fl. Brit. India* 4: 668. 1885; *Fl. Pres. Madras* 1142. 1924; Cramer in *Rev. Handb. Fl. Ceylon* 3: 158. 1981; Matthew, *Fl. TN. Carnatic* 1283. 1983 & *Fl. TN. Carnatic* t. 575. 1982.

Erect herbs, branchlets pubescent. Leaves to 3.5 x 3 cm. broadly ovate, apex obtuse, base truncate, broadly crenate, chartaceous; petiole to 2 cm. Racemes terminal, to 20 cm; calyx turbinate, 2-lipped, 3 mm, lower lip 3-lobed, with a outwardly curved pouch; corolla tube 6 mm, lobes 9 x 2 mm; filaments 4 and 7 mm; anthers of upper pair 2-celled, those of lower pair 1-celled, style 1-3 cm. Nutlets spiny.

*Fl. & Fr.* June-August

*D i s t.* Occasional in wet forest areas

Ollavayal, *KKS* 17418

#### TEUCRIUM L.

**Teucrium tomentosum** Heyne ex Benth. in Wall., *Pl. As.* *Rar.* 1: 58. 1830; *Fl. Brit. India* 4: 700. 1885; *Fl. Pres. Madras* 1158. 1924; Cramer in *Rev. Handb. Fl. Ceylon* 3: 193. 1981; Matthew, *Fl. TN. Carnatic* 1284. 1983 & *Fl. TN. Carnatic* t. 576. 1982.

Large herbs to subshrubs. tomentose. Leaves to 11 x 6 cm, ovate, apex acute, crenate, sparsely pubescent on upper side, densely so underneath, membranous: petiole to 4 cm. Panicles axillary and terminal, tomentose: flowers white; bracts 5 mm, elliptic; calyx 10-ribbed, 2-lipped, lips 6 mm and 4 mm, pubescent; corolla apparently one lipped, tube 6 mm, lobes 5 mm, pubescent; filaments 8 and 5 mm, anthers kidney shaped; ovary 1 mm, oblong, style 8 mm.

Fl. February-April

D i s t. Common in moist deciduous and disturbed evergreen forests

Nellimedu, *KKS 11956*; Olikudy, *15664*

## PLANTAGINACEAE

### PLANTAGO L.

**Plantago erosa** Wall. in Roxb., Fl. Ind. 1: 423. 1820; Pilger in Engl., Pflanzenr. 20: 60. 1937. **P. major** sensu Hook. f., Fl. Brit. India 4: 705. 1885 p.p. non L. 1753. **P. asiatica** auct. non L. 1753; Wight, Ill. 2: t. 177. 1850; Fl. Pres. Madras 1160. 1923; Matthew, Fl. TN. Carnatic 1285. 1983 & Ill. Fl. TN. Carnatic t. 577. 1982.

Scapigerous herbs. Leaves radical. to 6 x 3 cm, ovate, acute, 3-5 nerved, pilose, chartaceous. decurrent; petiole to 6 cm. Spikes terminal, 3-7, to 8 cm; bracts 1 mm, lanceolate, scarious on the margins; sepals 4, 2.5 mm, ovate; corolla tube to 1.5 mm. lobes minute, acute; filaments 1 mm, connectives produced, anthers 1 mm, versatile; ovary 1 mm, style 2 mm, ovules many, stigma hairy above the middle.

Fl. April-May

D i s t. Common in grasslands

Pothumala, *KKS 17360*

## NYCTAGINACEAE

1. Armed shrubs; perianth 10-lobed

: **Pisonia**

1. Unarmed herbs; perianth 5-lobed

: **Boerhavia**

### BOERHAVIA L.

1. Fruit glandular, hairy

: 2

1. Fruit eglandular

: **B. erecta**

2. Leaves in unequal pairs, diffuse herbs

: **B. diffusa**

2. Leaves in equal pairs, straggling herbs

: **B. chinensis**

**Boerhavia chinensis** (L.) Asch. & Schweinf. in Schweinf., Beitr. Fl. Aethiop. 1: 167. 1867, "Boerhaavia". *Valeriana chinensis* L., Sp. Pl. 33. 1753. **Boerhavia repanda** Willd., Sp. Pl. 1: 22. 1797; Wight, Ic. t. 1766. 1852; Fl. Brit. India 4: 709. 1885; Fl. Pres. Madras 1163. 1925.

Straggling herbs. Leaves 7-8 x 4-6 cm, deltoid, ovate, acute or acuminate, pubescent beneath, base cordate or truncate; petiole to 3 cm long. Umbels 3-8 flowered; peduncle to 6 cm long; flowers pink; bracts 3 mm long, glandular; perianth 8 mm long. Capsule clavate, 8 x 1.5 mm, densely lineolate, glandular.

Fl. & Fr. October-February

D i s t. Occasional in dry deciduous forests

Chinnar, *KKS 15715*

*Boerhavia diffusa* L., Sp. Pl. 3. 1753; Fl. Pres. Madras 1162. 1925; Matthew, Fl. TN. Carnatic 1287. 1983 & Ill. Fl. TN. Carnatic t. 578. 1982. ***B. repens*** L., Sp. Pl. 3. 1753; Fl. Brit. India 4: 709. 1885. ***B. procumbens*** Banks ex Roxb., Fl. India 1: 148. 1820; Wight, Ic. t. 874. 1844-45.

Prostrate herbs; branchlets swollen at base. Leaves in unequal pairs, 2-3 x 2-3 cm, ovate to cordiform, apex obtuse or acute, mucronate; petiole to 1 cm. Panicles axillary and terminal; bracts and bracteoles 1 mm, lanceolate, perianth 4 mm across, funnel shaped, red; stamens 2 or 3, filaments 3 mm; ovary 0.5 mm, style 3 mm. Achene 3 mm, club shaped, glandular hairy.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, **KKS 11553**

*Boerhavia erecta* L., Sp. Pl. 3. 1753; Nair in Bull. Bot. Surv. India 9: 283. 1967; Matthew, Fl. TN. Carnatic 1288. 1983. ***B. punarnava*** Saha & Krishnam. in J. Sci. Industr. Res., C. Biol. Sci. 21: 254. 1962.

Erect herbs, dichotomously branched, nodes swollen. Leaves unequal pairs, 2-4 x 1-2 cm, ovate, apex acute, margins undulate; petiole 0.5 cm. Panicles axillary and terminal, to 8 cm; 2-4 flowered, perianth 3 mm across, white with pink stripes; stamens 1 to 3. Achenes 4 mm long, obconic, 5-angled, truncate.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, **KKS 11551**

#### **PISONIA L.**

*Pisonia aculeata* L., Sp. Pl. 1026. 1753; Wight, Ic. tt. 1763 & 1764. 1852; Fl. Brit. India 4: 711. 1885; Fl. Pres. Madras 1163. 1925; Matthew, Fl. TN. Carnatic 1291. 1983 & Ill. Fl. TN. Carnatic t. 580. 1982.

Armed shrubs or small trees, spines axillary recurved, branchlets adpressed, pubescent. Leaves opposite and alternate. to 8 x 4 cm, ovate, obtuse, base cuneate, chartaceous; petiole to 2 cm. Umbels axillary; peduncles to 2 cm, pubescent: bracteoles 1 mm, ovate, pubescent; perianth 4 mm across, funnel shaped, 10-lobed, alternately long and short; stamens 4-5-8, filaments 5 mm; ovary 0.5 mm, seated on a disc, 1-celled, one ovuled.

*Fl.* January-April

*D i s t.* Occasional in dry deciduous forests

Chinnar, **KKS 11552**

*Mirabilis jalapa* L. is found growing in home gardens in the tribal settlements

#### **AMARANTHACEAE**

- |                                                |                |
|------------------------------------------------|----------------|
| 1. Leaves alternate or alternate and in whorls | : 2            |
| 1. Leaves exclusively opposite                 | : 6            |
| 2. Staminodes present                          | : <b>Aerva</b> |
| 2. Staminodes absent                           | : 3            |

3. Flowers in clusters	: <b>Allmania</b>
3. Flowers in elongated spikes	: <b>4</b>
4. Flowers unisexual	: <b>Amaranthus</b>
4. Flowers bisexual	: <b>5</b>
5. Ovary many ovuled	: <b>Celosia</b>
5. Ovary one ovuled	: <b>Digera</b>
6. Flowers all fertile	: <b>7</b>
6. Sterile flowers with hooked hairs	: <b>Pupalia</b>
7. Anthers 1-celled	: <b>Alternanthera</b>
7. Anthers 2-celled	: <b>a</b>
8. Filaments united wholly; anthers sessile	: <b>Gomphrena</b>
8. Filaments united only at the base, filaments present	: <b>9</b>
9. Bracteoles spinescent, auricled; staminodes present	: <b>Achyranthes</b>
9. Bracteoles not spinescent, ovate; staminodes absent	: <b>10</b>
10. Stamens 5; spikes lax	: <b>Psilotrichum</b>
10. Stamens 2; spikes dense	: <b>Nothosaerva</b>

#### ACHYRANTHES L.

1. Staminodes truncate; leaves obovate	: <b>A. aspera</b>
1. Staminodes fimbriate; leaves ovate-elliptic	: <b>A. bidentata</b>

**Achyranthes aspera** L., Sp. Pl. 204. 1753; Wight, Ic. t. 1777. 1852; Fl. Brit. India 4: 730. 1885; Fl. Pres. Madras 1176. 1925; Matthew, Fl. TN. Carnatic 1296. 1983 & Ill. Fl. TN. Carnatic t. 581. 1982; Rani in J. Bombay Nat. Hist. Soc. 82: 446. 1985.

Pubescent herbs. Leaves to 7 x 4 cm, obovate, apex obtuse, mucronate, pubescent; petiole to 1.5 cm. Spikes terminal, pubescent; bracts 3 mm, ovate, spinescent; bracteoles 2, 2.5 mm, winged at the base, spinescent; tepals 5, 3 x 1 mm, subequal, inner two slightly smaller; filaments basally connate, 1.5 mm; staminodes fimbriate; ovary 1 mm, style 1 mm, stigma globose.

*Fl.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11614*

**Achyranthes bidentata** Blume, Bijdr. 545. 1826; Wight, Ic. t. 1779. 1852; Fl. Brit. India 4: 730. 1885; Fl. Pres. Madras 1176. 1925; Matthew, Fl. TN. Carnatic 1298. 1983 & Fur. Ill. Fl. TN. Carnatic t. 505. 1988.

Large herbs. Leaves to 16 x 3 cm, ovate, elliptic, linear, apex narrowly obtuse, membranous, puberulous; petiole to 1 cm. Spikes slender, deflexed, to 25 cm long; bracts 3 mm, ovate, spinescent, ciliate; bracteoles 2, 4 mm, spinescent, 2 auricled at base, tepals 5, 6 and 5.5 mm, lanceolate, spinescent, green; stamens 5, with interposed truncate staminodes, filaments 1 mm, connate at base, staminodes 0.1 mm, toothed; ovary 0.5 mm, 1-celled, oblong, style 1.5 mm, stigma globose.

*Fl.* August-December

*D i s t.* Occasional in shola forests

Karivepinshola, *KKS 17440*



### **AERVA Forssk. *nom. cons.***

**Aerva lanata** (L.) Juss. ex Schult., Ann. Mus. Natl. Hist. Nat. 11: 131. 1808; Wight, Ic. t. 723. 1840; Fl. Brit. India 4: 728. 1885; Fl. Pres. Madras 1178. 1925; Matthew, Fl. TN. Carnatic 1299. 1983 & Fur. Ill. Fl. TN. Carnatic t. 506. 1988. *Achyranthes lanata* L., Sp. Pl. 204. 1753.

Woolly herbs. Leaves to 3 x 2.5 cm, orbicular, ovate, apex obtuse, mucronate, pubescent above, densely woolly below, membranous; petiole 1 cm. Spikes axillary, to 1 cm, densely tomentose; bracts and bracteoles 1 mm, ovate; tepals 1.5 mm, oblong, woolly mucronate; filaments basally connate, 0.5 mm, staminodes subulate; ovary 0.4 mm, stigma 2 fid.

*Fl.* November-March

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11528*

### **ALLMANIA R. Br. ex Wight**

**Allmania nodiflora** (L.) R. Br. ex Wight in Hook.'s J. Bot. 1: 226. t. 128. 1834; Fl. Brit. India 4: 716. 1885; Fl. Pres. Madras 1167. 1925; Townsend in Rev. Handb. Fl. Ceylon 1: 7. 1980; Matthew, Fl. TN. Carnatic 1301. 1983 & Ill. Fl. TN. Carnatic t. 583. 1982.

Herbs, puberulus. Leaves to 2.5 x 1 cm, obovate, apex obtuse or acute, pubescent below; petiole to 0.5 cm. Flowers in axillary clusters, bracts 2 mm, ovate; bracteoles 2, 5 mm, awned, ciliate; tepals 5, 4 mm, lanceolate, ciliate on the back; filaments connate at the base, 2 mm; ovary 2 mm, style 1 mm, stigma 2 fid.

*Fl.* December-February

*D i s t.* Common in dry rocky areas

Champakkad, *KKS 11899*

### **ALTERNANTHERA Forssk.**

**Alternanthera sessilis** (L.) R. Br. ex DC., Cat. Hort. 4: 77. 1813; Wight, Ic. t. 727. 1840; Fl. Brit. India 4: 731. 1885; Townsend in Rev. Handb. Fl. Ceylon 1: 49. 1980; Matthew, Fl. TN. Carnatic 1340. 1983 & Ill. Fl. TN. Carnatic t. 584. 1982. *Gomphrena sessilis* L., Sp. Pl. 225. 1753. *Alternanthera triandra* Lam., Encycl. 1: 95. 1785; Fl. Pres. Madras 1179. 1925.

Prostrate fleshy herbs, rooting at lower nodes, nodes with white hairs. Leaves to 4 x 1 cm, obovate, obtuse at apex, spatulate, serrulate. Flowers in axillary clusters, to 1 cm; bracts 1 mm, ovate; bracteoles 2, 1 mm, lanceolate; tepals 2 mm, oblong; stamens 3, filaments connate into a cup around the ovary, 0.4 mm, interposed in to staminodes; ovary 0.3 mm, stigma globose. Utricle 1 x 2 mm, compressed subcordate, thickened at the margins.

*Fl.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 15946*

### **AMARANTHUS L.**

**Amaranthus spinosus** L., Sp. Pl. 991. 1753; Wight, Ic. t. 793. 1843; Fl. Brit. India 4: 718. 1885; Fl. Pres. Madras 1170. 1925; Matthew, Fl. TN. Carnatic 1307. 1983 & Fur. Ill. Fl. TN. Carnatic t. 511. 1988.

Armed shrubs, spines axillary, to 1.5 cm. Leaves to 7 x 3 cm, ovate, oblong, obtuse, base cuneate, mucronate. membranous; petiole to 7 cm. Spikes axillary and terminal, dense, to 15 cm; bracts and bracteoles 1.5 mm, curved; male flowers-tepals 1.5 and 2 mm, lanceolate; stamens 5, anthers 1 mm; female flowers-tepals 1.5 mm, oblong, subequal; ovary 0.6 mm, styles 2.

*Fl.* January-April

*D i s t.* Common in wet areas in dry deciduous forests

Champakkad, *KKS* 11912

#### CELOSIA L.

1. Utricle thickened at apex; plants pubescent : **C. polygonoides**  
1. Utricle narrowed at apex; plants glabrous : **C. pulchella**

**Celosia polygonoides** Retz., Obs. Bot. 2: 12. 1781; Fl. Brit. India 4: 715. 1885; Fl. Pres. Madras 1166. 1925; Matthew, Fl. TN. Carnatic 1310. 1983.

Herbs, branchlets pubescent. Leaves to 3 x 2 cm, ovate, acute at apex, membranous; petiole to 1.5 cm. Spikes terminal, interrupted, to 20 cm; bracts and bracteoles 1.5 mm, ovate-scarious, acute; tepals 2 mm, lanceolate; stamens 5, united below onto a cup, filaments 1 mm; ovary 1 mm, stigma 2 or 3 lobed, recurved. Utricle 3 mm; seeds many, circular.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Alampetty, *NS* 5865; Chinnar, *KKS* 11605

**Celosia pulchella** Moq. in DC., Prodr. 13(2): 238. 1849; Wight, Ic. t. 1768. 1852; Fl. Brit. India 4: 715. 1885; Fl. Pres. Madras 1166. 1925; Matthew, Fur. Ill. Fl. TN. Carnatic t. 514. 1988.

Erect herbs. Leaves to 9 x 5 cm, ovate, apex obtuse, base truncate-cuneate, membranous; petiole to 3 cm. Spikes axillary, to 3 cm; bracts 2 mm, ovate; bracteoles 2, 1.5 mm; tepals outer 3 longer, 3 x 1.2 mm, ovate; stamens 5, filaments basally connate, 2 mm; ovary 2 mm, globose, style 0.4 mm, stigmas 2. recurved. Utricle 4 mm long, ovoid; seeds 4-12, reniform.

*Fl. & Fr.* March-May

*D i s t.* Occasional in shola forests

Olikkudy, *KKS* 17319

#### CYATHULA L.

**Cyathula prostrata** (L.) Blume, Bijdr. 549. 826; Fl. Brit. India 4: 723. 1885; Fl. Pres. Madras 1172. 1925. *Achyranthes prostrata* L., Sp. Pl. ed. 2. 1: 296. 1761. *Desmochaeta prostrata* (L.) DC., Cat. Hort. Monsp. 102. 1813; Wight, Ic. t. 733. 1843.

Herbs. Leaves to 6 x 3 cm, rhomboid, acute at both ends, thinly pubescent; petiole 5-15 mm long. Spike terminal, solitary, to 20 cm long, slender; flowers in groups of 3-5, only one perfect; bracts and bracteoles similar, 1.5 mm long, lanceolate acuminate, pubescent: sepals 3 x

1 mm, elliptic, acute; filaments united into a membranous truncate cup; staminodes membranous, fimbriate; ovary ovoid, style simple, stigma capitellate. Achenes 2 x 1 mm, obovoid, brown.

*FZ & Fr.* Throughout the year

*D i s t.* Common in dry deciduous and moist deciduous forests

Champakkad, *KKS 11898*

#### **DIGERA Forssk.**

***Digera muricata*** (L.) Mart., Beitr. Amar. 77. 1825; Matthew, Fl. TN. Carnatic 1311. 1983 & Ill. Fl. TN. Carnatic t. 587. 1982. ***Achyranthes muricata*** L., Sp. Pl. ed. 2. 1: 295. 1762. ***Digera arvensis*** Forssk., Fl. Aeg.-Arab. 65. 1775; Fl. Brit. India 4: 717. 1885; Fl. Pres. Madras 1169. 1925. ***Desmochaeta muricata*** (L.) DC., Cat. Hort. Monsp. 103. 1813; Wight, Ic. t. 732. 1843.

Profusely branched herbs. Leaves 4 x 3 cm, ovate, apex acute; petiole to 3 cm. Spikes axillary, to 9 cm; bracts 1.5 mm, ovate, scarious; bracteoles 2, 2 mm, ovate; tepals 5, outer 3 larger, 3 mm, ovate, scarious; stamens 5, basally connate, filaments 1.5 mm; anthers 0.2 mm; ovary 0.5 mm, obovoid. Utricle 2 mm, ovoid; seed one.

*FZ & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Muthuvanala, *KKS 11752*

#### **GOMPHRENA L.**

***Gomphrena celosoides*** C. Martius, Beitr. Amarantac. 93. 1825 & Nova Acta Pays.-Acad. Caes. Leop.-Carol. Nat. Cur. 13: 301. 1826; Matthew, Fl. TN. Carnatic 1312. 1983 & Ill. Fl. TN. Carnatic t. 588. 1982. ***G. decumbens*** auct. non Jacq. : Fl. Pres. Madras 1179. 1925, non Jacq.

Prostrate herbs, younger parts woolly. Leaves to 3 x 1 cm, elliptic, obovate, apex acute, mucronate, spatulate, woolly beneath. Spikes terminal and sometimes axillary, to 8 cm long; bracts 3 mm, scarious, mucronate, ciliate at the apex; bracteoles 2, 2.5 mm, ovate, mucronate; tepals 5, 4.5 mm, lanceolate, acute at apex, woolly at the back of the inner 3 tepals; stamens 5, tube to 2.5 mm; ovary 1 mm, 1-ovuled, style 0.4 mm, stigma 2-fid.

*FZ* December-February

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 11841*

#### **NOTHOSAERVA Wight**

***Nothosaerva brachiata*** (L.) Wight, Ic. t. 1776. B. 1852; Fl. Brit. India 4: 726. 1885; Fl. Pres. Madras 1175. 1925; Matthew, Fl. TN. Carnatic 1314. 1983 & Ill. Fl. TN. Carnatic t. 589. 1982. ***Achyranthes brachiata*** L., Mant. Pl. 50. 1767.

Profusely branched herbs, rootstocks woody. Leaves opposite, to 2.5 x 1 cm, elliptic or obovate. apes obtuse, base cuneate. membranous, glabrous; petiole indistinct. Spikes many,

axillary, solitary or in clusters, white, to 5 mm; peduncles to 1 cm, bracts and bracteoles ovate, pubescent; tepals 4, 0.8 mm, ovate, pubescent outside; stamens 2, to 0.5 mm; ovary 0.5 mm, ovoid, style minute, stigma capitate. Utricle 0.5 mm, enclosed in perianth lobes, obovoid, membranous; seeds globose, chestnut brown, shining.

**Fl. & Fr.** November-January

**D i s t.** Common along roadsides and ditches in dry deciduous forests

Chinnar, *KKS 11778*

### **PSILOTRICHUM Blume**

**Psilotrichum elliotii** Baker & Clarke in Dyer, Fl. Trop. Africa 6(1): 58. 1909; Verdc. in Kew Bull. 17: 492. 1964; Matthew, Fl. TN. Carnatic 1315. 1983 & Ill. Fl. TN. Carnatic t. 590. 1982. **P. calceolatum** Moq. ex Hook. f., Fl. Brit. India 4: 725. 1885, nom. illeg.; Fl. Pres. Madras 1174. 1925. **P. nudum** sensu Wight, Ic. t. 1775. 1852, non (Heyne ex Wall.) Moq. 1849.

Herbs. Leaves to 4 x 2 cm, ovate, acute at apex, obtuse at base, pubescent; petiole 3 mm. Spikes axillary, to 2 cm; bracts 1.5 mm, ovate, acute, pubescent; bracteoles 2, 1.5 x 1.2 mm, broadly ovate, acute, pubescent; tepals 5, 5 and 4 mm, prominently nerved, silky pubescent lanceolate, acute; stamens 5, connate at the base, filaments 1.5 mm; ovary 0.5 mm, globose, 1-ovuled, style 0.5 mm, stigma capitellate. Utricle 2 mm long.

**Fl. & Fr.** December-February

**D i s t.** Common in dry deciduous forests

Chinnar, *KKS 11572*; Alampetty, *NS 5870*; *KKS 11793*

### **PUPALIA Juss.**

- |                                                          |                                             |
|----------------------------------------------------------|---------------------------------------------|
| 1. Leaves orbicular, pubescent, decurrent to the petiole | : <b>P. lappacea</b> var. <b>orbiculata</b> |
| 1. Leaves ovate-elliptic, glabrous, petiolate            | : <b>P. lappacea</b> var. <b>lappacea</b>   |

**Pupalia lappacea** (L.) Juss. in Ann. Mus. Natl. Hist. Nat. 2: 132. 1803, var. **lappacea**; Fl. Brit. India 4: 724. 1885; Fl. Pres. Madras 1173. 1925; Matthew, Fl. TN. Carnatic 1316. 1983 & Ill. Fl. TN. Carnatic t. 591, 1982. **P. atropurpurea** (Lam.) Moq. in DC., Prodr. 13(2): 331. 1849; Fl. Brit. India 4: 723. 1885; Fl. Pres. Madras 1173. 1925. **Desmochaeta atropurpurea** (Lam.) DC., Cat. Hort. Monsp. 102. 1813; Wight, Ic. t. 731. 1843.

Large herbs, branchlets slender and long. Leaves to 9.5 x 5 cm, ovate-elliptic, acute, apiculate, membranous; petiole to 2 cm. Spikes interrupted, flowers in clusters, one or two fertile flowers surrounded by sterile flowers, with hooked bristles, cottony wool; bracts 3 mm, ovate, spinescent; bracteoles similar to the bracts; tepals 5 mm, lanceolate, 3-nerved, woolly; stamens 5, filaments 1.5 mm; ovary 1 mm, oblong, 1-ovuled, style 1 mm, stigma globose.

**Fl.** November-February

**D i s t.** Common in dry deciduous forests

Chinnar, *KKS 11502*

**Pupalia lappacea** (L.) Juss. var. **orbiculata** (Heyne ex Wall.) Townsend in Kew Bull. 29: 469. 1974. *P. orbiculata* (Heyne ex Wall.) Wight, Ic. t. 1783. 1852; Fl. Brit. India 4: 724. 1885; Fl. Pres. Madras 1173. 1925.

Herbs, branchlets pubescent. Leaves to 2.5 x 1.5 cm, orbicular, ovate, apex obtuse or acute, base cuneate, pubescent, decurrent to the petiole. Spikes interrupted, flowers in clusters, woolly; bracts 2 mm, lanceolate, acute; bracteoles 2 mm, villous, oblong, sterile flowers transformed to hooked hairs; tepals tri-nerved, 4 mm, lanceolate, villous; filament 1.5 mm; ovary 1 mm, style 7 mm, stigma terminal.

*Fl.* November-February

*D i s t.* Very common in dry deciduous forests

Chinnar, *KKS 11591*

**Amaranthus caudatus** L. is largely cultivated as vegetable in settlements

## CHENOPODIACEAE

### CHENOPODIUM L.

**Chenopodium ambrosioides** L., Sp. Pl. 219. 1753; Wight, Ic. t. 1786. 1852; Fl. Brit. India 5: 4. 1886; Fl. Pres. Madras 1181. 1925; Matthew, Fl. TN. Carnatic 1322. 1983 & Fur. Ill. Fl. TN. Carnatic t. 517. 1988.

Aromatic herbs, branchlets striate. Leaves to 7.5 x 3 cm, lanceolate, apex acute, base cuneate, margins irregularly dentate, gland dotted, membranous; petiole to 2 cm. Panicles axillary or terminal; tepals 5, 1 mm, acute, broadly ovate, membranous; stamens 5; anthers longer than filaments; ovary 0.8 mm, 1-ovuled, stigmas 5, spreading, filiform.

*Fl.* January-March

*D i s t.* Common in dry areas

Champakkad, *KKS 11913*

## BASELLACEAE

### BASELLA L.

**Basella alba** L., Sp. Pl. 272. 1753; Roxb., Fl. Ind. 2: 104. 1832; Wight, Ic. t. 896. 1844-45; Matthew, Fl. TN. Carnatic 1327. 1983. *B. rubra* L., Sp. Pl. 272. 1753; Fl. Brit. India 5: 20. 1886; Fl. Pres. Madras 1185. 1925; Matthew, Ill. Fl. TN. Carnatic t. 596. 1982.

Climbing herbs, fleshy. Leaves to 6 x 5 cm, ovate, obtuse at apex, fleshy; petiole to 1 cm. Spikes axillary, to 15 cm; flowers crowded at the apex, bracteoles 2, adnate to the perianth; perianth lobes 4 mm, fleshy, incurved; stamens 5, adnate to the perianth lobes; anthers versatile; ovary 0.5 mm across, styles 3, stigmas papillose.

*Fl.* December-February

*D i s t.* Occasional in dry deciduous forests

Chengamperu. *KKS 11733*

## PHYTOLACCACEAE

### PHYTOLACCA L.

*Phytolacca octandra* L., Sp. Pl. ed. 2. 1: 631. 1762; Matthew in J. Bombay Nat. Hist. Soc. 62: 72. 1965.

Herbs, stem slightly winged. Leaves alternate, to 14 x 4.5 cm, elliptic, acute, membranous; petiole 2 cm. Racemes to 11 cm; bracts 3 mm; pedicels to 2 mm; tepals 5, 2.5 mm, concave; stamens 8, filaments 1.5 mm; ovary 8-lobed, style absent, stigma serrate. Capsule 8-lobed.

**FZ & Fr.** June-August

**D i s t.** Common in wet forest areas

Ollavayal, *KKS 17407*

## POLYGONACEAE

### POLYGONUM L.

- |                                                               |                        |
|---------------------------------------------------------------|------------------------|
| 1. Flowers in heads, glandular pubescent                      | : <b>P. chinense</b>   |
| 1. Flowers in spikes or racemes                               | : <b>2</b>             |
| 2. Plant glandular punctuate                                  | : <b>P. hydropiper</b> |
| 2. Plant eglandular                                           | : <b>3</b>             |
| 3. Ochrea glabrous; plants brownish when dry                  | : <b>P. glabrum</b>    |
| 3. Ochrea long ciliate at the mouth; plants greenish when dry | : <b>P. barbatum</b>   |

*Polygonum barbatum* L., Sp. Pl. 362. 1753; Wight, Ic. t. 1798. 1852; Fl. Brit. India 5: 37. 1886; Fl. Pres. Madras 1189. 1925. *Persicaria barbata* (L.) H. Hara in H. Hara, Fl. E. Himal. 1: 70. 1966; Matthew, Fl. TN. Carnatic 1334. 1983 & Fur. Ill. Fl. TN. Carnatic t. 521. 1988.

Herbs. Leaves to 10 x 1 cm, lanceolate, acute at apex, base cuneate, glabrous except margins; ochrea tubular, 1.5 cm, strigose, coarsely ciliate. Spikes terminal, to 10 cm, congested at apex; bracts 2.5 cm, mouth oblique, ciliate; perianth 2 mm, lobes obtuse, white; stamens 5, included; ovary 0.6 mm, obovoid, style arms 3, reflexed. Nutlets 2 mm, trigonous.

**Fl. & Fr.** June-September

**D i s t.** Common in wet areas near streams

Champakkad, *KKS 15769*

*Polygonum chinense* L., Sp. Pl. 363. 1753; Wight, Ic. t. 1806. 1852; Fl. Brit. India 5: 44. 1886; Fl. Pres. Madras 1190. 1925. *Persicaria chinensis* (L.) Gross, Bot. Jahrb. Syst. 49: 269, 277 & 115. 1913; Matthew, Fl. TN. Carnatic 1334. 1983 & Fur. Ill. Fl. TN. Carnatic t. 522. 1988.

Scandent subshrubs, branches zig-zag. Leaves to 10 x 5 cm, broadly ovate or elliptic, shortly acuminate at apex, truncate at base, margins minutely crenulate; petiole to 1 cm, auricled at the base; ochrea 2.5 cm long, membranous, truncate. Heads glandular pubescent; peduncles to 5 cm; bracts 3 mm, ovate, acute; perianth lobes 4 mm; stamens included; ovary 3-gonous, styles 3. Nutlets 4 mm, trigonous.

*Fl. & Fr.* February-May

D i s t. Common in moist deciduous forests

Iruttalakkudy, *KKS 15621*

**Polygonum glabrum** Willd., Sp. Pl. 2: 447. 1799; Wight, Ic. t. 1797. 1852; Fl. Brit. India 5: 34. 1886; Fl. Pres. Madras 1189. 1925; Matthew, Ill. Fl. TN. Carnatic t. 598. 1982. **Persicaria glabra** (Willd.) M. Gomaz. Ann. Inst. Segunda Enseñ. Habana 2: 278. 1896; Matthew, Fl. TN. Carnatic 1336. 1983.

Herbs, reddish when dry. Leaves to 13 x 2 cm, elliptic, apex and base acute, glandular; petiole to 2 cm; ochrea 2.5 cm, tubular, membranous, truncate. Racemes terminal, branched, to 8 cm; peduncles 4 cm; flowers pink; bracts 2 mm, ovate; perianth lobes 2.5 mm, ovate; stamens 2 mm; ovary 2 mm across. Nut biconvex, black.

*Fl. & Fr.* December-March

D i s t. Common in wet areas near to streams

Athiyodai, *KKS 11758*

**Polygonum hydropiper** L., Sp. Pl. 361. 1753; Fl. Brit. India 5: 39. 1886; Fl. Pres. Madras 1190. 1925.

Slender annual herbs, red glandular. Leaves to 9 x 1.2 cm, lanceolate, elliptic, apex acute, base cuneate, glabrous except margins and nerves beneath, glandular; petiole to 0.5 cm; ochrea tubular, to 6 cm, truncate, ciliate at apex. Racemes slender, to 10 cm; flowers pink; bracts 2 mm, ovate, ciliate at apex, mouth oblique; perianth 3 mm, 5 lobed, glandular; stamens 2 mm; ovary 0.5 mm, styles 3. Nut 2 mm, biconvex, granulate.

*Fl. & Fr.* December-March

D i s t. Common in wet areas near to streams

Athiyodai, *KKS 11759*

## PODOSTEMACEAE

1. Capsule isolobous

: **Polypleurum**

1. Capsule anisolobous

: **Zeylanidium**

### POLYPLEURUM (Tayl. ex Tul.) Warm.

**Polypleurum stylosum** (Wight) Hall in Kew Bull. 26: 131. 1971; Nagendra & Arekal, Bull. Bot. Surv. India 23: 232. 1981; Matthew & Satheesh, Aquatic Bot. 57: 287. 1997. **Dicraea stylosa** Wight, Ic. t. 1917. f. 2. 1852; Willis, Ann. Roy. Bot. Gard. (Peradeniya) 1: 225. 1902; Fl. Pres. Madras 1196. 1925. **Podostemon stylosus** (Wight) Benth. ex Hook. f., Fl. Brit. India 5: 64. 1884.

Thallus ribbon like. prostrate, attached to the rocks, dichotomously branched, 0.5 cm broad, vegetative shoots often transferred into floriferous shoots. Leaves alternate, delicate, linear, which transform into bracts in the flowers. Flowers solitary. zygomorphic; spathella irregularly

split at the apex and subtended by 2-8 fleshy bracts; tepals 2, 2.5 mm; stamens 2, monadelphous, longer than ovary; ovary 2.5 mm long, ribbed. Capsule 4 mm; seeds many.

Fl. & Fr. October-January

D i s t. Common, attached to rocks in Pampar river

Kuttar, KKS 15938

#### ZEYLANIDIUM (Tul.) Engl.

■ Thallus crustaceous; secondary shoots present

: **Z. olivaceum**

1. Thallus ribbon like; secondary shoots absent

: **Z. lichenoides**

**Zeylanidium lichenoides** (Kurz) Engl. in Engl. & Prantl. Nat. Pflanzenf. (ed. 2) 18a: 62. 1928; Matthew & Satheesh, Aquatic. Bot. 57: 243. 1997. **Podostemon acuminatus** Wedd. in DC., Prodr. 17: 75. 1873; Fl. Brit. India 65: 66. 1884. **P. microcarpus** Wedd. in DC., Prodr. 17: 76. 1873; Fl. Brit. India 5: 66. 1886. **Hydrobryum fichenoides** Kurz, J. As. Soc. Bengal 42(2): 103. 1873; Fl. Pres. Madras 1199. 1925.

Thallus creeping, ribbon like, branched, vegetative and reproductive shoots marginal on the thallus. Leaves to 1 cm long, linear. Bracts usually 4-5, bifarious, upper longer, to 2 mm; spathella broadly ovate, splitting along the upper side; tepals two, to 2 mm, linear; stamens 2, monadelphous, longer than the ovary; ovary to 2 mm, stigma unequal. Capsule 2 mm, ribbed, obovoid; seeds many.

Fl. & Fr. October-January

D i s t. Common, attached to rocks in Pampar river

Kuttar, KKS 15939

**Zeylanidium olivaceum** (Gard.) Engl. in Engl. & Prantl, Pflanzenf. ed. 2. 18a: 62. f. 55 A-K. 1930; Matthew, Fl. TN. Carnatic 1341. 1983 & Ill. Fl. TN. Carnatic t. 600. 1982. **Podostemon olivaceum** Gard. in Calcutta J. Nat. Hist. 7: 181. 1847; Fl. Brit. India 5: 66. 1886. **Hydrobryum olivaceum** (Gard.) Tul. in Ann. Sci. Nat. Bot. ser. 3. 11: 104. 1849; Wight, Ic. t. 1918. f. 2. 1852; Fl. Pres. Madras 1198. 1925.

Thallus crustaceous, adhered to the rocks, secondary sterile shoots and flowering shoots arise from the thallus, sterile shoots 6 cm long, tubular. Leaves clustered at apex, hair-like, 5 cm long. Flowering shoots to 5-7 mm; pedicels to 2.5 mm; bracts 6-8; spathella to 3 mm long, splitting longitudinally; tepals 2 mm; stamens 2, monadelphous, 3 mm; ovary 2 mm, ovoid; stigma 2-fid, lobes unequal, margins serrate. Capsule 2 mm long, ribbed; seeds many.

Fl. & Fr. March-June

D i s t. Common, attached to rocks in Chinnar river above 900 m altitude

Olikkudy, KKS 18254

### ARISTOLOCHIACEAE

#### ARISTOLOCHIA L.

**Aristolochia indica** L., Sp. Pl. 960. 1753; Fl. Brit. India 5: 75. 1886; Fl. Pres. Madras 1202. 1925; Matthew, Fl. TN. Carnatic 1345. 1983 & Fur. Ill. Fl. TN. Carnatic t. 529. 1988. **A. lanceolata** Wight. Ic. t. 1858. 1852.



Twining shrubs; branchlets striate. Leaves to 12 x 7.5 cm, obovate, oblong, apex obtuse, base truncate, margins undulate; petiole to 2 cm. Racemes axillary; bracts 2 mm, ovate; pedicels 3 cm, thickened upwards; perianth tubular, 2-lipped, greenish-white, 6 cm long, base inflated, mouth trumpet shaped, passing into narrow lip, brownish; stamens 6, adnate to the base of the tube; anthers 1 mm; ovary 1 x 2.5 cm, style 3 mm, stigmatic lobes 6. Capsule 6-celled, pendent, oblong, septicial; seeds many.

*Fl. & Fr.* September-December

*D i s t.* Rare in dry deciduous forests

Mavelipuram, *KKS 15908*

## PIPERACEAE

1. Climbing plants; leaves opposite or whorled

: **Piper**

1. Erect herbs; leaves alternate

: **Peperornia**

### PEPEROMIA Ruiz. & Pavon

1. Terrestrial herbs; leaves opposite

: **P. dindigulensis**

1. Epiphytic herbs; leaves whorled

: **P. tetraphylla**

*Peperomia dindiguiensis* Miq., Syst. Piperac. 122. 1843; Fl. Brit. India 5: 98. 1886; Fl. Pres. Madras 1210. 1925; Matthew, Fl. TN. Carnatic 1348. 1983 & Ill. Fl. TN. Carnatic t. 602. 1982. *P. heyneana* sensu Wight, Ic. t. 1922. f. 1. 1853, non Miq. 1843.

Herbs. Leaves to 5.5 x 3 cm, apex obtuse, membranous, pubescent with crisped hairs, basally 3-5 nerved, faint, pubescent; petiole to 1.5 cm. Panicles terminal, to 15 cm; bracts 1 mm, peltate. Fruit 1 mm across.

*Fl. & Fr.* February-April

*D i s t.* Common in wet sandy areas; endemic to Peninsular India.

Thayanankkudy, *KKS 11885*

*Peperomia tetraphylla* (Forst.) Hook. & Arn., Bot. Beech Voy. 97. 1841; Matthew, Fl. TN. Carnatic 1348. 1983; Huber in Rev. Handb. Fl. Ceylon 6: 292. 1987. *Piper tetraphyllum* Forst., Prod. 5. 1759. *Peperomia reflexa* (L. f.) Dietr., Sp. Pl. 1: 180. 1839; Wight, Ic. t. 1923. 1853; Fl. Brit. India 5: 99. 1886; Fl. Pres. Madras 1209. 1925.

Small herbs, epiphytic. Leaves ternate, to 1 x 0.4 cm, fleshy, nerves indistinct; petiole 3 mm. Spikes terminal, to 1.5 cm; peduncles to 1 cm; bracts 3 mm, peltate; stamens 2. Fruit 0.7 mm long, ovoid, tipped with style.

*Fl. & Fr.* April-June

*D i s t.* Occasional in moist deciduous forests

Ichampetty, *KKS 15593*

### PIPER L.

1. Flowers bisexual; bracts forming a cup

: **P. nigrum**

1. Flowers unisexual; bracts not forming a cup

: 2

2. Spikes more than 7 cm long; leaves puberulus with strigose hairs : *P. hymenophyllum*  
 2. Spikes globose, less than 2 cm long; leaves glabrous : *P. mullesua*

**Piper hymenophyllum** Miq. in H. Loud. J. Bot. 5: 554. 1846; Wight, Ic. t. 1942. 1853; Fl. Brit. India 5: 93. 1886; Fl. Pres. Madras 1207. 1925; Matthew, Fl. TN. Carnatic 1351. 1983 & Ill. Fl. TN. Carnatic t. 603. 19821; Huber in Rev. Handb. Fl. Ceylon 6: 280. 1987.

Vines. Leaves to 18 x 9 cm, ovate, elliptic, acuminate, base obliquely ovate, basally 5-7 nerved, pubescent with crisped hairs below; petiole to 2 cm. Spikes axillary, to 15 cm; bracts adnate to the rachis, 2 mm, closely imbricating, overlapping. Berry 4 x 2 mm, ellipsoid, globose. Fl. & Fr. April-June

D i s t. Common near stream sides; endemic to Peninsular India.

Irttallakkudy, *KKS 15260*; Churullipetty, *11877*

**Piper mullesua** Bunch.-Ham. ex D. Don, Prodr. Fl. Nep. 20. 1825. *P. brachystachyum* Wall. ex Hook. f., Fl. Brit. India 5: 87. 1886; Fl. Pres. Madras 1206. 1925. *Chavica sphaerostachya* Miq., Syst. Piperac. 239. 1843; Wight, Ic. t. 1928. 1853.

Vines. Leaves to 11 x 4.5 cm, elliptic, ovate, caudate, acuminate, base acute, 3-nerved from the base, membranous, transverse nerves parallel; petiole to 1 cm. Spikes axillary, globose, 5 mm across; peduncles to 5 mm; bracts 1 mm across, orbicular, peltate. Berry 2 mm, slightly embedded in the spike, ovoid.

Fl. & Fr. August-December

D i s t. Common in shola

Karivepinshola, *KKS 17457*

**Piper nigrum** L., Sp. Pl. 28. 1753; Fl. Brit. India 5: 90. 1886; Fl. Pres. Madras 1206. 1925; Matthew, Fl. TN. Carnatic 1352. 1983; Huber in Rev. Handb. Fl. Ceylon 6: 283. 1987.

Vines, rooting at the nodes. Leaves to 15 x 10 cm, ovate, acuminate, coriaceous, base rounded or slightly oblique. Spikes axillary, to 15 cm; bracts cup-shaped. Berry 4 mm, globose.

Fl. & Fr. February-June

D i s t. Common in shola

Olikkudy, *KKS 17237, 17272, 17335*

## LAURACEAE

- |                                                   |                 |
|---------------------------------------------------|-----------------|
| 1. Leaves alternate                               | : 4             |
| 1. Leaves opposite to subopposite or verticillate | : 2             |
| 2. Leaves verticillate                            | : Actinodaphne  |
| 2. Leaves opposite or subopposite                 | : 3             |
| 3. Leaves tri-nerved                              | : Cinnamomum    |
| 3. Leaves penninerved                             | : Beilschmiedia |
| 4. Flowers in panicles                            | : 6             |
| 4. Flowers in axillary clusters                   | : 5             |

5. Leaves tri-nerved	: <b>Neolitsea</b>
5. Leaves penninerved	: <b>Litsea</b>
6. Anthers 2-celled	: <b>Cryptocarya</b>
6. Anthers 4-celled	: 7
7. Panicles pubescent; leaves not clustered at the apex of branchlets	: <b>Persea</b>
7. Panicles glabrous; leaves clustered at the apex of branchlets	: <b>Alseodaphne</b>

#### ACTINODAPHNE Nees

**Actinodaphne bourdillonii** Gamble in Kew Bull. 1925: 129. 1925 & Pres. Madras 1231. 1925.

Large trees; branchlets densely tomentose. Leaves to 25 x 7 cm, elliptic to oblanceolate, acuminate, alternate to the base, nerves 9 pairs, very oblique, densely tomentose below. Umbels 8-10 flowered; bracts 12 x 8 mm, orbicular; tepals 5 mm long, oblong; stamens 8; female flowers 5-10 together in lateral tubercles, pedicellate.

*Fl. & Fr.* December-May

*D i s t.* Common in shola forests

Olikkduy, *KKS* 17329

#### ALSEODAPHNE Nees

**Alseodaphne semecarpifolia** Nees var. **angustifolia** Meissner in DC., Prodr. 15(1): 28. 1864; Fl. Brit. India 5: 144. 1886; Fl. Pres. Madras 1226. 1925; Matthew, Fl. TN. Carnatic 1356. 1983 & Ill. Fl. TN. Carnatic t. 605. 1982.

Trees. Leaves to 11 x 4.5 cm, elliptic to oblanceolate, apex acute, base cuneate, glaucous beneath, coriaceous; petiole to 1.5 cm. Panicles subterminal, to 15 cm; pedicels to 0.5 cm; perianth lobes 6, 3 mm, oblong, pubescent inside; fertile stamens 9, filaments 7 mm, pubescent; anthers 4-celled, staminodes 3; ovary 1 mm, style 1 mm, stigma peltate.

*Fl. & Fr.* April-July

*D i s t.* Common near streams in moist deciduous forests

Kurukku, *KKS* 15689

#### BEILSCHMIEDIA Nees

**Beilschmiedia wightii** (Nees) Benth. ex Hook. f., Fl. Brit. India 5: 124. 1886; Fl. Pres. Madras 1221. 1925. **Haasia wightii** Nees, Syst. Laurin. 676. 1836; Wight, Ic. t. 1831. 1852.

Trees. Leaves to 12 x 4.5 cm, elliptic, coriaceous, apex acuminate, base acute, reticulate, prominent raised; petiole to 1.5 cm. Panicles subterminal. Fruit 3 x 2 cm, ovoid; seed solitary, 2 x 1 cm.

*Fl. & Fr.* July-December

*D i s t.* Common in shola forests; endemic to Peninsular India.

Karivepinshola, *KKS* 17458

#### CINNAMOMUM Schaeffer. *nom. cons.*

1. Leaves 3-nerved	: <b>C. verum</b>
1. Leaves 5-nerved	: <b>C. wightii</b>

**Cinnamomum verum** Presl., Prir. Rostl. 2: 36. t. 7. 1825; Kosterm. in Bull. Bot. Surv. India 25: 126. 1983. *C. zeylanicum* Blume, Bijdr. 568. 1826; Wight, Ic. t. 123. 1839; Fl. Brit. India 5: 131. 1886; Fl. Pres. Madras 1224. 1925.

Large trees, bark reddish, very aromatic. Leaves to 12 x 5.5 cm, ovate, lanceolate, apex acute or obtuse, ribs extend about 2/3 rd of the lamina. Panicles to 25 cm; pedicels to 8 mm, pubescent; flowers white; perianth tube 2 mm, lobes 6, 3 mm, pubescent; fertile stamens 9, staminodes 3; anthers 4-celled; ovary 1 mm, 1-celled, style 2 mm, stigma 3-lobed.

*Fl. & Fr.* December-July

*D i s t.* Common in riparian forests above 1000 m altitude

Olippara, **KKS 17240**

**Cinnamomum wightii** Meissner in DC., Prodr. 15(1): 11. 1864; Fl. Brit. India 5: 132. 1886; Fl. Pres. Madras 1224. 1925; Kosterm. in Bull. Bot. Surv. India 25: 122. 1983.

Large trees; branchlets, ultimate branches trichotomously branched. Leaves to 7 x 5 cm, ovate. Panicles axillary, to 7 cm: perianth tube 2 mm, lobes 6, ovate, 3 mm, pubescent inside; fertile stamens 9, staminodes 3; ovary 1 mm, style 1.5 mm, stigma 3-lobed.

*Fl. & Fr.* April-July

*D i s t.* Occasional in shola forests; endemic to Peninsular India.

Pothumala, **KKS 17343**

#### **CRYPTOCARYA R. Br.**

**Cryptocarya neilgherrensis** Meissner in DC., Prodr. 15(1): 71. 1864; Fl. Pres. Madras 1219. 1925. *C. stocksii* sensu Hook. f., Fl. Brit. India 5: 120. 1886p.p., non Meissner 1864.

Trees; branchlets fulvous tomentose. Leaves to 10 x 4.5 cm, elliptic, apex and base acute, tomentose below, nerves 6-8 pairs, impressed above, prominent below; petiole 1.5 cm. Panicles subterminal, to 10 cm, fulvous, tomentose; pedicels to 1 cm; perianth lobes 6, 4 mm, ovate, pubescent; fertile stamens 9, staminodes 3, filaments hairy; anthers 2-celled, glands stipitate; ovary 2 mm across, globose, glaucous.

*Fl. & Fr.* October-April

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikudy, **KKS 17474**

#### **LITSEA Lam. nom. cons.**

- |                                               |                         |
|-----------------------------------------------|-------------------------|
| 1. Umbellules solitary                        | : <b>L. deccanensis</b> |
| 1. Umbellules in racemes                      | : 2                     |
| 2. Transverse nervules faint; leaf apex acute | : <b>L. wightiana</b>   |
| 2. Transverse nervules prominent; apex obtuse | : <b>L. floribunda</b>  |

**Litsea deccanensis** Gamble, Fl. Pres. Madras 1235. 1925; Matthew, Fl. TN. Carnatic 1360. 1983 & Ill. Fl. TN. Carnatic t. 609. 1982. *L. tomentosa* Heyne ex Nees in Wall., Pl. Asiat. Rar. 2: 65. 1831, non Blume 1826; Fl. Brit. India 5: 157. 1886. *Tetranthera tomentosa* Roxb. ex Wight. Ic. t. 1834. 1853.

Trees; young branchlets and leaves fulvous tomentose. Leaves to 20 x 9 cm, ovate, elliptic, apex acute, base cuneate, tomentose below; petiole to 4 cm, densely tomentose. Umbellules solitary, axillary; peduncles to 1.5 cm; involucre bracts 4, concave, tomentose outside; female flowers 6-8 per umbellule; pedicels 3 mm, pubescent, perianth absent, staminodes many, linear; ovary 1 mm, 1-ovuled, style 3 mm, stigmas 2.

*Fl.* November-February

*D i s t.* Rare near the streamsides in evergreen forests

Mangavada, *KKS* 15923; Karimutty, 15730

***Litsea floribunda*** (Blume) Gamble, *Fl. Pres. Madras* 1238. 1925. ***Cylicodaphne floribunda*** Blume, *Mus. Bot. Lugduno-Batavum* 1: 387. 1851. ***Litsea wightiana*** Hook. f., *Fl. Brit. India* 5: 177. 1886.

Large trees, young branchlets ferruginous pubescent. Leaves to 15 x 9 cm, obovate, oblong, apex obtuse, coriaceous, reddish brown beneath, nerves prominent; petiole 2.5 cm, thick. Racemes axillary, to 5 cm. Berry 1.5 x 1 cm, ovoid, red dotted, seated on the cup, cup to 0.5 cm.

*Fl. & Fr.* February-June

*D i s t.* Common in shola forests

Olikkudy, *KKS* 17262

***Litsea wightiana*** (Nees) Hook. f. in Benth. & Hook. f., *Gen. Pl.* 3: 162. 1880; *Fl. Brit. India* 5: 177. 1886; *Fl. Pres. Madras* 1238. 1925. ***Cylicodaphne wightiana*** Nees in Wall., *Pl. Asiat. Rar.* 2: 68. 1831; Wight, *Icon.* 1833. 1852.

Large trees. Leaves to 11 x 4 cm, elliptic-lanceolate, acute, cuneate at base, coriaceous, reddish brown beneath, tomentose. later becomes glabrous; nerves ca. 8 pairs, transverse nervules faint, margins thick; petiole to 2 cm. Racemes axillary, to 7 cm; umbellules 8 mm across, globose, ferruginous, tomentose.

*Fl.* March-July

*D i s t.* Common in shola forests; endemic to Peninsular India.

Pothumala, *KKS* 17349

#### **NEOLITSEA (Benth.) Merr. *nom. cons.***

***Neolitsea cassia*** (L.) Kosterm. in *J. Sci. Res. (Jakarta)* 1: 85. 1952. ***Laurus cassia*** L., *Sp. Pl.* 369. 1753. ***Neolitsea zeylanica*** (Nees) Merr. in *Philipp. J. Sci.* 1 (Suppl.): 57. 1906; *Fl. Pres. Madras* 1239. 1925. ***Litsea zeylanica*** Nees in *Amoen. Bot. Benn. Fasc.* 1: 58. t. 5. 1823; *Fl. Brit. India* 5: 178. 1886.

Trees. Leaves to 12 x 5 cm, elliptic, ovate, coriaceous, glaucous below, areolate above; petiole to 2.5 cm. Umbellules in axillary clusters; bracts 4, 5 x 3 mm, ovate, concave; perianth lobes 4, 3 mm, lanceolate; stamens 6, filaments 4 mm; anthers 2 mm, 4-celled.

*Fl. & Fr.* March-June

*D i s t.* Common in shola forests

Olikkudy, *KKS* 17318

### PERSEA Mill. *nom. cons.*

**Persea macrantha** (Nees) Kosterm. in Reinwardtia 6: 193. 1962; Matthew, Fl. TN. Carnatic 1363. 1983 & Ill. Fl. TN. Carnatic t. 611. 1982. *Machilus macrantha* Nees in Wall., Pl. Asiat. Rar. 2: 70. 1831; Wight, Ic. t. 1824. 1852; Fl. Brit. India 5: 140. 1886; Fl. Pres. Madras 1227. 1925.

Medium trees. Leaves to 20 x 7 cm, elliptic, oblong, apex acute, base ovate or coriaceous, glossy underneath; petiole to 4 cm. Panicles subterminal, to 20 cm, pubescent; flowers greenish white; pedicels to 0.5 cm; perianth lobes 6, outer 3 mm and inner 4 mm, ovate, acute, pubescent; fertile stamens 9, staminodes 3, filaments pubescent; anthers 4-celled, glands stipitate; ovary 2 mm across, globose, puberulus, style 2 mm, pubescent, stigma simple.

*Fl.* January-April

*D i s t.* Occasional near streamsides in moist deciduous forests

Karimutty, *KKS 15978*

## HERNANDIACEAE

### GYROCARPUS Jacq.

**Gyrocarpus asiaticus** Willd., Sp. Pl. 4: 982. 1806; Verdc. in Kew Bull. 21: 252. 1967. **G. jacquinii** Roxb., Pl. Cor. t. 1. 1795 p.p.; Bedd., Fl. Sylv. t. 196. 1872; Fl. Brit. India 5: 461. 1878. **G. americanus** sensu Gamble, Fl. Pres. Madras 1242. 1925; Matthew, Fl. TN. Carnatic 1366. 1983 & Ill. Fl. TN. Carnatic t. 613. 1982.

Deciduous trees, bark silver coloured, shining. Leaves mostly crowded at the apex of branches, sometimes lobed, to 15 x 15 cm, broadly ovate, apex acuminate, base subcordate or truncate; petiole to 15 cm. Panicles of cymes subterminal, to 4 cm, tomentose; flowers monoecious, polygamous, greenish-yellow; tepals 7, to 1.5 mm, ovate, concave, pubescent; stamens 4, filaments 2 mm; staminodes glandular, obtuse, fleshy; ovary inferior. Fruit 1 x 0.8 cm, ovoid, pubescent, wings 2, spatulate, to 5 cm.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11657, 12000*

## THYMELEACEAE

### GNIDIA L.

**Gnidia glauca** (Fresen.) Gilg in Bot. Jahrb. Syst. 19: 265. 1894; Townsend in Rev Handb. Fl. Ceylon 2: 505. 1981. **Lasiosiphon glaucus** Fresen. in Flora 21: 603. 1838. **Gnidia eriocephala** Meissner in Denkschr. Koenigl.-Baier. Bot. Ges. Regensburg 3: 292. 1841; Wight, Ic. t. 1859. 1852. **Lasiosiphon eriocephalus** (Meissner) Decne. in Jacq. Voy. 148. 1844; Fl. Brit. India 5: 197. 1886; Fl. Pres. Madras 1244. 1925.

Large shrubs. Leaves to 10 x 2.5 cm, elliptic-oblong, acute at apex, base obtuse; petiole to 2 mm. Heads subterminal, 2.5 x 4 cm; peduncles 2 cm; bracts imbricate, 1.5 x 0.9 cm, lanceolate, acute, silky pubescent; perianth tube, to 1.5 cm, densely silky with longer hairs at the base, slightly curved, lobes 5, 4 mm, obovate, pubescent; scales 5, 5 mm, orbicular, at the mouth of the corolla; stamens 10, in two rows; ovary 2 mm, pubescent, one ovuled.

*Fl.* December-March

*D i s t.* Occasional in dry hilly regions above 1000 m altitude

Kathitheetimala, *KKS 11822*

## ELAEAGNACEAE

### ELAEACNUS L.

**Elaeagnus kologa** Schlecht. in DC., Prodr. 14: 611. 1857; *Fl. Pres. Madras* 1246. 1925; Matthew, *Fl. TN. Carnatic* 1370. 1983 & *Fur. III. Fl. TN. Carnatic t.* 533. 1988. *E. latifolia* L., *Sp. Pl.* 121. 1753 p.p.; Wight,  *Ic. t.* 1856. 1852; *Fl. Brit. India* 5: 202. 1886 p.p.

Extensively branched shrubs or small trees, with silvery peltate scales. Leaves to 5 x 3 cm, ovate, elliptic, apex subobtusate, base rounded or ovate; petiole 8 mm. Flowers in axillary clusters, 5-8, greenish-white; perianth tube 8 mm, lobes 4, 2 mm; stamens included; style flattened, 5 mm, scaly hairy.

*Fl.* February-May

*D i s t.* Occasional in moist deciduous forests

Ichampetty, *KKS 15597*

## LORANTHACEAE

- |                                                    |                       |
|----------------------------------------------------|-----------------------|
| 1. Flowers with 2 connate bracteoles               | : <b>Macrosolen</b>   |
| 1. Flowers without bracteoles                      | : <b>2</b>            |
| 2. Flowers 4-merous                                | : <b>3</b>            |
| 2. Flowers 5-merous                                | : <b>4</b>            |
| 3. Petals free; plants glabrous                    | : <b>Helixanthera</b> |
| 3. Petals fused; plants with mealy golden tomentum | : <b>Scurrula</b>     |
| 4. Leaves alternate                                | : <b>Taxillus</b>     |
| 4. Leaves opposite                                 | : <b>Dendrophthoe</b> |

### DENDROPTHOE Mart.

**Dendrophthoe falcata** (L. f.) Etting. in *Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl.* 32: 52, 53, 58. t. 13. 1872; Matthew, *Fl. TN. Carnatic* 1372. 1983 & *III. Fl. TN. Carnatic t.* 616. 1982. *Loranthus falcatus* L. f., *Suppl. Pl.* 211. 1781. *L. longiflorus* Desr. in *Lam., Encycl.* 3: 598. 1792, var. *falcata* (L. f.) Kurz, *For. Fl. Burma* 2: 321. 1877; *Fl. Brit. India* 5: 215. 1886; *Fl. Pres. Madras* 1253. 1925. *L. longiflorus* Desr. var. *amplexifolia* (DC.) Thw., *Enum. Pl. Zeyl.* 134. 1859; *Fl. Brit. India* 5: 215. 1886; *Fl. Pres. Madras* 1253. 1925. *L. amplexifolia* DC., *Prodr.* 4: 306. 1830.

Woody parasitic subshrubs. Leaves to 15 x 6 cm, ovate, elliptic, apex and base obtuse; petiole 0.5 cm. Racemes axillary, to 6 cm; bracts 1 mm, broadly ovate; calyx truncate, 4 mm, slightly pubescent; corolla tube 4.5 cm, lobes 1 cm, yellowish white; stamens 5, filaments 5 mm; ovary 3 mm, style 6 cm, stigma globose.

*Fl. & Fr.* December-March

D i s t. Common in dry deciduous forests

Churullipetty, **KKS 11655**

#### **HELIXANTHERA Lour.**

**Helixanthera intermedia** (Wight) Danser in Bull. Jard. Bot. Buitenzorg ser. 3. 10: 317. 1929.

**Loranthus intermedius** Wight in Calcutta J. Nat. Hist. 6: 361. 1846; Fl. Brit. India 5: 205. 1886; Fl. Pres. Madras 1251. 1925.

Woody subshrubs. Leaves alternate, to 10 x 3 cm, elliptic, ovate or orbicular, base obtuse; brownish when dry; petiole 0.5 cm. Racemes axillary, to 6 cm, solitary or clustered; bracts cupular, lobes 2 mm, ovate. Fruit 1 x 0.5 cm, ovoid.

*Fl. & Fr.* February-June

D i s t. Common in dry deciduous forests; endemic to Peninsular India.

Palapetty, **KKS 15503**

#### **MACROSOLEN (Blume) Reichb.**

1. Corolla tube less than 2.5 cm, tube white

: **M. capitellatus**

1. Corolla tube more than 2.5 cm, tube red

: **M. parasiticus**

**Macrosolen capitellatus** (Wight & Arn.) Danser in Blumea 2: 36. 1936. **Loranthus capitellatus** Wight & Arh., Prodr. 382. 1834; Fl. Brit. India 5: 221. 1886. **Elytranthe capitellata** (Wight & Arn.) Engl. in Engl. & Prantl, Pflanzenf. 3(1): 189. 1889; Fl. Pres. Madras 1255. 1925.

Woody branched subshrubs. Leaves to 8 x 2.5 cm, ovate-elliptic, apex acute, base cuneate, coriaceous; petiole 0.5 cm. Cymes axillary; peduncles 5 mm; bracteoles 2 mm; calyx tube truncate, 4 mm; corolla tube 1.2 cm, lobes 6 mm, oblong, white; filaments 5 mm; ovary 3 mm, style 2 cm, stigma globose.

*Fl. & Fr.* February-June

D i s t. Common in dry deciduous forests

Ichampetty, **KKS 15590**

**Macrosolen parasiticus** (L.) Danser in Blumea 2: 36. 1936. **Lonicera parasitica** L., Sp. Pl. 175. 1753. **Loranthus loniceroides** L., Sp. Pl. ed. 2. 1. 473. 1762; Wight, Ic. t. 203. 1839; Fl. Brit. India 5: 221. 1886. **Elytranthe loniceroides** (L.) G. Don, Gen. Syst. 3: 427. 1834; Fl. Pres. Madras 1255. 1925.

Woody subshrubs. Leaves to 8 x 2 cm, ovate, elliptic, coriaceous, acute, base cuneate; petiole to 1 cm. Cymes axillary; peduncles to 1 cm; bracts 2 mm, ovate; bracteoles 2 mm; calyx



truncate, 5 mm, tubular; corolla tube to 4.5 cm, lobes 5, 2 cm, lanceolate, acute; filaments 1 cm; ovary 4 mm, style 6.5 cm, stigma globose.

*Fl. & Fr.* April-July

D i s t. Common in dry deciduous forests

Alampetty, *KKS 15690*

#### SCURRULA L.

**Scurrula parasitica** L., Sp. Pl. 110. 1753; Matthew, Fl. TN. Carnatic 1374. 1983 & Ill. Fl. TN. Carnatic t. 618. 1982. **Loranthus buddleioides** Desr. in Lam., Encycl. 3: 660. 1792; Fl. Pres. Madras 1251. 1925. **L. scurrula** L., Sp. Pl. ed. 2. 1: 472. 1762; Roxb., Pl. Cor. t. 140. 1800; Fl. Brit. India 5: 208. 1886.

Subshrubs, golden mealy tomentum. Leaves to 7 x 3 cm, ovate, elliptic, apex and base obtuse, rusty pubescent below; petiole to 8 mm. Racemes axillary, brown tomentose; bracts 1 mm, ovate; calyx 3 mm, truncate; corolla tube slightly bent, 1.3 cm, split on one side when mature, lobes 4, 4 x 1 mm, acute; filaments 2 mm; ovary adnate to calyx tube, 2.5 mm, oblong, 1 locular, style 1.8 cm, stigma, obovoid.

*Fl. & Fr.* December-March

D i s t. Common in dry deciduous forests

Pachakathihode, *KKS 11675*

#### TAXILLUS van Tiegh.

1. Leaves tawny pubescent

: **T. bracteatus**

1. Leaves glabrous

: **T. cuneatus**

**Taxillus bracteatus** (Heyne ex Wall.) Tieghem, Bull. Soc. Bot. France 42: 256. 1895; Matthew, Fl. TN. Carnatic 1375. 1983 & Ill. Fl. TN. Carnatic t. 619. 1982. **Loranthus bracteatus** Heyne ex Wall. in Roxb. Fl. Ind. 2: 220. 1824; Fl. Brit. India 4: 213. 1886; Fl. Pres. Madras 1252. 1925. **L. tomentosus** auct. non Tieghem, Wight & Arn., Prodr. Fl. Ind. Orient. 385. 1834; Wight, Ic. t. 378. 1840.

Herbs, branchlets tawny pubescent. Leaves alternate, to 2-4 x 1.5-3 cm, obovate, orbicular, apex obtuse, base cuneate, pubescent; petiole 1 cm. Cymes axillary; peduncles to 0.5 cm; bracts 1 x 0.5 cm, oblanceolate; pubescent; pedicels 2 mm; calyx 2 mm, very white pilose, margins obscurely toothed; corolla split on one side to the half, dilated at the middle, tube to 2 cm, tomentose, lobes 5, 6 mm, oblong; filaments 3 mm; ovary 2 mm, oblong, style 2.5 cm, stigma globose.

*Fl. & Fr.* April-June

D i s t. Common in dry deciduous forests

Kombakkayam, *KKS 15683*

**Taxillus cuneatus** (Heyne ex Rotli) Danser in Bull. Jard. Bot. Buitenzorg ser. 3. 10: 354. 1929; Matthew, Fl. TN. Carnatic 1376. 1983. **Loranthus cuneatus** Heyne ex Rotli, Nov. Pl. Sp. 193. 1821; Fl. Brit. India 5: 214. 1886; Fl. Pres. Madras 1253. 1925.

Woody subshrubs. Leaves alternate, 3-4 x 1.5-2 cm, obovate, obtuse at apex, cuneate at base, coriaceous; bracts 3 mm, ovate; calyx tube 2 mm, lobes 5, 1 mm, triangular, toothed; corolla split on one side upto half, tube 1.5 cm, pubescent, lobes 5, 5 mm, lanceolate, recurved; filaments 2.5 mm; ovary 3 mm, style 2 cm, stigma globose.

*Fl. & Fr.* December-March

D i s t. Common in dry deciduous forests

Karimutty, *KKS 15919*

## VISCACEAE

1. Plants leafy

: *V. orientale*

1. Plants leafless

: *V. articulatum*

### VISCUM L.

*Viscum articulatum* Burm. f. var. *dichotomum* Kurz, Forest. Fl. Burma **2**: 325. 1877; Fl. Brit. India **5**: 226. 1886; Fl. Pres. Madras 1259. 1925; Danser, Blumea **4**: 280. 1941; Matthew, Fl. TN. Carnatic 1377. 1983 & Fur. Ill. Fl. TN. Carnatic t. 534. 1988.

Subshrubs, internodes to 4.5 cm, flattened upwards. Flowers in axillary clusters, tepals 4, 1.5 mm ovate; stamens 4, filaments 1 mm; female flowers- tepals **4**, 1 mm, ovate. Berry 0.4 mm across, ovoid, glossy.

*Fl. & Fr.* December-April

D i s t. Common in dry deciduous forests

Kathitheetimala, *KKS 11831*

*Viscum orientale* Willd.. Sp. **PL** **4**: 737. 1805; Fl. Brit. India **5**: 224. 1886; Fl. Pres. Madras 1258. 1925; Matthew, Fl. TN. Carnatic 1378. 1983 & Ill. Fl. TN. Carnatic t. 620. **1982**.

Shrubs. Leaves opposite, **8** x 3 cm, spatulate, apex acute, entire to minutely crenate, basally 3-5 nerved, coriaceous; Flowers axillary in triads, lateral flowers male and central flowers female; bracts 1.5 mm, ovate; male flowers- perianth lobes 4, 1 mm, ovate; stamens 4; female flowers- tepals 4, 1 mm, ovate; ovary 0.6 mm, stigma rounded. Berry **0.6** x 0.5 mm, obovoid, acute at both ends.

*Fl. & Fr.* February-April

D i s t. Common in dry deciduous forests

Mangavada, *KKS 11991*

## SANTALACEAE

■ Flowers 5-merous; leaves opposite

: *Santalum*

1. Flowers 3-merous; leaves alternate

: *Osyris*

### OSYRIS L.

*Osyris quadripartita* Salzm. ex Decne. in *Ann. Sci. Nat. Bot. ser. 2*: **6**: 65. 1836; Matthew, Fl. TN. Carnatic 1380. 1983 & Ill. Fl. TN. Carnatic t. 621. 1982. *O. wightiana* Wall. ex Wight, Ic.

t. 1853. 1852. *O. arborea* Wall. ex A. DC. in DC., Prodr. 14: 633. 1857; Fl. Brit. India 5: 232. 1886; Fl. Pres. Madras 1262. 1925.

Shrubs with angular branches. Leaves alternate, to 4 x 2 cm, elliptic, mucronate, pubescent below; petiole 3 mm. Cymes axillary; flowers polygamous, 3-merous; male flowers- tepals basally connate, 2 mm, ovate, hairy inside, spreading; stamens exerted; female flowers 3 mm across.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Nellimedu, *KKS 11952*; Churullipetty, *17476*

### SANTALUM L.

*Santalum album* L., Sp. Pl. 349. 1753; Roxb., Fl. Ind. 1: 462. 1820; Bedd., Fl. Sylv. 256. 1872; Fl. Brit. India 5: 231. 1886; Fl. Pres. Madras 1261. 1925; Matthew, Fl. TN. Carnatic 1381. 1983 & Ill. Fl. TN. Carnatic t. 622. 1982.

Trees, wood aromatic. Leaves to 6.5 x 3 cm, ovate, elliptic, apex, acute, base, obtuse. black dotted beneath. Panicles of cymes. axillary, to 2 cm; flowers brownish-purple; tepals connate at base, to 2 mm: lobes 2 mm, broadly ovate; filaments 1 mm; disc of 5 fleshy scales, obtuse, alternating with the stamens; ovary 1 mm, ovules 2 or 3, style 1 mm, stigma 3 lobed. Drupe 1 x 0.7 cm, globose.

*Fl. & Fr.* November-April

*D i s t.* Occasional in dry deciduous forests arid also raised in plantations

Alampetty, *MS 5878*; Chinnar, *KKS 11595*

### BALANOPHORACEAE

#### BALANOPHORA J. R. & G. Forst.

*Balanophora fungosa* J. R. & G. Forst. subsp. *indica* (Arn.) Hansen in Dansk Bot Ark. 28: 100. ff. 20 & 21. 1972, var. *indica*; Matthew, Fl. TN., Carnatic 1383. 1983. *B. indica* (Arn.) Wall. ex Griff. in Trans. Linn. Soc. London 20: 95. 1846; Fl. Brit. India 5: 237. 1886; Fl. Pres. Madras 1263. 1925.

Parasitic tuberous herbs; dioecious; scales to 3 cm, obovate, elliptic, brownish, Male head to 7 x 3.5 cm, ovoid- oblong, intermixed with clavate bodies; pedicels to 8mm; perianth lobes 6, 6 mm, oblong, reflexed, white: stamens 6, filaments united, 2 mm, anthers connate; Female head 4 x 3 cm, ovoid, globose, flowers numerous, mixed with club shaped scales perianth 0; ovary 1-celled, minute.

*Fl. & Fr.* December-February

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 18285*

### EUPHORBIACEAE

- 1. Flowers in cyathia
- 1. Flowers not in cyathia

: *Euphorbia*  
: 2

2. Leaves simple	: 3
2. Leaves trifoliolate	: <b>Bischofia</b>
3. Leaves peltate	: 4
3. Leaves not peltate	: 6
4. Leaves lobed	: 5
4. Leaves simple	: <b>Mallotus (p.p.)</b>
5. Leaf margins serrate, connate filaments repeatedly branched	: <b>Ricinus</b>
5. Leaf margins entire, filaments simple connate	: <b>Jatropha</b>
6. Stamens 3-8, exclusively connate, connective produced into free tips	: <b>Glochidion</b>
6. Stamens variously connate, if connate connectives not produced into free tips	: 7
7. Stamens 5 or less	: 8
7. Stamens more than 5	: 15
<b>8. Petals absent</b>	: 9
<b>8. Petals present</b>	: <b>Bridelia</b>
9. Flowers in axillary or terminal racemes or spikes	: 10
9. Flowers in axillary clusters or solitary	: 12
10. Herbs; fruit with 2 rows of soft, prickles on each cocci	: <b>Sebastiania</b>
10. Trees; fruit not so	: 11
11. Disc absent; spikes glabrous	: <b>Excoecaria</b>
11. Disc present; spikes pubescent	: <b>Antidesma</b>
12. Drupe bony	: <b>Drypetes (p.p.)</b>
12. Drupe not bony	: 13
13. Disc present	: 14
13. Disc absent	: <b>Breynia</b>
14. Stamens 5, all free	: <b>Securinega</b>
14. Stamens 3, united, if 5, 3 united and 2 free	: <b>Phyllanthus</b>
15. Petals present	: 16
15. Petals absent	: 17
16. Petals united; leaves densely tomentose	: <b>Givotia</b>
16. Petals free; leaves glabrous	: <b>Agrostistachys</b>
17. Flowers in axillary or terminal racemes or spikes; disc absent	: 18
17. Flowers in axillary clusters, disc present	: <b>Drypetes (p.p.)</b>
18. Staminal column branched; stamens reddish, riparian	: <b>Homonoia</b>
<b>18. Stamens free or if united column not branched</b>	: 19
19. Anthers vermiculiform	: <b>Acalypha</b>
19. Anthers not vermiculiform	: <b>Mallotus (p.p.)</b>

#### ACALYPHA L.

1. Female flowers on terminal panicles, male on axillary spikes	: <b>A. paniculata</b>
1. Male and female flowers together	: 2
2. Bracts minute; petioles shorter than leaf blade	: <b>A. fruticosa</b>
2. Bracts large; petioles as long as or longer than blade	: 3
3. Capsule glabrous; bracts with long teeth	: <b>A. ciliata</b>
3. Capsule pubescent; bracts with minute teeth,	: <b>A. indica</b>

**Acalypha ciliata** Forssk., Fl. Aeg.-Arab. 162. 1775; Fl. Brit. India 5: 417. 1887; Fl. Pres. Madras 1330. 1925; Matthew, Fl. TN. Carnatic 1406. 1983 & Fur. III. Fl. TN. Carnatic t. 537. 1988.

Subshrubs, branches pubescent. Leaves to 7 x 4 cm, ovate, cuneate, membranous, acuminate at apex, base rounded, sparsely puberulus, margins ciliate; petiole to 5 cm. Spikes axillary, to 2 cm; sepals 4, pubescent; female flowers below crowded; bracts 5 mm, campanulate, pubescent *ca.* 12-15 toothed, ciliate, ovary 1.5 mm; male flowers on the upper half minute. Capsule 3 mm across, smooth

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11542*

**Acalypha fruticosa** Forssk., Fl. Aeg.-Arab. 161. 1775; Fl. Brit. India 5: 415. 1887; Fl. Pres. Madras 1331. 1925; Matthew, Fl. TN. Carnatic 1406. 1983 & Fur. III. Fl. TN. Carnatic t. 538. 1988.

Subshrubs, branchlets tomentose. Leaves to 4 x 2 cm, ovate, apex acute to acuminate, base oblique, crenate, puberulus above, tawny pubescent and yellow glandular below; petiole 1.5 cm, tomentose; Spikes axillary, pubescent; sepals 4, 1.5 mm, tomentose; ovary 0.6 mm. Capsule 2 mm across.

*Fl. & Fr.* October-February

*D i s t.* Abundant in dry deciduous forests

Chinnar, *KKS 11592*

**Acalypha indica** L., Sp. Pl. 1003. 1753; Wight, Ic. t. 877. 1844-1845; Fl. Brit. India 5: 416. 1887; Fl. Pres. Madras 1330. 1925; Matthew, Fl. TN. Carnatic 1408. 1983 & Fur. III. Fl. TN. Carnatic t. 540. 1988.

Herbs. Leaves to 5 x 4 cm, ovate, apex acute to acuminate, base cuneate, serrate, pubescent; petiole 4 cm. Spikes axillary, to 3.5 cm; female flowers below; bracts 3 x 5 cm, campanulate, folded, many nerved, pubescent, minutely dentate; male flowers minute. Capsule 2 mm across, pubescent.

*Fl. & Fr.* July-September

*D i s t.* Common in dry deciduous forests

Gellimala, *KKS 15790*

**Acalypha racemosa** Heyne ex Baill., Etud. Gen. Euphorb. 443. 1858. *A. paniculata* Miq., Fl. Ned. Ind. 1(2): 406. 1859; Fl. Brit. India 5: 415. 1887; Fl. Pres. Madras 1330. 1925; Matthew, Fl. TN. Carnatic 1409. 1983 & Fur. III. Fl. TN. Carnatic t. 541. 1988.

Large herbs or subshrubs, stem pubescent. Leaves to 7 x 5 cm, ovate, apex acuminate to acute, base rounded to cordate, serrate, membranous, puberulus; petiole to 5.5 cm. Male flowers in axillary spikes, to 9 cm, pubescent; tepals 4, stamens minute; female flowers in terminal panicles: bracts minute; ovary 5 mm, style branches 6-12. Capsule 2.5 mm across, pubescent.

*Fl. & Fr.* June-August

D i s t. Common in dry deciduous forests

Ichampetty, *KKS 15750*

#### **AGROSTISTACHYS Dalz.**

**Agrostistachys indica** Dalz. in Hook.'s J. Bot. Kew Gard. Misc. 2: 41. 1850; Bedd., Ic. t. 241. 1868-1874; Fl. Brit. India 5: 406. 1887; Fl. Pres. Madras 1317. 1925.

Small trees, dioecious. Leaves to 20 x 7 cm, elliptic, apex acute, base cuneate, dentate, spinescent, subcoriaceous; petiole to 4 cm; Female flowers supraaxillary, solitary, cauliflorous; pedicels 8 mm; bracts 2-4 at the base of the pedicel, scale like; sepals 5, 4 mm, recurved, pubescent; petals 5, deciduous, white; disc of 5 glands around the ovary, red; ovary 4 mm, pubescent, style arms recurved.

*Fl.* October-March

D i s t. Occasional in shola forests

Olikudy, *KKS 17267*

#### **ANTIDESMA L.**

**Antidesma menasu** (Tul.) Miq. ex Muell.-Arg. in DC., Prodr. 15(2): 257. 1866 p.p., Fl. Brit. India 5: 364. 1887 p.p.; Fl. Pres. Madras 1297. 1925; Matthew, Fl. TN. Carnatic 1413. 1983 & Ill. Fl. TN. Carnatic t. 627. 1982; Mandal & Panigrahi in J. Econ. Tax. Bot. 4: 256. 1983. *A. pubescens* Roxb. var. *menasu* Tul. in Ann. Sci. Nat. Bot. Ser. 3. 15: 215. 1851.

Small trees, dioecious. Leaves to 15 x 6 cm, ovate, long acuminate, mucronate, base obtuse, subcoriaceous, nerves *ca.* 6 pairs, oblique, looped near the margins; petiole 8 mm; stipules linear, acute. Racemes axillary and terminal, branched, to 8 cm, pubescent. pedicels to 2 mm, stout, pubescent; male flowers- calyx 4 lobed, rounded, 1 mm, pubescent; stamens 3-4, filaments inserted in hollows of the disc, 2 mm, pistillode present.

*EZ* December-May

D i s t. Common in shola forests

Olikudy, *KKS 17234, 17309*

#### **BISCHOFIA J. R. & G. Forst. nom. cons.**

**Bischofia javanica** Blume, Bijdr. 1169. 1826-1827; Bedd., Fl. Sylv. t. 259. 1872; Fl. Brit. India 5: 345. 1887; Fl. Pres. Madras 1312. 1925; Matthew, Fl. TN. Carnatic 1485. 1983 & Ill. Fl. TN. Carnatic tt. 663 & 976d. 1982. **Microelus roeperianus** Wight & Arn. in Edinburgh New Philos. J. 14: 298. 1833; Wight, Ic. t. 1880. 1852.

Trees, bark brown. Leaves trifoliate, leaflets to 15 x 8 cm, broadly elliptic or orbicular, apex acuminate, serrate, coriaceous, nerves *ca.* 7 pairs; petiole to 9 cm. Panicles axillary and terminal, to 15 cm, dioecious; female flowers -sepals 5, 2.5 mm, ovate; ovary 2 x 2mm, globose, 3-4 celled, ovules 2 in each cell. Berry 5 mm across red.

*Fl. & Fr.* November-March

D i s t. Common along the riversides

Kuttar, *KKS 15935*

**BREYNIA J. R. & G. Forst. *nom. cons.***

1. Calyx lobes accrescent in fruit; leaves pale beneath : **B. retusa**  
1. Calyx lobes hardly accrescent in fruit; leaves pale beneath : **B. vitis-idaea**

**Breynia retusa** (Dennst.) Alston in Ann. Roy. Bot. Gard. 11: 204. 1929; Matthew, Fl. TN. Carnatic 1415. 1983 & Ill. Fl. TN. Carnatic t. 628. 1982. **Phyllanthus retusus** Dennst. Schluess. Hort. Ind. Malab. 24. 1818. **Breynia patens** (Roxb.) Rolfe in J. Bot. 11: 359. 1882; Fl. Brit. India 5: 329. 1887; Fl. Pres. Madras 1304. 1925. **Phyllanthus patens** Roxb., Fl. India 3: 667. 1832. **Melanthesa turbinata** Wight, Ic. t. 1897. 1852.

Shrubs, nodes thickened, monoecious. Leaves 2-3.5 x 1.5-2 cm, ovate-elliptic, obtuse or emarginate at apex, base obtuse, membranous, pale beneath; petiole 3 mm; pedicels to 1 cm; male flowers- tepals turbinate, 4 mm long; stamens 3, connate by connectives; female flowers- tepals turbinate, 4 mm long, broadly oblong; ovary, 1.5 mm, obtusely 6 lobed.

*Fl.* March-June

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15572*

**Breynia vitis-idaea** (Burm. f.) Fischer in Kew Bull. 1932: 65. 1932; Matthew, Fl. TN. Carnatic 1416. 1983 & Fur. Ill. Fl. TN. Carnatic t. 544. 1988. **Rhamnus vitis-idaea** Burm. f., Fl. India 61. 1768. **Breynia rhamnoides** (Retz.) Muell.-Arg. in DC., Prodr. 15(2): 440. 1866; Fl. Brit. India 5: 330. 1887; Fl. Pres. Madras 1304. 1925. **Melanthesa rhamnoides** Wight, Ic. t. 1898, fig 1. 1852.

Shrubs, monoecious. Leaves to 3.5 x 2 cm, ovate, apex obtuse, base rounded; petiole 3 mm; stipules 1 mm, ovate. Flowers in axillary clusters, greenish-yellow; pedicels 2-8 mm; female flowers- calyx cupular, 6 lobed, 2 mm, acute; ovary 2 mm, truncate, oblong, obscurely 6 lobed. Berry 0.7 cm across.

*Fl. & Fr.* February-August

*D i s t.* Common in moist deciduous and along margins of shola forests

Karimutty, *KKS 15565*; Olikudy, *17215*

**BRIDELIA Willd.**

**Bridelia crenulata** Roxb., Fl. Ind. 3: 734. 1822; Matthew, Fl. TN. Carnatic 1416. 1983 & Ill. Fl. TN. Carnatic t. 629. 1982. **B. roxburghiana** (Muell.-Arg.) Gehrm. in Bot. Jahrb. Syst. 41. Beibl. 95: 30. 1908; Fl. Pres. Madras 1280. 1925. **B. retusa** (L.) Spreng. var. **roxburghiana** Muell.-Arg. in DC., Prodr. 15(2): 493. 1866; Fl. Brit. India 5: 268. 1887.

Trees, dioecious, young branchlets densely tomentose. Leaves to 10 x 5.5 cm, oblong-elliptic, crenulate, tomentose beneath; petiole to 1 cm, tomentose; stipule linear. Flowers in axillary clusters; bracts 3 mm, ovate, ciliate; male flowers- calyx lobes 5, 3 mm, coriaceous, triangular, pubescent; petals 5, 2 x 0.5 mm, obovate; disc cupular, 1 mm, covering the basal part of ovary, timbriate; ovary globose, 2 locular, ovules 4, style 2, 2 mm, coiled.

*Fl.* February-June

*D i s t.* Occasional in dry deciduous forests; endemic to Peninsular India.

Ichampetty, *KKS 15573*

## DRYPETES Vahl

1. Leaves serrulate; drupe ovoid : **D. roxburghii**  
1. Leaves distantly crenate; berry globose : **D. sepiaria**

**Drypetes roxburghii** (Wall.) Hurusawa in J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 6: 337. 1954; Matthew, Fl. TN. Carnatic 1423. 1983. **Putranjiva roxburghii** Wall., Tent. Fl. Nep. 61. 1826; Wight, Ic. t. 1876. 1852; Fl. Brit. India 5: 336. 1887; Fl. Pres. Madras 1311. 1925; Matthew, Ill. Fl. TN. Carnatic t. 650. 1982.

Trees; branches spreading and drooping. Leaves 8-12 x 3.5-4.5cm, elliptic-oblong, apex obtuse, base slightly oblique, coriaceous, shining; petiole 0.5 cm. Female flowers axillary, in groups of 3-4; pedicels 0.8; sepals 5, 2 x 1.5 mm, ovate, ciliate; ovary 3 mm, ovate, 3-celled, densely pubescent, style 7 mm, tomentose, dilated at apex. Drupe ovoid, 2 x 1 cm, ovate,

*Fl. & Fr.* August-February

*D i s t.* Common along the riverside

Churullipetty, *KKS 11878*; Alampetty, 11960

**Drypetes sepiaria** (Wight & Arn.) Pax & Hoffm. in Engl., Pflanzenr. 81: 271. 1922; Matthew, Fl. TN. Carnatic 1423. 1983 & Ill. Fl. TN. Carnatic t. 635. 1982. **Hemicyclia sepiaria** Wight & Arn. in Edinburgh New Philos. J. 14: 297. 1833; Wight, Ic. t. 1872. 1852; Fl. Brit. India 5: 337. 1887; Fl. Pres. Madras 1299. 1925.

Trees. Leaves 3-7.5 x 2-3.5 cm, ovate-oblong, apex and base obtuse, coriaceous, shining; petiole 0.5 cm. Flowers in axillary clusters; male flowers- pedicels 4 mm, pubescent; calyx lobes, 4, 3 x 2 mm, oblong, pubescent; stamens 8, on a cupular disc, filaments 2 mm. Berry 0.8 cm across, globose, reddish. 1 seeded.

*Fl. & Fr.* January-April

*D i s t.* Common near riverside in dry deciduous forests

Champakkad, *KKS 15795*; Chinnar, *NS 5917*; *KKS 11848*

## EUPHORBIA L.

1. Leaves reduced and early cauducous; shrubs or trees : 2  
1. Leaves developed; herbs : 4  
2. Armed, branchlets angled : 3  
2. Unarmed, branchlets terete : **E. tirucalli**  
3. Stems spirally twisted : **E. tortilis**  
3. Stems not spirally twisted : **E. antiquorum**  
4. Floral leaves imbricate, appendages fimbriate : **E. cristata**  
4. Floral leaves not imbricate, appendages entire or absent : 5  
5. Prostrate herbs : 6  
5. Erect herbs : 7  
6. Limb of gland red : **E. rosea**  
6. Limb of gland not red : **E. thymifolia**  
7. Appendage absent; leaves alternate below, opposite to whorled above : **E. heterophylla**  
7. Appendage entire; leaves decussate : 8  
8. Leaf apex obtuse, glaucous beneath : **E. indica**  
8. Leaf apex acute, not glaucous beneath : **E. hirta**



*Euphorbia antiquorum* L., Sp. Pl. 450. 1753; Wight, Ic. t. 897. 1844-1845; Fl. Brit. India 5: 225. 1887; Fl. Pres. Madras 1277. 1925; Matthew, Fl. TN. Carnatic 1428. 1983 & Fur. Ill. Fl. TN. Carnatic t. 547. 1988.

Armed fleshy shrubs; branchlets 3-5 angular, spines to 1 cm. Cyathia axillary, in lax cymes; bracts 5, 5 mm, ovate; peduncles 1 cm long; involucre cupular, 5 mm long, glands 5, thick, semicircular; male flowers in 5 groups of 4-8 each; stalk 3 mm, female flowers erect; ovary 3 x 4, styles 3. Capsule 1 cm across.

*FZ & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 11780*

*Euphorbia cristata* Heyne ex Roth, Nov. Pl. Sp. 226. 1821; Fl. Brit. India 5: 247. 1887; Fl. Pres. Madras 1274. 1925; Matthew, Fl. TN. Carnatic 1429. 1983 & Fur. Ill. Fl. TN. Carnatic t. 549. 1988. *Chamaesyce cristata* (Heyne ex Roth) Webster in J. Arnold Arbor. 48: 424. 1967.

Herbs, hirsute. Leaves to 2.5 x 1.2 cm, ovate, apex obtuse, acute, oblique at base, serrulate, ciliate, membranous; petiole to 3 mm. Cyathia 1-3, terminal or axillary, covered with imbricate floral leaves; involucre 2 mm, campanulate, ciliate; glands 4, appendages 1.5 mm, fimbriate, with long hairs; male flowers 5-8, bracteolate; stalk 2 mm; anthers subglobose, female flowers pendulous; stalk 4 mm; ovary subglobose, pubescent, style 3 bifid. Capsule 2 x 4 mm, quadrangular.

*FZ & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Kathitheetimala, *KKS 11836*

*Euphorbia heterophylla* L., Sp. Pl. 453. 1753; Matthew, Fl. TN. Carnatic 1432. 1983. *Poinsettia heterophylla* (L.) Klotzsch & Garcke, Monatsber. Deutsch Akad. Wiss. Berlin 1859: 253. 1859. *E. geniculata* Ortega, Nov. Pl. Descr. dec. 18. 1797; Fl. Brit. India 5: 239. 1886 & 266. 1886; Fl. Pres. Madras 1884. 1936.

Large herbs; stem hollow. Leaves alternate or opposite below, highly whorled above, 5-10 x 2-5 cm, obovate or oblanceolate, apex and base acute, margin entire; petiole to 2.5 cm. Cyathia 6-10 in terminal clusters, involucre 3 x 3 mm, campanulate, gland one opposite to the pistil, cupular, appendage absent; male florets 12-15, bracteolate, stalk 1.5 mm; female laterally pendulous; ovary 2 x 3 mm, styles 3, erect, 1 mm, bifid at apex. Capsule 6 mm across.

*FZ & Fr.* June-August

*D i s t.* Common in waste places

Chinnar, *KKS 18310*

*Euphorbia hirta* L., Sp. Pl. 454. 1753; Fl. Pres. Madras 1275. 1925; Matthew, Fl. TN. Carnatic 1434. 1983 & Fur. Ill. Fl. TN. Carnatic t. 554. 1988. *E. pilulifera* sensu Hook. f., Fl. Brit. India 5: 250. 1887. non L. 1753.

Erect herbs, with yellow hairs. Leaves to 4 x 2.5 cm, ovate-elliptic, apex acute, oblique at base, crenulate, hirsute at base; petiole 3 mm. Cyathia aggregated in single or paired clusters, axillary and terminal; involucre campanulate, 0.5 mm; glands 5, minute, appendage minute; male flowers 4-6; female flowers laterally pendulous; ovary 0.8 mm across; Capsule 1 mm across.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11550*

**Euphorbia indica** Lam., *Encycl.* 2: 423. 1786; Raju & P. N. Rao in *India J. Bot.* 2: 205. 1979. *E. hypericifolia* auct. non L. 1753; *Fl. Brit. India* 5: 249. 1887; *Fl. Pres. Madras* 1275. 1925; Matthew, *Fl. TN. Carnatic* 1434. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 555. 1988.

Erect herbs, hispid. Leaves to 2 x 1.5 cm, oblong, ovate, apex obtuse, base, oblique, crenulate, glaucous beneath; petiole 3 mm, pubescent. Cyathia in stalked clusters, *ca.* 15, axillary; stalk to 1.5 cm, pubescent; involucre campanulate, 8 mm long, pubescent; glands 5, minute, appendages 0.5 mm long; male flowers 4-5; stalk 0.5 mm; female laterally pendulous; ovary 8 mm, pubescent. Capsule 2 x 1.5 mm, pubescent.

*Fl. & Fr.* July-September

*D i s t.* Common in wet areas in moist deciduous forests

Pallippara, *KKS 15819*

**Euphorbia rosea** Retz., *Obs. Bot.* 4: 26. 1786; *Fl. Brit. India* 5: 251. 1887; *Fl. Pres. Madras* 1275. 1925; Matthew, *Fl. TN. Carnatic* 1438. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 560. 1988. *Chamaesyce rosea* (Retz.) Webster in *J. Arnold Arbor.* 48: 423. 1967.

Prostrate herbs; branchlets sparsely pubescent. Leaves 1.2 x 0.6 cm, oblong, apex obtuse, base oblique, crenulate; petiole to 2 mm. Cyathia terminal and axillary, aggregated in clusters, limb of gland red; involucre campanulate, 1.5 mm, pubescent inside; glands 4, oblong, appendages 3 mm and 0.5 mm, crenate at apex; male 4-6; stalk 1 mm; female pendulous; ovary 1.5 mm across. Capsule 2.5 mm across, pubescent.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Athiyodai, *KKS 11766*

**Euphorbia thymifolia** L., *Sp. Pl.* 454. 1753; *Fl. Brit. India* 5: 252. 1887; *Fl. Pres. Madras* 1276. 1925; Matthew, *Fl. TN. Carnatic* 1439. 1983 & *Fur. Ill. Fl. TN. Carnatic* t. 562. 1988.

Prostrate hispid herbs. Leaves distichous, to 5 x 3 mm, oblong, apex obtuse, base oblique. margins crenate; petiole to 2 m. Cyathia axillary, mostly in clusters; glands and appendages minute; involucre 0.8 mm; male flowers 1-4, bracteolate; female flowers-peduncle stalk 0.3 mm; ovary subglobose, 0.5 mm. Capsule 1 mm across, hairy.

*Fl. & Fr.* October-December

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 15903*

*Euphorbia tirucalli* L., Sp. Pl. 452. 1753; Fl. Brit. India 5: 254. 1887; Fl. Pres. Madras 1276. 1925; Matthew, Fl. TN. Carnatic 1440. 1983 & Fur. Ill. Fl. TN. Carnatic t. 563. 1988.

Shrubs to small trees, dichotomously branched; branchlets terete. Leaves to 1 x 0.5 cm, linear lanceolate, deciduous; Cyathia in terminal clusters; involucre cupular, 2 mm; glands 5; male flowers-*ca.* 15; stalk to 1.5 mm, pubescent; anthers 0.4 mm, oblong; ovary 2 x 1.5 mm, pubescent. Capsule globose, pubescent.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15535

*Euphorbia tortilis* Rottl. ex Ainslie, Mat. Ind. 2: 424. 1826; Wight. *Ic.* t. 898. 1844-1845; Fl. Brit. India 5: 256. 1887; Fl. Pres. Madras 1277. 1925; Matthew, Fl. TN. Carnatic 1441. 1983 & Fur. Ill. Fl. TN. Carnatic t. 564. 1988.

Armed thick fleshy shrubs to trees. stem spirally twisted, 3 angled, spines to 1 cm. Leaves small, deciduous. Cyathia axillary. in clusters; peduncles 0.5 cm; involucre cupular, 3 x 5 mm; glands 5, thick; male flowers in groups of 5; stalk 1.5 mm; female flowers-laterally pendulous; ovary 3 x 7 mm, sharply 3-angled. Capsule 8 mm across.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Athiyodai, *KKS* 15725

#### EXCOECARIA L.

*Excoecaria robusta* Hook. f., Fl. Brit. India 5: 474. 1888; Fl. Pres. Madras 1345. 1925; Matthew, Fl. TN. Carnatic 1443. 1983 & Fur. Ill. Fl. TN. Carnatic t. 565. 1988.

Shrubs to small trees, latex milky. Leaves opposite, to 18 x 4.5 cm, oblong, elliptic, acuminate at apex, base cuneate, crenulate; petiole 1.5 cm. Spikes axillary or terminal, 8-10 cm long; flowers dioecious; male flowers 1-3 to each bracts; bracts 1.5 mm, ovate, ciliate; bracteoles 2, ovate; sepals 3, minute, ciliate; stamens 3, filaments 0.5 mm.

*Fl.* February-May

*D i s t.* Rare in shola forests; endemic to Peninsular India.

Olikudy, *KKS* 17209

#### GIVOTIA Griff.

*Givotia rottleriformis* Griff. in Calcutta J. Nat. Hist. 4: 388. 1844; Wight, *Ic.* t. 1889. 1854; Fl. Brit. India 5: 395. 1887; Fl. Pres. Madras 1342. 1925; Matthew, Fl. **1** Carnatic 1443. 1983 & Ill. Fl. TN. Carnatic t. 639. 1982.

Deciduous trees, dioecious, young parts pubescent. Leaves 8-18 x 9-20 cm, broadly ovate, apex acute, base cordate. broadly crenate, basally 5-7 nerved; petiole 5-8 cm. Panicles terminal or subterminal. to 25 cm, pendulous: bracts to 1 cm, linear, tomentose; flower clusters distant; pedicels jointed; male flowers-sepals 5, 6 x 4 mm, obovate, imbricate, incurved, densely

tomentose; petals 5, 3 x 2 mm, obovate; stamens 10-20, filaments unequal, hairy at base, connate below. Drupe oblong, 1-seeded.

*Fl. & Fr.* March-July

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 15604*

**GLOCHIDION J. R. & G. Forst. *nom. cons.***

1. Stamens 3; capsule pubescent : *G. ellipticum*  
1. Stamens 4; capsule glabrous : *G. zeylanicum*

**Glochidion ellipticum** Wight, Ic. t. 1906. 1852; Fl. Brit. India 5: 321. 1887: Fl. Pres. Madras 1308. 1925; Matthew, Fl. TN. Carnatic 1445. 1983 & Ill. Fl. TN. Carnatic t. 640. 1982. *G. hohenackeri* Bedd., Fl. Sylv. t. 193. 1873; Fl. Brit. India 5: 314. 1887.

Trees; branchlets lenticellate. Leaves to 9 x 3 cm, elliptic, apex obtusely acuminate, oblique at base, coriaceous; petiole to 8 mm. Flowers in axillary clusters; male and female together; pedicel 1 cm; male flowers-sepals 6, 3.5 mm; stamens 3, obtuse; female flowers- sessile. Capsule 8 mm across, 6-8 lobed, depressed, subglobose, pubescent; seeds shining, subglobose.

*FZ & Fr.* December-April

*D i s t.* Common in shola forests; endemic to Peninsular India.

Olikkudy, *KKS 17249*

**Glochidion zeylanicum** (Gaertn.) Juss. Euphorb. Gen. Tent. 107. 1824; Fl. Brit. India 5: 310. 1887; Fl. Pres. Madras 1306. 1925; Matthew, Fl. TN. Carnatic 1446. 1983 & Fur. Ill. Fl. TN. Carnatic t. 568. 1988. *Bridelia zeylanica* Gaertn., Fruct. 2: 128. t. 109. 1790.

Trees, bark red; branchlets striate. Leaves to 15 x 6 cm, ovate, oblong, apex acute, base ovate. coriaceous; petioles 0.5 cm. stipules 3 mm, ovate. Flowers in supra-axillary clusters; male and female together, pedicel 2 mm; male flowers 6 mm across; stamens 4; female flowers 3 mm across. Capsule 1 cm across, globose, beaked above.

*FZ & Fr.* January-July

*D i s t.* Common in dry deciduous forests

Thayanankkudy, *KKS 11882*

**HOMONOIA Lour.**

**Homonoia riparia** Lour., Fl. Cochinch. 2: 637. 1790; Fl. Brit. India 5: 455. 1887; Fl. Pres. Madras 1333. 1925; Matthew, Fl. TN. Carnatic 1447. 1983 & Ill. Fl. TN. Carnatic t. 641. 1982.

Shrubs, dioecious. Leaves to 20 x 2 cm, linear, lanceolate, apex obtuse, base obtuse, glandular, beneath, mucronate, subcoriaceous, sparsely pubescent below; petiole to 1 cm. Spikes axillary, to 8 cm; bracts 2 mm, ovate, pubescent: male flowers-sepals 3, 3 mm, concave, elliptic, stamens numerous on branched, staminal column, anthers red; female flowers-sepals 5, 3 mm, ovate, acuminate: ovary pubescent. styles 3, connate at base, 3 mm **long**, papillose.

*Fl. & Fr.* February-May

*D i s t.* Common in Chinnar and Pambar rivers at low altitude

Chinnar, *KKS 15541, 15528*

## JATROPHA L.

- |                                                |                          |
|------------------------------------------------|--------------------------|
| 1. Leaves, stipules and bracts glandular hairy | : <b>J. glandulifera</b> |
| 1. Leaves, stipules and bracts eglandular      | : 2                      |
| 2. Leaves 5-lobed, glabrous                    | : <b>J. curcas</b>       |
| 2. Leaves 3-lobed, villous                     | : <b>J. villosa</b>      |

**Jatropha curcas** L., Sp. Pl. 1006. 1753; Fl. Brit. India 5: 383. 1887; Fl. Pres. Madras 1340. 1925; Matthew, Fl. TN. Carnatic 1449. 1983 & Fur. Ill. Fl. TN. Carnatic t. 570. 1988.

Shrubs, bark white. Leaves palmatifid, to 14 x 15 cm, ovate, orbicular, basally 5-nerved, lobes acute, base sheathing; petiole to 15 cm. Racemes axillary and terminal, to 12 cm; bracts 1 cm, elliptic, pubescent; male flowers-pedicels 3 mm, calyx 5-lobed. 4 mm, lobes oblong; corolla lobes 5, 3 mm, oblong, ciliate, pubescent on the inner side, disc of 5 glands; staminal column 3 mm, branched; stamens 10, outer 5 free.

*Fl. & Fr.* February-May

*D i s t.* Common in dry deciduous forests

Karimutty, *KKS 15568*

**Jatropha glandulifera** Roxb., Fl. Ind. 3:688.1832; Fl. Brit. India 5:382.1887; Fl. Pres. Madras 2:1340.1925; Matthew, Fl. TN. Carnatic 1449. 1983 & Ill. Fl. TN. Carnatic t. 642. 1982.

Shrubs. Leaves deeply 3-5 lobed, 6-10 x 6-8 cm, base cordate, margins serrate, serratures gland tipped, apex shortly acuminate; petiole 6-10 cm, stipules filiform, branched, to 1.5 cm, gland tipped. Cymes to 12 cm; bracts 1.5 cm, linear-lanceolate, glandular hairy; flowers unisexual, 8 mm across; tepals villous at base within; stamens 8 (5+3), filaments 3 mm. Capsule 3-lobes, 2 x 1.5 cm.

*Fl. & Fr.* February-May

*D i s t.* Common in scrubjungles

Chinnar, *KKS 15855*

**Jatropha villosa** Wight, Ic. t. 1159. 1846; Matthew, Fl. TN. Carnatic 1452. 1983. *J. wightiana* Muell.-Arg. in DC., Prodr. 15(2): 1080. 1866; Fl. Brit. India 5: 383. 1887; Fl. Pres. Madras 1340. 1925. *J. peltata* Wight, Ic. t. 1169. 1848.

Undershrubs, white tomentose. Leaves to 10 x 11 cm, broadly ovate, orbicular, lobes shallow linear. basally 3-5 nerved, puberulus above, densely white tomentose below. Cymes terminal, to 5 cm; bracts 3 mm, linear, pubescent; calyx tube 1 mm, lobes 5 mm, oblong, imbricate, pubescent; corolla tube 4 mm, lobes 5 mm, oblong, pubescent; stamens 7-8, filaments connate, 3 mm, branched above, anthers 2 mm, oblong; disc of 5 glands, 0.5 mm, oblong.

*Fl. & Fr.* December-April

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Chengamperu, *KKS 11727*

## MALLOTUS Lour.

- |                       |                         |
|-----------------------|-------------------------|
| 1. Leaves peltate     | : <b>M. tetracoccus</b> |
| 1. Leaves not peltate | : 2                     |

2. Leaves entire: capsule reddish pubescent : **M. philippensis**  
 2. Leaves crenate above the half: capsule with conical spines : **M. stenanthus**

**Mallotus philippensis** (Lam.) Muell.-Arg. in Linnaea 34: 196. 1865: Fl. Brit. India 5: 442. 1887, "philippensis"; Bedd., Fl. Sylv. t. 289. 1873; Fl. Pres. Madras 1322. 1925: Matthew. Fl. TN. Carnatic 1456. 1983 & Ill. Fl. TN. Carnatic t. 645. 1982. *Croton philippense* Lam., Encycl. 2: 206. 1786.

Trees; branchlets pubescent. Leaves 10-15 x 6-7 cm, ovate-lanceolate, apex acuminate, base obtuse. basally 3-nerved. pubescent below, red glandular beneath, glands 2 at the base of the lamina above: petiole to 5 cm, pubescent. Spikes axillary and terminal, to 10 cm; male flowers-tepals 4. 3 mm, ovate. pubescent: stamens 20-30, exserted: female flowers-tepals 3, 3 mm. pubescent: ovary 3-ovuled. Capsule 1 cm across, covered with red scurfy tomentum.

*Fl. & Fr.* October-February

*D i s t.* Common in dry deciduous forests

Thayanankkudy, *KKS 11879*; Chinnar, *11506, 17229*

**Mallotus stenanthus** Muell.-Arg. in Linnaea 34: 191. 1865; Fl. Brit. India 5: 437. 1887; Fl. Pres. Madras 1322. 1925: Matthew. Fl. TN. Carnatic 1456. 1983 & Fur. Ill. Fl. TN. Carnatic t. 573. 1988.

Trees: branchlets flattened upwards. Leaves 9-15 x 3.5-7 cm, obovate. elliptic. apes acuminate, base cuneate. crenate above the half, glands 2 at base; petiole to 1.5 cm. Spikes axillary and terminal, to 8 cm; male flowers-tepals 4, 2 mm, oblong; stamens 20-30, filaments of various length. basally connate; female flowers 1.5 mm across. Capsule 3 mm across, glandular, with conical spines.

*Fl. & Fr.* February-August

*D i s t.* Common near streamsides: endemic to Peninsular India.

Alampetty, *KKS 11962*; Pallippara, *15822*; Champakkad, *15793*

**Mallotus tetracoccus** (Roxb.) Kurz in J. Asiat. Soc. Bengal 16: 245. 1873; Matthew. Fl. TN. Carnatic 1457. 1983 & Fur. Ill. Fl. TN. Carnatic t. 574. 1988. *Rottlera tetracocca* Roxb., Fl. India 3: 827. 1832. *Mallotus albus* sensu Muell.-Arg. in Linnaea 34: 188. 1865 excl. basionym. *Rottlera albus* var. *occidentalis* Hook. f., Fl. Brit. India 5: 429. 1887; Fl. Pres. Madras 1321. 1925.

Trees; branchlets tomentose. Leaves entire or 3 lobed. 11-18 x 11-20 cm, broadly ovate. deltoid. acuminate, base truncate. 5-nerved, tomentose below. glands 2 near the base above: petiole to 9 cm. tomentose. Panicles axillary and terminal: female flowers-tepals 4, connate at the base. 2 mm, ovate. tomentose; ovary 8 mm, style plumose. Capsule 3-4 valved, 1.5 cm across, loculicidal, densely tomentose. echinate with soft woolly hairs

*Fl. & Fr.* December-April

*D i s t.* Common in shola forests

Olikkudy, *KKS 17228*

## PHYLLANTHUS L.

1. Fruit with fleshy mesocarp	:	2
1. Fruit with thin mesocarp	:	3
2. Sepals 5; berry black when ripe	:	<b>P. reticulatus</b>
2. Sepals 6; berry greenish	:	<b>P. emblica</b>
3. Sepals 5	:	4
3. Sepals 6	:	<b>P. maderaspatensis</b>
4. Stipules peltately fixed; leaf apex acute	:	<b>P. virgatus</b>
4. Stipules basifixed; leaf apex obtuse	:	<b>P. amarus</b>

**Phyllanthus amarus** Schum. & Thonn., Kongel. Danske Vidensk.-Selsk. Skr. 4: 195. 1829; Webster, J. Arnold. Arbor. 38: 313. 1957 & Brittonia 22: 69. 1970; Airy Shaw, Kew Bull 26: 91. 1971; Matthew, Fl. TN. Carnatic 1464. 1983. **P. fraternus** Webster, Contrib. Gray. Herb. 176. 53. 1955; Matthew, Ill. Fl. TN. Carnatic t. 649. 1982. **P. niruri** auct. non L. 1753, Wight, Ic. t. 1894. 1852; Fl. Brit. India 5: 398. 1887; Fl. Pres. Madras 1290. 1925.

Slender herbs. Leaves closely arranged on the branches and imbricating, to 0.8 x 0.3 cm, oblong, obtuse at apex; stipules basifixed, 2 mm, lanceolate. Flowers axillary; male flowers 1-3 and female solitary; sepals 2 mm. oblong, margins scarious; ovary 0.5 mm, globose. Capsule 2 mm across, globose, smooth.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11578*

**Phyllanthus emblica** L., Sp. Pl. 982. 1753; Fl. Brit. India 5: 289. 1887; Matthew, Fl. TN. Carnatic 1466. 1983 & Ill. Fl. TN. Carnatic t. 648. 1982. **Emblica officinalis** Gaertn., Fruct. 2: 122. 1791; Wight, Ic. t. 1896. 1852; Fl. Pres. Madras 1295. 1925.

Deciduous trees. Leaves to 2 x 0.3 cm, oblong, apiculate, base cordate; stipule 1 mm, ovate. Flowers in axillary fascicles; bracts 1 mm, fimbriate; sepals 6, 2 mm, oblanceolate; stamens 3, united to the central column. Drupe 2-3 cm across, globose, fleshy, juicy.

*Fl. & Fr.* February-May

*D i s t.* Common in dry and moist deciduous deforests

Nellimedu, *KKS 11953*

**Phyllanthus maderaspatensis** L.. Sp. Pl. 982. 1753; Wight, Ic. t. 1895. f. 3. 1852; Fl. Brit. India 5: 292. 1887; Fl. Pres. Madras 1289. 1925; Matthew, Fl. TN. Carnatic 1467. 1983.

Woody herbs. Leaves to 3.5 x 1.5 cm, obovate, obtuse, mucronate, base cuneate, glaucous; petiole to 2 mm, stipule peltate. 3 mm, lanceolate, acute. Flowers axillary; male flowers subsessile, in clusters; sepals 6, 3 mm long, obovate, with green margins. Capsule globose.

*FZ & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11738*; Charkapetty, *11749*; Chinnar, *18207*

*Phyllanthus reticulatus* Poir. in Lam., Encycl. 5: 298. 1804; Fl. Brit. India 5: 288. 1887; Airy Shaw. Euphorb. Borneo 185. 1975; Matthew, Fl. TN. Carnatic 1468. 1983. *Kirganelia reticulata* (Poir.) Baill., Etud. Gen. Euphorb. 613. 1858; Fl. Pres. Madras 1294. 1925; Matthew, Ill. Fl. TN. Carnatic t. 643. 1982. *Anisonema multiflora* Wight, Ic. t.1899. 1852.

Scandent shrubs. Leaves to 2.5 x 1.8 cm, oblong, obtuse, at apex and base; petiole 1 mm, stipule lanceolate. bristle tipped. Flowers axillary; male flowers-sepals 5, unequal, inner 3 larger, 2.5 mm, obovate. imbricate; stamens 5, 3 inner connate. 2 free, shorter; female flowers-sepals 5, 2 mm; ovary 1.5 mm, globose, disc glands 5. Berry 0.7 cm across, globose, bluish.

*Fl. & Fr.* January-March

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11864*

*Phyllanthus virgatus* Forst. f., Ins. Austr. Prod. 65. 1786; Airy Shaw, Kew Bull. 26: 325. 1972 & 37: 34. 1982; Matthew, Fl. TN. Carnatic 1469. 1983 & Fur. Ill. Fl. TN. Carnatic t. 581. 1988. *P. simplex* Retz., Obs. Bot. 5: 29. 1788; *Fl. Brit. India* 5: 295. 1887; Fl. Pres. Madras 1289. 1925. *P. oblongifolia* Wight, Ic. t. 1902, f. 1. 1852.

Herbs with stout woody root stock. Leaves to 2 x 0.5 cm, oblong, apex acute, margins thickened, lateral nerves indistinct. sessile; stipule peltate, sagitate. Flowers solitary, axillary; male flowers-usually in lower axils, 2 mni; female flowers-sepals 6. 1 mm. oblong, mucronate: ovary 1 mm. Capsule 3 mm across, globose.

*Fl. & Fr.* December-February

*D i s t.* **Common in** dry deciduous forests

Karumpara, *KKS 11808*

#### **RICINUS L.**

*Ricinus communis* L.. *Sp. Pl.* 1007. 1753; *Fl. Brit. India* 5: 457. 1887; Fl. Pres. Madras 1335. 1925; Matthew. Fl. TN. Carnatic 1471. 1983 & Ill. Fl. TN. Carnatic t. 652. 1982.

Shrubs. Leaves palmately lobed. to 25 cm across, lobes elliptic. orbicular. acute, glandular, serrate; petiole to 25 cm. Panicles terminal, to 20 cm; male flowers below and female above; bracts 1.5 cm, lanceolate: male flowers-pedicels to 1.5 cm; calyx lobes 3, 6 mm, lanceolate, acuminate; stamens numerous. filaments variously connate; female flowers-calyx lobes 5, 5 mm, subequal. lanceolate: ovary echinate.

*Fl. & Fr.* October-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11619*

#### **SEBASTIANIA Spreng.**

*Sebastiania chamaelea* (L.) Muell.-Arg. in DC., Prodr. 15(2): 1175. 1866: *Fl. Brit. India* 5: 475. 1888: Fl. Pres. Madras 1344. 1925; Matthew, Fl. TN. Carnatic 1474. 1983 & Ill. Fl. TN. Carriatic t. 654. 1982.



Herbs. Leaves to 7.5 x 1 cm, linear, oblong, apex obtuse, apiculate, finely serrate, ciliate, puberulus; stipules linear. Spikes axillary, to 2 cm; bracts lanceolate; male flowers minute; female flowers at the base of the spike; sepals 3, 1.5 mm, ovate, ciliate. Capsule 5 mm across, each cocci with 2 vertical rows of soft prickles.

*Fl. & Fr.* August-December

*D i s t.* Common in dry deciduous forests

Palapetty, *KKS 18286*

**SECURINEGA Comm. ex A. Juss. nom. cons.**

- |                                    |                        |
|------------------------------------|------------------------|
| 1. Branchlets ending in spines     | : <b>S. leucopyrus</b> |
| 1. Branchlets not ending in spines | : <b>S. virosa</b>     |

**Securinega leucopyrus** (Willd.) Muell.-Arg. in DC., Prodr. 15(2): 451. 1866; Matthew, Fl. TN. Carnatic 1475. 1983. *Flueggea leucopyrus* Willd., Sp. Pl. 4: 757. 1805; Wight, Ic. t. 1875. 1852; Fl. Brit. India 5: 328. 1887; Fl. Pres. Madras 1296. 1925.

Shrubs, branchlets angular, ending in spines. Leaves distichous, to 2.5 x 1.5 cm, obovate, apex emarginate, base cuneate. membranous. Flowers greenish white; bracts many, minute, pedicels 2 mm; male flowers in axillary clusters, sepals 0.7 mm, concave, obtuse; stamens 5, filaments 1.5 mm, pistillode 1 mm. Capsule 5 mm across, globose, white.

*Fl. & Fr.* June-September

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 15798*

**Securinega virosa** (Rosb. ex Willd.) Baill., Adansonia 6: 334. 1866; Airy Shaw, Kew Bull. 26: 340. 1972; Matthew, Fl. TN. Carnatic 1476. 1983 & Ill. Fl. TN. Carnatic t. 655. 1982. *Phyllanthus virosus* Roxb. ex Willd.. Sp. Pl. 4: 578. 1805. *Flueggea microcarpa* Blume. Bijdr. 580. 1826; Fl. Brit. India 5: 328. 1887. **F. virosa** (Willd.) Baill., Etud. Gen. Euphorb. 593. 1858; Fl. Pres. Madras 1296. 1925.

Shrubs, branchlets spreading. Leaves to 6 x 3.5 cm, obovate, elliptic, apex emarginate. base cuneate. membranous; petiole 0.5 cm. Male flowers in axillary clusters, pedicels to 2 mm; bracts many at the base; sepals 5, 1 mm. obovate, margins ciliate; stamens 5, free, filaments 1.5 mm, pistillode present.

*Fl. & Fr.* April-August

*D i s t.* Common in dry deciduous forests

Puthukkudy, *KKS 15662*

**BUXACEAE**

**SARCOCOCCA Lindl.**

**Sarcococca saligna** (D. Don) Muell.-Arg. in DC., Prodr. 16(1): 11. 1869. *Buxus saligna* D. Don. Prodr. Fl. Nep. 63. 1835. *Sarcococca pruniformis* Lindl. in Bot. Reg. 12: t. 1012.

1826 p.p.; Fl. Brit. India 5: 266. 1887 p.p. *S. trinervia* Wight. Ic. t. 1877. 1852; Fl. Pres. Madras 1265. 1925; Matthew, Fl. TN. Carnatic 1484. 1983 & Ill. Fl. TN. Carnatic t. 661. 1982.

Shrubs. Leaves to 15 x 5 cm, elliptic, acuminate, cuneate at base, subcoriaceous, tri-nerved; petiole 1.5 cm. Racemes axillary, to 1.5 cm; bracts 1.5 mm; male flowers-bracteoles 4, 2-3 mm, concave, margins ciliate; tepals 4, unequal, in opposite pairs 1 and 2 mm; stamens 4, exserted; female flowers-bracteoles 6 or more, concave, ciliate; tepals 6, unequal, 1.5 and 2 mm; ovary 1 mm, 2-celled, globose, ovules 2 in each cell, style bifid, strongly recurved. Berry 1 x 0.8 mm, ellipsoid.

*Fl. & Fr.* February-April

*D i s t.* Very common in moist dry deciduous forests

Olikudy, *KKS 17268*

## URTICACEAE

1. Flowers with stinging hairs; leaves palmately lobed	: <b>Girardinia</b>
1. Flowers without stinging hairs; leaves otherwise	: 2
2. Trees	: 3
2. Herbs or subshrubs	: 4
3. Leaves tomentose underneath	: <b>Debregeasia</b>
3. Leaves glabrous or pilose	: <b>Oreocnide</b>
4. Flowers aggregated on peduncles	: 5
4. Flowers not aggregated on peduncles	: 6
5. Leaves alternate	: <b>Procris</b>
5. Leaves opposite	: <b>Lecanthus</b>
6. Leaves sessile	: <b>Elatostema</b>
6. Leaves petioled	: <b>Pouzolzia</b>

### DEBREGEASIA Gaud.

**Debregeasia longifolia** (Burm. f.) Wedd. in DC., Prodr. 16(1): 235. 1869; Matthew, Fl. TN. Carnatic 1489. 1983 & Ill. Fl. TN. Carnatic t. 664. 1982. *Urtica longifolia* Burm. f. Fl. Ind. 197. 1768.

Shrubs to small trees, dioecious, bark peeling in long stripes; branchlets white pubescent. Leaves to 20 x 5 cm, lanceolate, dentate, apex acuminate, base obtuse, scabrous above, white tomentose below, 3-nerved; petiole 4.5 cm, stipules connate. Heads panicled; female flowers-tepals 3 or 4, to 0.5 mm. unequal; ovary obovoid. Berry globose, orange-red.

*Fl. & Fr.* December-April

*D i s t.* Common near streamsides

Churullipetty, *KKS 15972*

### ELATOSTEMA J. R. & C. Forst. *nom. cons.*

**Elatostema lineolatum** Wight. Ic. t. 1984. 1853; Fl. Brit. India 5: 565. 1888; Fl. Pres. Madras 1376. 1938; Matthew, Fl. TN. Carnatic 1490. 1983 & Ill. Fl. TN. Carnatic t. 665. 1982.

Herbs. Leaves to 15 x 4.5 cm, elliptic, apex long acuminate, base oblique, lowers half wider distantly serrate, subsessile, cystoliths linear, numerous; petiole to 0.5 cm, stipules deciduous, 1.5 cm, ovate. Flowers in clusters; bracts ovate; female flowers-tepals 4, ovate, 1.5 mm, spurred; stamens 4. filaments 1.4 mm.

*Fl.* March-May

*D i s t.* Common in shola forests

Olikkudy, *KKS 17322*

#### **GIRARDINIA Gaud.**

***Girardinia diversifolia*** (Link) Friis in Kew Bull. 36: 145. 1981; Matthew, Fl. TN. Carnatic 1490. 1983 & Ill. Fl. TN. Carnatic t. 666. 1982. ***Urtica diversifolia*** Link, Enum. Pl. Hort. Berol. 2: 385. 1822. ***Girardinia heterophylla*** Decne. in Jacq. Voy. 4: 151. t. 153. 1844; Fl. Brit. India 5: 551. 1888 incl. *palmata*. ***G. leschenaultiana*** Decne. in Jacq. Voy. 4: 152. 1844; Wight, Ic. t. 1976. 1853; Fl. Pres. Madras 1372. 1928. ***G. zeylanica*** Decne. in Jacq. Voy. 4: 152. 1844; Fl. Pres. Madras 1373. 1928. ***G. heterophylla*** Decne. var. ***zeylanica*** (Decne.) Hook. f., Fl. Brit. India 5: 551. 1888.

Subshrubs. Leaves pedately 3-7, to 15 x 15 cm, shallowly or deeply lobed, broadly ovate, apex acute, base cordate, dentate, basally tri-nerved; petiole to 15 cm, with stinging hairs, stipules broadly cordate, 2 cm. acuminate, bifid at apex. Spikes branched. to 15 cm; male flowers-tepals 4, 1.5 mm, ovate, pubescent; stamens 4. filaments 1.5 mm; pistillode globose; female flowers-tepals strongly strigose. Achenes 3 mm across, compressed.

*Fl. & Fr.* January-April

*D i s t.* Common in moist deciduous and shola forests

Alampetty, *KKS 11977*; Olikkudy. *17321*

#### **LECANTHUS Weddl.**

***Lecanthus peduncularis*** (Wall. ex Royle) Wedd. in DC., Prodr. 16(1): 164. 1869. ***L. wightii*** Wedd. in Ann. Sci. Nat. Bot. ser. 4. 1: 187. 1854; Fl. Brit. India 5: 559. 1888; Fl. Pres. Madras 1374. 1928. ***Elatostema ovatum*** Wight, Ic. t. 1985. 1853, "ovata".

Fleshy herbs, sometimes rooting at nodes. Leaves in unequal pairs, 4 x 1.5 cm and 1 x 0.5 cm, ovate, base oblique, serrate, membranous, pilose; petiole to 1 cm, slender. Receptacle to 1 cm across; peduncles to 1.5 cm; female flowers-perianth of 3 unequal lobes, one hooded. to 2 mm and the rest small. flat. Achenes oblong, red, flat.

*Fl. & Fr.* September-December

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17499*

#### **OREOCNIDE Miq.**

***Oreocnide integrifolia*** (Gaudich.) Miq. in Ann. Mus. Bot. Lugduno-Batavum 4: 306. 1869; Matthew. Fl. TN. Carnatic 1492. 1983. ***Villebrunea integrifolia*** Gaudich., Voy. Bonite Bot. t. 91. 1844; Fl. Brit. India 5: 589. 1888; Fl. Pres. Madras 1388. 1928.

Small trees, young parts grey pubescent. Leaves to 18 x 6 cm, oblanceolate, apex acuminate, base cuneate, entire or minutely crenate, coriaceous, cystoliths punctiform; petiole to 1.5 cm, thick. Flowers in clusters. in the axils of leafy scars; bracts 0.5 mm, minute; female flowers 1.5 mm across; ovary 1.5 mm, obovoid, stigma ciliate. Achenes 2 mm. ovoid.

*Fl. & Fr.* March-June

*D i s t.* Common in shola forests

Olikkudy, *KKS 17323*

### POUZOLZIA Gaud.

- |                                       |                                              |
|---------------------------------------|----------------------------------------------|
| 1. Leaves alternate                   | : <i>P. auriculata</i>                       |
| 1. Leaves opposite                    | : 2                                          |
| 2. Leaves and branchlets glabrous     | : <i>P. bennettiana</i> var. <i>acuta</i>    |
| 2. Leaves and branchlets pubescent    | : 3                                          |
| 3. Leaf apex acute, glabrous above    | : <i>P. wightii</i> var. <i>nilghirensis</i> |
| 3. Leaf apex acuminate, hirsute above | : <i>P. wightii</i> var. <i>wallichiana</i>  |

*Pouzolzia auriculata* Wight, Ic. t. 1980. f. 2. & t. 1099. f. 37. 1853; Fl. Brit. India 5: 582. 1888; Fl. Pres. Madras 1383. 1928: Matthew, Fl. TN. Carnatic 1495. 1983 & Fur. III. Fl. TN. Carnatic t. 584. 1988.

Shrubs, white pubescent. Leaves to 12 x 5.5 cm. ovate, elliptic, apex acute, base rounded, pubescent, tomentose underneath, lateral nerves *ca.* 5 forked; petiole to 4 cm, stipule deciduous, 8 mm, ovate. acuminate. Flowers in axillary clusters, sessile; tepals 5, 1.5 mm, ovate, acute, ciliate; stamens 5, filaments 1.2 mm.

*Fl. & Fr.* October-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11581, 11515*; Churullipetty, 11846

*Pouzolzia bennettiana* Wight var. *acuta* (Wight) Fischer in Gamble, Fl. Pres. Madras 1385. 1928. *P. acuta* Wight, Ic. t. 2092. f. 2. 1853.

Shrubs. Leaves to 12 x 3 cm. ovate. lanceolate, long acuminate. base obtuse. tri-nerved; petiole to 1.5 cm, stipules 1.5 cm, broadly ovate, bifid at apex. 2-nerved. Flowers in axillary clusters, sessile; tepals 2 mm, ovate. oblong; stamens 5, filaments 2 mm.

*Fl.* December-April

*D i s t.* Common in shola forests

Pothumala, *KKS 17259*; Olikkudy, 17492

*Pouzolzia wightii* Benn. var. *nilghirensis* (Wight) Hook. f., Fl. Brit. India 5: 584. 1888; Fl. Pres. Madras 1383. 1928. *P. nilghirensis* Wight, Ic. t. 2097. f. 26. 1853, "*neilgherrensis*"; Matthew, Fl. TN. Carnatic 1497. 1983 & Fur. III. Fl. TN. Carnatic t. 586. 1988.

Subshrubs, branchlets and leaves pubescent. Leaves to 5 x 3 cm, broadly ovate. lanceolate, apex acute. base truncate to cordate. pubescent below. reduced to bracts towards the apex,

subsessile. Flowers in axillary clusters, transferred to terminal spikes; male flowers-tepals 4, incurved at the middle, 2.5 mm, obovate, mucronate, pilose above; stamens 5, filaments 2 mm, anthers oblong.

*Fl.* December-March

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Kathitheetimala, *KKS 11824*

**Pouzolzia wightii** var. **wallichiana** Hook. f., *Fl. Brit. India* 5: 584. 1888: *Fl. Pres. Madras* 1384. 1928.

Subshrubs. Leaves to 15 x 3 cm, elliptic-ovate, long acuminate, tri-nerved, hirsute above, pubescent below, leaves reduced to bracts upwards; petiole to 1 cm. Pseudo-spikes terminal; male flowers-tepals 4, inflexed at the middle, 2.5 mm, ovate, pubescent above middle; stamens 4, filaments 2 mm. Fruit 5 mm across, ovoid, thickened along the margins, winged.

*Fl. & Fr.* March-June

*D i s t.* Common in shola forests

Olikkudy, *KKS 17232*

#### **PROCRIS Comm. ex Juss.**

**Procris crenata** Robinson in *Philipp. J. Sci.* 5: 507. 1911; Hara in *Enum. Fl. Pl. Nepal* 3: 204. 1982; Matthew, *Fl. TN. Carnatic* 1498. 1983 & *Ill. Fl. TN. Carnatic* t. 669. 1982. ***P. wightiana*** Wall. ex Wedd., *Monog. Urtic.* 336. 1856; *Fl. Pres. Madras* 1378. 1928.

Fleshy shrubs. Leaves to 15 x 3.5 cm, elliptic-obovate, long acuminate, base acute, slightly oblique, crenate above the dorsal half of the leaves, membranous; petiole 0.5 cm. Flowers mostly in the axils of fallen leaves; male flowers in clusters or cymes and female flowers on peduncled receptacles; male flowers-tepals 5, ovate; stamens 5; female flowers-tepals 5, cupular below; ovary 1 mm, ovoid. Achenes 2 mm, ellipsoid, minutely rugose.

*Fl. & Fr.* August-December

*D i s t.* Common in shola forests

Olikkudy, *KKS 17479*

#### **ULMACEAE**

1. Tepals valvate in male flowers; leaves tomentose underneath : **Trema**  
1. Tepals fimbriate in male flowers; leaves glabrous or slightly pubescent : **Celtis**

#### **CELTIS L.**

1. Leaf base oblique, apex acuminate : **C. tetrandra**  
1. Leaf base not oblique, apex acute : **C. philippensis** var. **wightii**

**Celtis philippensis** Blanco var. **wightii** (Planch.) Soep. in Steenis, *Fl. Males. ser. 1*: 8: 62. 1977; Matthew, *Fl. TN. Carnatic* 1501. 1983 & *Ill. Fl. TN. Carnatic* t. 670. 1982. ***C. wightii*** Planch. in *Ann. Sci. Nat. Bot. Ser. 3.* 10: 307. 1948; Wight,  *Ic. t.* 1969. 1853; *Fl. Brit. India* 5: 483. 1888; *Fl. Pres. Madras* 1349. 1928.

Trees: branchlets grey. Leaves to 9 x 4 cm, ovate-elliptic, apex acute, coriaceous, basally tri-nerved, inter costae prominent, reticulate; petiole to 1.5 cm, stipule ovate, deciduous. Racemes of cymes, axillary, pubescent; flowers polygamous, perianth lobes 5, 2 mm, ciliate; stamens 5, filaments 1 mm, anthers 1.5 mm, oblong, around the woolly torus; ovary 1 mm, globose, styles 2, bifurcate.

*Fl. & Fr.* January-April

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11855*

*Celtis tetrandra* Roxb. *Fl. Ind.* 2: 63. 1832; *Fl. Brit. India* 5: 482. **1888**; *Fl. Pres. Madras* 1348. 1928; Matthew, *Fl. TN. Carnatic* 1502. 1983. *C. serotina* Planch. in *Ann. Sci. Nat. Bot. Ser.* 3. 10: 301. 1848; Wight,  *Ic. t.* 1570. 1850.

Trees. Leaves to 10 x 5.5 cm, ovate, long acuminate, base oblique, tri-nerved, dentate, thinly coriaceous; petiole to 1 cm, stipule 5 mm, lanceolate. Female flowers axillary, 2-5. Drupe 5 mm across, black, rugose.

*Fl. & Fr.* January-April

*D i s t.* Common in shola forests

Olikkudy, *KKS 17214*

#### TREMA Lour.

*Trema orientalis* (L.) Blume, *Mus. Bot. Lugduno-Batavum* 2: 62. 1856; *Fl. Brit. India* 5: 484. 1888; *Fl. Pres. Madras* 1350. 1928; Matthew, *Fl. TN. Carnatic* 1504. 1983 & *III. Fl. TN. Carnatic t.* 673. 1982. *Celtis orientalis* L., *Sp. Pl.* 1044. 1753; Wight,  *Ic. tt.* 602 & 603. 1842.

Large trees, lenticellate. Leaves to 15 x 5 cm, ovate, lanceolate, acuminated, base obliquely cordate, minutely dentate, scabrous and strigose above, white tomentose below; petiole to 1 cm, stipules to 5 mm. Cymes axillary, to 3 cm; bracts 3 mm, ovate; perianth lobes 5, 1 mm, ovate, ciliate, concave; ovary 1.5 mm, style arms 2, erect 1 mm, hairy.

*Fl.* December-March

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS 11867*

#### MORACEAE

- |                                                 |                     |
|-------------------------------------------------|---------------------|
| 1. Fruits echinate                              | : <b>Artocarpus</b> |
| 1. Fruits not echinate                          | : 2                 |
| 2. Herb, juice watery                           | : <b>Dorstenia</b>  |
| 2. Trees, juice milky                           | : 3                 |
| 3. Flowers in synchronia                        | : <b>Ficus</b>      |
| 3. Flowers not in synchronia                    | : 4                 |
| 4. Tepals stalked; male flowers in discoid head | : <b>Antiaris</b>   |
| 4. Tepals sessile; male flowers in clusters     | : <b>Streblus</b>   |

#### ANTIARIS Lesch.

*Antiaris toxicaria* Lesch., *Ann. Mus. Natl. Hist. Nat.* 16: 478, t. 22. 1820; *Fl. Brit. India* 5: 537. 1888; *Fl. Pres. Madras* 1367. 1925. *A. innoxia* Bl. *Rumphia* 1: 172, t. 54. 1835; Bedd., *Fl. Sylv.*

t. 307. 1873. *A. saccidora* Dalz. in Hook.'s J. Bot. Kew Gard. Misc. 3: 232. 1851; Wight., Ic. t. 1958. 1853.

Large trees, buttressed. bark smooth, grey, latex creamy white, crown spreading. Leaves bifarious, to 10 x 3.5 cm, elliptic-oblong, apex acuminate, base slightly inequilateral; petiole to 0.5 cm. Male head discoid, many flowered with small bracts, sessile; tepals 4, 2 mm, obovate, pubescent; stamens 4, sessile; female head one flowered; tepals minute, stigma 2.

*Fl. & Fr.* December-June

*D i s t.* Rare along the streamsides

Alampetty, *KKS 15964*

#### **AKTOCARPUS J.R. & G. Forst. *nom. cons.***

*Artocarpus hirsutus* Lam., Encycl. 3: 210. 1789, "hirsutus"; Wight, Ic. t. 1957. 1853; Fl. Brit. India 5: 541. 1888; Fl. Pres. Madras 1369. 1928.

Very large trees. bark brownish-black. Leaves to 18 x 12 cm, broadly ovate or elliptic. acuminate. base truncate or rounded. coriaceous. Male spikes linear-oblong, to 15 cm long. Sorosis echinate, tomentose, to 12 x 8 cm, yellow when ripe.

*Fl. & Fr.* November-March

*D i s t.* Occasional near streams

Ollavayal, *KKS 11825*

#### **DORSTENIA L.**

*Dorstenia indica* Wall. ex Wight, Ic. t. 1964. 1853; Fl. Brit. India 5: 494. 1988; Fl. Pres. Madras 1370. 1928; Matthew, Fl. TN. Carnatic 1510. 1983 & Ill. Fl. TN. Carnatic t. 675. 1982.

Fleshy tufted herbs, juice watery. Leaves to 10 x 3 cm. elliptic. apex acute, base cuneate, irregularly toothed, sparsely hirsute; petiole to 2 cm. Flowers crowded, axillary, on flat top with 5-12 linear marginal lobes, lobes 0.5 cm long, pubescent; peduncles to 1.5 cm; male flowers numerous, perianth lobes 2; stamens 1-2 or 3; female flowers immersed in the disc. perianth unclearly 2-lobed, stigma bifid.

*Fl. & Fr.* December-March

*D i s t.* Common in wet rocky areas

Mangavada, *KKS 15963*

#### **FICUS L.**

1. Receptacles cauliflorus	: 2
1. Receptacles not cauliflorus	: 4
2. Climbers	: <b>F. amplocarpa</b>
2. Trees	: 3
3. Leaves opposite	: <b>F. hispida</b>
3. Leaves alternate	: <b>F. racemosa</b>
4. Receptacles sessile	: 5
4. Receptacles peduncled	: 10

5. Leaves obtuse at apex	: 6
5. Leaves acuminate at apex	: 9
6. Leaves and receptacles densely tomentose	: <b>F. mollis</b>
6. Leaves and receptacles glabrous	: 7
7. Petiole less than 2.5 cm long	: 8
7. Petiole more than 4 cm long	: <b>F. amplissirna</b>
8. Leaves ovate, receptacles $\pm$ 1.5 cm across	: <b>F. benghalensis</b>
8. Leaves obovate-elliptic; receptacles $\pm$ 0.8 cm	: <b>F. rnicrocarpa</b>
9. Petiole articulated; leaves 3-nerved	: <b>F. tsjahela</b>
9. Petiole not articulated; leaves penninerved	: <b>F. talbotii</b>
10. Leaves equal at base, pubescent	: <b>F. dalhousiae</b>
10. Leaves unequal at base, glabrous	: <b>F. tinctoria</b>

**Ficus amplissima** J. E. Smith in Rees, Cyclop. 14:n. l. 1810; Matthew, Fl. TN. Carnatic 1515. 1983 & Fur. Ill. Fl. TN. Carnatic t. 594. 1988. **F. tsiela** Roxb. ex Buch.-Ham. in Trans. Linn. Soc. London 15: 149. 1826; Wight. Ic. t. 668. 1840; King in Hook., 5: 515. 1888; Fl. Pres. Madras 1362. 1928.

Large trees, bark greenish, smooth, peeling off. Leaves to 13 x 7 cm, ovate, apex obtuse, base rounded, margins thickened, shining, basally 3-nerved, nerves 8-12 pairs; petiole to 5 cm. Receptacles in pairs, axillary, 1 x 0.8 cm. subglobose or obovoid, smooth, yellow-brown.

**FZ & Fr.** October-April

**D i s t.** Common in dry deciduous forests

Karimutty, **KKS 15981**

**Ficus amplocarpa** Govindarajalu & Masilamoney in Proc. Indian Acad. Sci. (Plant Sci.) 91: 117. 1982. **F. macrocarpa** (Miq.) Wight ex King in Ann. Roy. Bot. Gard. (Calcutta) 1: 166. t. 208. 1888 & Hook. f., Fl. Brit. India 5: 534. 1888, non Blumea 1825; Fl. Pres. Madras 1365. 1928. **Pogonotrophe macrocarpa** Miq. in London J. Bot. 7: 74. 1848; Wight, Ic. t. 1965. 1853.

Large climbers. Leaves to 19 x 12 cm, broadly ovate, apex acuminate, base shallowly cordate, subcoriaceous, basally 3-nerved: petiole to 7 cm. Receptacle cauliflorous, white spotted, ca. 7 cm across, globose; peduncles to 1 cm.

**FZ & Fr.** August-April

**D i s t.** Common in shola forests

Alampetty, **KKS 18288**

**Ficus benghalensis** L., Sp. Pl. 1059. 1753; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 18. tt. 13 & 81 C. 1887; Fl. Brit. India 5: 499. 1888; Fl. Pres. Madras 1361. 1928; Matthew, Fl. TN. Carnatic 1518. 1983 & Fur. Ill. Fl. TN. Carnatic t. 597. 1988. **Urostigma benghalense** (L.) Gasp., Nov. Gen. Fici 7. 1844; Wight, Ic. t. 1989. 1853.

Large trees. Leaves 10-20 x 9-12 cm, broadly ovate, base rounded, coriaceous, basally 3-5 nerved, puberulus; petiole 2.5 cm, stipules 2.5 x 2 cm, ovate. Receptacles in pairs. axillary, sessile. ca. 1.5 cm across, globose. brownish.

**Fl. & Fr.** August-February

**D i s t.** Common in dry deciduous forests

Karumpara, **KKS 11815**



**Ficus dalhousiae** Miq. in Hook.'s J. Bot. Kew Gard. Misc. 6: 571. 1854; Fl. Brit. India 5: 499. 1888; Fl. Pres. Madras 1364. 1928.

Medium trees, young parts pubescent. Leaves 25-30 x 12-18 cm, broadly ovate-oblong, apex acute, base cordate, basally 5-nerved, nerves 10-12 pairs, subcoriaceous; petiole 4-10 cm, stipules 2 cm. Receptacles in pairs, axillary, 1 x 0.8 cm, obovoid, pubescent; peduncles to 8 mm, pubescent.

*Fl. & Fr.* October-April

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Sivapura, *KKS 11939*

**Ficus hispida** L. f., Suppl. Pl. 442. 1781; Fl. Brit. India 5: 522. 1888; Fl. Pres. Madras 1367. 1928. **F. oppositifolia** Roxb., Pl. Cor. t. 124. 1999; Wight, Ic. t. 638. 1840.

Small trees. Leaves to 18 x 10 cm, oblong or obovate-oblong; lateral nerves 5 pairs, lowest pairs basal; petiole 2 cm long. Peduncles very short or absent: receptacle many, cauliflorous, 2 cm across, obovoid-globose, hispid. greenish yellow.

*Fl. & Fr.* December-April

*D i s t.* Common in moist deciduous forests

Vanchikulam, *KKS 18289*

**Ficus niicrocarpa** L. f., Suppl. Pl. 442. 1781; Matthew, Fl. TN. Carnatic 1522. 1983 & Ill. Fl. TN. Carnatic t. 676. 1982. **F. retusa** auct. non L. 1767; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 50. t. 61 & 84 P. 1887 & in **Hook.**, 5: 511. 1888; Fl. Pres. Madras 1362. 1928. **F. retusa** var. **nitida** auct. non Thunb. 1781-1801; Fl. Brit. India 5: 511. 1888; Fl. Pres. Madras 1362. 1928.

Large trees, bark grey. Leaves 4-9 x 2-4.5 cm, elliptic, obovate, apex obtuse or acute, base obtuse, basally 3-nerved, lateral nerves 6-8 pairs; petiole 0.5-1.5 cm, stipules 1 cm. lanceolate. Receptacles in pairs, axillary, sessile, 0.8 cm across, obovoid, yellow with spots.

*Fl. & Fr.* December-April

*D i s t.* Common along the streamsides

Alampetty, *K.K. S. 11976*; Thayanankkudy, **11886**

**Ficus mollis** Vahl, Symb. Bot. 1: 82. 1790; Matthew, Fl. TN. Carnatic 1524. 1983 & Fur. Ill. Fl. TN. Carnatic t. 602. 1988. **F. tomentosa** Roxb. ex Willd. Sp. Pl. 4: 1136. 1806; Wight, Ic. t. 647. 1840; Fl. Brit. India 5: 501. 1888; Fl. Pres. Madras 1361. 1928.

Large trees. Leaves to 11 x 6 cm, elliptic-ovate, apex obtuse, base cordate, densely tomentose, beneath with a gland at the base of the midrib, basally 5-nerved, nerves ca. 6 pairs; petiole 3.5 cm, densely fulvous tomentose, later glabrous, stipules 2.5 cm, lanceolate, tomentose. Receptacles in pairs, axillary, sessile, 0.5 cm across, tomentose.

*Fl. & Fr.* December-June

*D i s t.* Common along the streamsides

Churullipetty, *KKS 11656*; Chinnar, 17401

*Ficus racemosa* L., Sp. Pl. 1060. 1753; Matthew, Fl. TN. Carnatic 1526. 1983 & Fur. III. Fl. TN. Carnatic t. 605. 1988. *F. glomerata* Roxb., Pl. Cor. t. 123. 1799; Wight, Ic. t. 667. 1840; King in Ann. Roy. Bot. Gard. (Calcutta) 1: 173. t. 218 A. 1888 & in Hook. f., Fl. Brit. India 5: 535. 1888; Fl. Pres. Madras 1364.1928.

Large trees. Leaves 9-18 x 4-5 cm, oblong to oblanceolate, apex obtuse, base rounded, basally 3-nerved, nerves 7-9 pairs; petiole to 3 cm, reddish, stipules 1 cm, ovate, reddish. Receptacles cauliflorous, in racemes, 1.5 x 1.5 cm, obovate, white pilose; peduncles to 5 mm.

*Fl. & Fr.* August-April

*D i s t.* Common in dry deciduous forests

Thayanankkudy, *KKS I 1883*

*Ficus talbotii* King in Ann. Roy. Bot. Gard. (Calcutta) 1: 51. tt. 63 & 84. 1887 & King in Hook. f., Fl. Brit. India 5: 512. 1888; Fl. Pres. Madras 1363. 1928; Matthew, Fl. TN. Carnatic 1528. 1983 & Fur. III. Fl. TN. Carnatic t. 607. 1988.

Large trees. Leaves to 9 x 4 cm, elliptic-oblong, apex acuminate, base rounded, lateral nerves 8-10 pairs, thinly coriaceous; petiole 2-2.5 cm. Receptacles in pairs, axillary, sessile, 8 x 5 mm, obconical or obovate, reddish.

*Fl. & Fr.* August-April

*D i s t.* Common in shola forests

Vellappara, *KKS 17233*

*Ficus tinctoria* Forst. f. subsp. *parasitica* (Willd.) Corner in Gard. Bull. Straits Settlem. 17: 476. 1960 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 276. 1981; Matthew, Fl. TN. Carnatic 1528. 1983 & Fur. III. Fl. TN. Carnatic t. 608. 1988. *F. gibbosa* Blumea var. *parasitica* (Willd.) King, Ann. Roy. Bot. Gard. (Calcutta) 1: t. 2 a-b. 1887; Fl. Brit. India 5: 497. 1888; Fl. Pres. Madras 1365. 1928.

Large shrubs to small trees. Leaves 6-11 x 3-5.5 cm, ovate, acuminate or obtuse at apex, base acute, oblique, coriaceous. scabrid, nerves 4-7 pairs; petiole 1 cm. Receptacles in pairs or in clusters, axillary; peduncles 8 mm, pubescent.

*Fl. & Fr.* April-August

*D i s t.* Occasional in rocky areas in moist deciduous forests

Mavelikudy, *KKS I5669*

*Ficus tsjahela* Burm. f., Fl. Ind. 227. 1768; Fl. Brit. India 5: 514. 1888, "tjakela"; Fl. Pres. Madras 1362. 1928; Matthew, Fl. TN. Carnatic 1530. 1983 & Fur. III, Fl. TN. Carnatic t. 609. 1988.

Medium sized trees. Leaves 12-15 x 5-7 cm, elliptic, apex acuminate, base obtuse, lateral nerves 8-12 pairs; petiole 3 to 5.5 cm. Receptacles in pairs, or in clusters, sessile, axillary, 5 mm across, whitish yellow and dotted.

*Fl. & Fr.* August-April

*D i s t.* Rare in moist deciduous forests

Mavelikudy, *KKS I7468*

### STREBLUS Lour.

**Streblus asper** Lour., Fl. Cochinch. 615. 1790; Fl. Brit. India 5: 489. 1888; Fl. Pres. Madras 1353. 1928; Matthew, Fl. TN. Carnatic 1534. 1983 & Ill. Fl. TN. Carnatic t. 679. 1982.  
**Epicarpurus orientalis** Blume, Bijdr. 488. 1825; Wight, Ic. t. 1961. 1853.

Unarmed trees, latex milky. Leaves to 7 x 3 cm, elliptic, acuminate to shortly emarginate, base slightly emarginate, serrate, scabrous, nerves ca. 8 pairs, looped near the margin; petiole 0.5 cm, pubescent. Male flowers in small axillary clusters, subsessile; bracts 1 mm; perianth 4-lobed, 1 mm, concave, ciliate; stamens 4, filaments inflexed, 1 mm; pistillode rudimentary.

*Fl.* December-April

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15944

### SALICACEAE

#### SALIX L.

**Salix tetrasperma** Roxb., Pl. Cor. t. 97. 1798; Wight, Ic. t. 1954. 1853; Fl. Brit. India 5: 626. 1888; Fl. Pres. Madras 1390. 1928; Matthew, Fl. TN. Carnatic 1538. 1983 & Ill. Fl. TN. Carnatic t. 682. 1982.

Medium trees, bark fissured, reddish; young shoots silky pubescent. Leaves to 15 x 3.5 cm, ovate, lanceolate, acuminate, rounded at base, crenate; petiole to 2.5 cm, stipules subulate. Catkin axillary, to 8 cm, silky villous; bracts ovate; female flowers - disc yellow, clasping the pedicel at the base; ovary ovoid, 4-6 ovuled, stigma 2, branched again. Capsule to 4 mm; seeds with long deciduous hairs.

*Fl. & Fr.* July-December

*D i s t.* Common along the streamsides

Vanchikulam, *K. K S.* 25884

### GNETACEAE

#### GNETUM L.

**Gnetum ula** Brogn. in Duperrey, Voy. monde 7: 12. 1829; Fl. Pres. Madras 1885. 1936; Matthew, Fl. TN. Carnatic 1916. 1983 & Ill. Fl. TN. Carnatic t. 961. 1982. **G. scandens** auct. non Roxb. : Hook. f., Fl. Brit. India 5: 642. 188.

Woody lianas. Leaves opposite, 10-18 x 5-9 cm, elliptic-ovate or oblong, coriaceous, acute, base rounded or acute; petiole to 1.5 cm. Panicles axillary arising from mature wood; bracts cupular; male strobilus - to 5 cm long, bracteoles 2.5 mm; stamens 1, exserted; female strobilus to 7 cm long; ovary globose. Fruit 2,3 x 2 cm, ellipsoid, yellow.

*Fl. & Fr.* March-May

*D i s t.* Common along the river side

Chinnar, *KKS* 18308

## ORCHIDACEAE

1. Epiphytes	: 2
1. Terrestrial	: 12
2. Leaves equitant	: Oberonia
2. Leaves not equitant	: 3
3. Leaves terete or subterete	: 4
3. Leaves flattened	: 6
4. Lip without spur	: Luisia
4. Lip with spur	: 5
5. Racemes extra axillary; 2-5 flowered	: Papilionanthe
5. Racemes axillary; flowers clustered at apex	: Thrixspermum
6. Lip spurless; stem pseudobulbous	: 7
6. Lip spurred or saccate; stem not pseudobulbous	: 9
7. Flowers with mentum	: 8
7. Flowers without mentum; lip with 2 broken lamella	: Cymbidium
8. Lip lobed	: Dendrobium
8. Lip entire or obscurely lobed	: Eria
9. Lip with 2 spurs	: Diplocentrum
9. Lip with single spur or saccate	: 10
10. Lip saccate	: Gastrochilus
10. Lip with single spur	: 11
11. Stem wiry; leaves less than 3 cm long	: Trichoglottis
11. Stem stout; leaves more than 5 cm long	: Vanda
12. Spikes spirally twisted, glandular	: Spiranthes
12. Inflorescence not so, eglandular	: 13
13. Lip with 2 spur	: 14
13. Lip with single spur or saccate	: 15
14. Sepals free; leaves dark maroon with golden netted veins	: Anoectochilus
14. Sepals connate; leaves not as above	: Zeuxine
15. Racemes lateral; leafless during flowering; lip with three longitudinal ridged	: Eulophia
15. Racemes terminal; leafy throughout	: 16
16. Lip pectinate	: Pecteilis
16. Lip not pectinate	: 17
17. Flowers pink; claw of lip 2-ridged	: Brachycorythis
17. Flowers white; claw of lip not ridged	: Habenaria

### ANOECTOCHILUS Blume

**Anoectochilus elatus** Lindl., Proc. Linn. Soc. Bot. 1: 178. 1857; Fl. Brit. India 6: 95. 1890 '*elator*'; Fl. Pres. Madras 1453. 1928.

Terrestrial herbs with creeping rhizome. Leaves to 5 x 4 cm, ovate or elliptic, acute, dark maroon with golden netted veins: petiole 1.5 cm long. Racemes to 25 cm long; flowers white, 2.5 x 1 cm; dorsal sepal 11 x 5 mm, ovate, acuminate, 1-veined; lateral sepals 12 x 5 mm, obovate-oblong, subacuminate, 1-veined; petals 10 x 3-4 mm, obliquely oblong, acuminate, 1-veined, connate with dorsal sepal: lip 3-lobed, 20 x 20 mm, side lobes 10 x 3 mm. oblong,

retuse, curved, mesochile with 5-7 pairs of long fimbriate epichile, bilobed, lobes broad at apex, truncate; spur bilobulate, with spindle shaped gland.

*Fl.* November-December

*D i s t.* Occasional in shola

Karivepinshola, *KKS* 17310

#### **BRACHYCORYTHIS Lindl.**

**Brachycorythis iantha** (Wight) Summerh., Kew Bull. 240. 1955. *Platanthera iantha* Wight, Ic. t. 1692. 1851. *P. affinis* Wight, Ic. t. 1693. 1851. *Habenaria galeandra* Benth., Fl. Brit. India 6: 163. 1890. *Phyllomphax obcordata* (D. Don) Schltr., in Report 16: 119, 1906; Fl. Pres. Madras 1474. 1928.

Herbs; tubers one or two. Leaves to 4.5 x 2.2 cm, imbricate, ovate, lanceolate, acute, sheathing at base. Spikes short; flowers pink; sepals 7 x 3 mm; petals 6 x 2.1 mm, lanceolate, acute; lip flabellate, obcordate, narrowed into a claw at base, claw puberulus, 2-ridged, margins wavy, spur conical, 2 mm; ovary 1.5 cm long.

*Fl.* September-December

*D i s t.* Common in grasslands; endemic to Peninsular India.

Ollavayal, *KKS* 17433

#### **CYMBIDIUM Sw.**

**Cymbidium aloifolium** (L.) Sw., Nov. Act. Sc. Upsal. 6: 73. 1799; Wight, Ic. t. 1687, 1688. 1851; Fl. Brit. India 6: 8. 1890 *p.p.*; Fl. Pres. Madras 1436. 1928; Matthew, Fl. TN. Carnatic 1604. 1983 & Ill. Fl. TN. Carnatic t. 721 & 927b. 1982. *Epidendrum aloifolium* L., Sp. Pl. 953. 1753.

Herbs, stems pseudobulbous. Leaves to 50 x 2 cm, oblong, lanceolate, apex unequally notched. Racemes terminal, drooping, to 50 cm; flowers yellowish red; pedicels to 2 cm; sepals 2.2 cm, oblong; petals 2 laterals free, 2.2 x 0.5 cm, oblong, lip 3-lobed, slightly pouched at base, midlobe long, decurved to 2 cm, side lobes pointed; columns to 1 cm, thickened at the apex.

*Fl.* April-August

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS* 1.5699

#### **DENDROBIUM Sw.**

**Dendrobium nanum** Hook. f. in Hooker's Icon. Pl. t. 1853. 1889 & Fl. Brit. India 5: 717. 1890; Fl. Pres. Madras 1415. 1928; Matthew, Fl. TN. Carnatic 1587. 1983 & Ill. Fl. TN. Carnatic t. 710. 1982.

Small herbs; pseudobulbs ovoid, covered with basal portion of leaves. Leaves 3 or 4, 3 x 1.2 cm, lanceolate-elliptic. Racemes to 8 cm; flowers 6-8, pinkish white; bracts 0.5 cm, lanceolate;

sepals to 8 mm; mentum to 5 mm; lip tri-lobed, narrowed to a short stalk; lateral lobes narrow, shortly pectinate; ovary with pedicels to 1 cm.

*FZ & Fr.* April-July

*D i s t.* Common in shola forests: endemic to Peninsular India.

Pattanimala, *KKS 17354*

#### DIPLOCENTRUM Lindl.

**Diplocentrum recurvum** Lindl., Bot. Reg. sub t. 1522. 1832. & Gen. Sp. Orch. 218. 1833; Fl. Brit. India 6: 78. 1890; Fl. Pres. Madras 1449. 1928; Matthew. Fl. TN. Carnatic 1602. 1983 & Ill. Fl. TN. Carnatic t. 719. 1982. **Diplocentrum longifolium** Wight, Ic. t. 1681. 1852.

Herbs. Leaves to 20 x 0.3 cm, semiterete, compact, apex unequally bilobed, fleshy. Scapes lateral, branched or unbranched, to 20 cm; flowers pinkish-white; bracts 2 mm, minute; dorsal sepal 3 mm, ovate-lanceolate, lateral sepals 5 x 2 mm, obliquely lanceolate, cuspidate; lateral petals 3 mm, ovate, obtuse; lip 7 x 3 mm, ovate, margins upcurved, 2 spurred, spurs conical, 1.5 mm.

*FZ* March-June

*D i s t.* Not common in moist deciduous forests

Samplampetty, *KKS 15600*; Vanchikulam, *17278*

#### ERIA Lindl. *nom. cons.*

**Eria nana** A. Rich., Ann. Sci. Nat. (ser. 2) 11: 19. 1841; Fl. Pres. Madras 1425. 1928; Matthew, Fl. TN. Carnatic 1576. 1983.

Very small herbs, pseudobulbs crowded, rounded and flat, netted with veins. Leaves 2, 2.5 x 0.4 cm, oblanceolate, tuncronate at apex, membranous. Racemes slender, flexuous; flowers 5-8, 5 mm long, greenish yellow.

*Fl.* September-January

*D i s t.* Occasional in shola forests: endemic to Peninsular India.

Olikudy, *KKS 18290*

#### EULOPHIA R. Br. ex Lindl. *nom. cons.*

**Eulophia epidendrea** (Koen.) Schltr., Orch. 346. 1914; Matthew, Fl. TN. Carnatic 1605. 1983 & Ill. Fl. TN. Carnatic t. 722. 1982; Seidenf., Opera Bot. 72: 32. 1983. **Serapias epidendrea** Koen., in Retz., Obs. Bot. 6: 65. 1791. **Eulophia epidendrea** (Retz.) Fisher in Gamble, Fl. Pres. Madras 1434. 1928. **Eulophia virens** R. Br., Bot. Reg. sub. t. 573. 1822; Wight, Ic. t. 913. 1845; Fl. Brit. India 6: 1. 1890.

Herbs, pseudobulbs ovoid. conical. covered by sheath. Leaves to 50 x 1.2 cm, linear, lanceolate, base broadly sheathing. Racemes lateral, to 1.8 m high; flowers white; bracts 7 mm, lanceolate; sepals 2 x 0.6 cm, oblanceolate, acute, shortly recurved towards apex; petals oblanceolate, acute; lip trumpet shaped, tri-lobed, 2.2 x 1 cm. with three longitudinal ridges, pectinate towards the distal end: ovary with pedicels 1.5 cm.

*Fl. & Fr.* December-March

D i s t. Rare in dry deciduous forests

Athiyodai, *KKS 11767*

#### GASTROCHILUS D. Don.

*Gastrochilus acaulis* (Lindl.) O. Ktze., Rev. Gen. Bot. 2: 661. 1891; Jayaw., Rev. Handb. Fl. Ceylon 2: 242. 1981; Matthew, Fl. TN. Carnatic 1598. 1983 & Ill. Fl. TN. Camatic t. 716. 1982. *Saccolabium acaule* (Lindl.) Hook. f., Fl. Brit. India 6: 61. 1890. *Cleisostoma acaulis* Lindl., Gen. Sp. Orch. 227. 1833. *Gastrochilus calceolaris* auct. non. Buch.-Ham. ex J. E. Sm. D. Don, Prodr. Fl. Nepal 32. 1825. *Vanda pulchella* Wight, ic. t. 9. 1852. *Saccolabium nilagiricum* Hook. f., Fl. Brit. India 6: 60. 1890. *S. pulchellum* (Wight) Fischer, Fl. Pres. Madras 3: 1446. 1928.

Herbs. Leaves to 20 x 1.5 cm, oblong, lanceolate, apex unequally bilobed, base sheathing. Racemes to 3 cm; flowers white; bracts 2 mm, ovate; sepals 8 mm, elliptic-obovate, concave; lip 3-lobed, 8 mm, saccate, fimbriate, adnate to the base of the column. Fruit to 3 cm, oblong, ribbed.

*FZ & Fr.* December-March

D i s t. Common in shola forests

Olippara, *KKS 17243*

#### HABENARIA Willd.

- |                                                      |                              |
|------------------------------------------------------|------------------------------|
| 1. Leaves cauline                                    | : 2                          |
| 1. Leaves basal                                      | : 3                          |
| 2. Petals entire; racemes 6-8-flowered               | : <i>H. longicornu</i>       |
| 2. Petals 2-partite; racemes 1 or 2 flowered         | : <i>H. rariflora</i>        |
| 3. Racemes densely flowered; lip less than 5 cm long | : <i>H. roxburghii</i>       |
| 3. Racemes 1 or 2 flowered; lip more than 10 cm long | : <i>H. longicorniculata</i> |

*Habenaria longicorniculata* Grah., Cat. Bombay Pl. 202. 1839; Matthew, Fl. TN. Camatic 1564. 1983. *H. longicalcarata* A. Rich., Ann. Sci. Nat. (ser. 2) 15: 71, t. 3B. 1841; Fl. Brit. India 6: 141. 1890; Fl. Pres. Madras 1470. 1928.

Herbs; tubers one or two. Leaves basal, to 7 x 1.5 cm, elliptic, acute, base sheathing. Racemes terminal, to 50 cm; flowers one or two, 2.5 cm across, white; odd sepal green, concave; petals spatulate; lip 3-partite, middle lobe linear, oblong, longer than the side ones; spur to 11 cm long.

*FZ* September-December

D i s t. Occasional in moist deciduous forests; endemic to Peninsular India.

Paradipolla, *KKS 17428*

*Habenaria longicornu* Lindl., Gen. Sp. Orch. 322. 1835; Fl. Brit. India 6. 139. 1890; Fl. Pres. Madras 1470. 1928; Matthew, Fl. TN. Carnatic 1564. 1983.

Terrestrial herbs; tubers usually one. Leaves cauline, to 8 x 1.5 cm, lanceolate, acute at apex, base sheathing, membranous, sessile. Racemes terminal, 6-8 flowered; pedicels to 4 cm; flowers 2.5 cm across, white; sepals ovate-acute; petals linear, oblong-narrower, lip 3-partite, side lobes 1.3 x 0.5 cm, cuneate, fimbriate, middle lobe linear, shorter; spur to 11 cm; ovary 2.5 cm.

*Fl. & Fr.* September-December

*D i s t.* Rare, in grasslands; endemic to Peninsular India.

Ollavayal, *KKS 17431*

**Habenaria rariflora** A. Rich., *Ann. Sci. Nat. (Ser. 2)* 15: 70. t. 2D. 1841; Wight,  *Ic. t.* 924. 1845; *Fl. Brit. India* 6: 136. 1890; *Fl. Pres. Madras* 1460. 1928; Matthew, *Fl. TN. Carnatic* 1562. 1983 & *Ill. Fl. TN. Carnatic t.* 695. 1982.

Herbs; tubers one or two. Leaves to 5 x 0.5 cm, oblong-lanceolate, acute, base sheathing. Racemes terminal, to 10 cm, usually one or two flowered; pedicels as long as the ovary, reaching 4 cm long; sepals broad, ovate, subfalcate; petals 2 partite, lower segments 2 cm longer, linear, acute, upper broad, to 0.1 cm, lip 3-partite, lateral segments filiform; spur to 4 cm.

*Fl. & Fr.* September-December

*D i s t.* Rare, in grasslands; endemic to Peninsular India.

Ollavayal, *KKS 17332*

**Habenaria roxburghii** Nicols. in Sald. & Nicols., *Fl. Hassan Dist.* 834. 1976. *H. platyphylla* Spreng., *Syst. Veg.* 690. 1826, nom. illeg.; Wight,  *Ic. t.* 1709. 1851; *Fl. Brit. India* 6: 140. 1890; *Fl. Pres. Madras* 1470. 1928.

Herbs; tubers one or two. Leaves 2 or 3, at the base, to 7 x 5 cm, orbicular, acute at apex, base sheathing. Racemes densely flowered, to 8 cm, flowers white; bracts 2 cm, lanceolate; sepals 8 mm, broadly ovate, lip 3-lobed, side lobes smaller, later lobes 8 mm, oblong; spur 4 cm, oblong, clavate at apex.

*Fl. & Fr.* August-October

*D i s t.* Rare in dry deciduous forests; endemic to Peninsular India.

Mangappara, *KKS 15856*

#### **LUISIA Gaud.**

**Luisia birchea** (A. Rich.) Blume, *Mus. Bot. Ludg. Bat.* 1: 64. 1849; *Seidenf., Dansk Bot. Ark.* 27(4): 35. 1971; Matthew, *Fl. TN. Carnatic* 1594. 1983 & *Ill. Fl. TN. Carnatic t.* 814. 1982. **Luisia tenuifolia** auct. non Blume 1849, sensu Hook. f., *Fl. Brit. India* 6: 24. 1890; *Fl. Pres. Madras* 1438. 1928.

Herbs. Leaves to 20 x 0.3 cm, terete, acute, sheathing at base, coriaceous. Raceme extra axillary, 6-10 flowered: dorsal sepal 1.1 x 0.6 cm, oblong-ovate, strongly keeled at apex; lateral



petals 1.5 x 0.4 cm, oblong; lip 1.8 x 1 cm, broadly oblong, obovate, thick, fleshy, trilobed at apex, auricled at base column to 2 mm; ovary with pedicels 2.5 cm.

*Fl. & Fr.* April-August

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS 15649*

#### **OBERONIA Lindl. *nom. cons.***

*Oberonia verticillata* Wight, Ic. t. 1626. 1851; Lindl., Fol. Orch. Oberon. 3. 1859; Fl. Brit. India 5: 677. 1888; Fl. Pres. Madras 3: 1405. 1928; Seidenf., Dansk Bot. Ark. 25(3): 30. 1968; Matthew, Fl. TN. Carnatic 1579. 1983; Ansari & Balakr., Orch. Monogr. 4. 28. f. 24. 1990.

Epiphytic stemless herbs. Leaves to 15 x 1.2 cm, oblong-ensiform, acute. Spike to 27 cm long; flowers orange-yellow, 4.5 x 2 mm, in verticils; dorsal sepal oblong-ovate, obtuse; lateral sepals obliquely ovate, acute; petals oblong or ovate, obtuse; lip 3-lobed; lateral lobes rounded auricled; midlobe 2-lobuled; lobules orbicular or obovate, serrate, overlapping each other, sinus narrow; disc indistinct.

*Fl.* September-January

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 18314*

#### **PAPILIONANTHE Schltr.**

*Papilionanthe subulata* (Koen.) Garay, Bot. Mus. Leaflet. Harvard Univ. 23(10): 372. 1974; Matthew, Fl. TN. Carnatic 1596. 1983 & Ill. Fl. TN. Carnatic t. 715. 1982. *Epidendrum subulatum* Koen. in Retz., Obs. 6: 51. 1791. *Aerides cylindricum* Lindl., Gen. Sp. Orch. 240. 1833; Wight, Ic. t. 1744. 1851; Fl. Pres. Madras 1442. 1928.

Herbs. Leaves to 10 x 0.2 cm, terete. Racemes extra axillary, opposite the leaves, 2-5-flowered; flowers white, lip yellow; pedicels with ovary 1.5 cm; sepals 12 x 8 mm, ovate, obtuse at apex, fleshy; petals 12 x 8 mm, broadly ovate, obtuse, fleshy; lip 3-lobed, equal, side lobes erect, middle lobes recurved; spur 8 mm, conical, obtuse at apex. Fruit 4 cm long, slightly winged.

*Fl. & Fr.* February-July

*D i s t.* Common in shola forests

Olikkudy, *KKS 17255*

#### **PECTEILIS Rafin.**

*Pecteilis gigantea* (J. E. Sm.) Rafin., Fl. Tellur. 2: 38. 1837. *Orchis gigantea* J. E. Sm., Exot. Bot. 2: 79, t. 100. 1805. *Habenaria susannae* auct. non (L.) R. Br. ex Spreng. 1826, Fl. Brit. India 6: 137. 1890. *Platanthera susannae* auct. non (L.) Lindl. 1835, Wight, Ic. t. 920. 1845; Fl. Pres. Madras 1475. 1928.

Herbs, root tuberous, ellipsoid. Leaves to 10 x 5 cm, broadly ovate, acute, sheathing at base. Raceme terminal 2-5 flowered: flowers 8 cm across white; bracts to 9 x 2.5 cm; dorsal sepals

4.5 x 3.5 cm, obovate, revolute in the margins; lip 3-lobed, 5 x 9 cm, side lobes truncate, pectinate, lobed to 2.5 cm; spur to 8 cm long, obtuse, mouth broad.

*Fl. & Fr.* August-December

*D i s t.* Occasional in grasslands

Ollavayal, *KKS* 17436

#### **SPIRANTHES Richard**

***Spiranthes sinensis*** (Pers.) Ames, *Orch.* 2: 53. 1908; *Fl. Pres. Madras* 1454. 1928; *Seidenf., Dansk Bot. Ark.* 32: 105. 1978; Matthew, *Fl. TN. Carnatic* 1558. 1983 & *Ill. Fl. TN. Carnatic* t. 694. 1982. ***Neottia sinensis*** Pers., *Syn.* 2: 511. 1807. ***Spiranthes australis*** (R. Br.) Lindl., *Bot. Reg.* 9. 1923; *Fl. Brit. India* 6: 102. 1890.

Herbs. Leaves 4-6, clustered at base, to 5 x 0.5 cm, linear lanceolate, base slightly sheathing, membranous. Spikes terminal, spirally twisted, to 10 cm, glandular pubescent; scape to 30 cm long; flowers white; sepals 3.5 mm, subequal, acute with broad bases; petals 3 mm, broadly linear; lip 3-lobed, dilated at the base and apex, 2 glandular.

*FZ & Fr.* April-July

*D i s t.* Occasional in grasslands and shola forests

Pothumala, *KKS* 17357

#### **THRIXSPERMUM Lour.**

***Thrixspermum muscaeflorum*** A. S. Rao & Joseph var. ***nilagiricum*** Joseph & Vajravelu in *Indian Forester* 107: 648. 1981.

Herbs; roots very long and many, adpressed to the twigs of the host plants. Leaves distichous, equitant, to 6.5 x 0.3 cm, subterete, acute at apex. Spikes axillary, to 8 mm; scapes 6 cm; flowers clustered at apex. Fruit 5 x 0.3 cm, oblong, beaked.

*FZ & Fr.* December-April

*D i s t.* Rare, in dry deciduous forests; endemic to Peninsular India.

Chinnar, *KKS* 18291

#### **TRICHOGLOTTIS Blume *emend.* Reichb. f.**

***Trichoglottis tenera*** (Lindl.) Schltr., *Bull. Herb. Boiss.* (ser. 2) 6: 471. 1906. ***Oeceoclades tenera*** Lindl., *Gen. Sp. Orch.* 236. 1833; Wight, *lc. t.* 1683. 1851. ***Cleisostoma tenerum*** (Lindl.) Hook. f., *Fl. Brit. India* 6: 73. 1890; *Fl. Pres. Madras* 1448. 1928 [Fig. 12].

Herbs, scandent, with wiry branches. Leaves 1.5 x 0.7 cm, oblong, elliptic, notched at apex. Racemes extraaxillary; flowers 3 or 4, greenish-white with yellow shade; dorsal sepal 8 mm, oblong, concave, laterals 6 x 2 mm, oblanceolate, elliptic; lateral petals 5 mm, oblanceolate, obtuse; lip tri-lobed, 7 x 6 mm, lateral lobes smaller, midlob tri-lobulate; midlobule lanceolate, narrowly winged on either side; spur 1.5 mm. conical, septate within. Capsule 3 cm, ellipsoid, winged.

*FZ & Fr.* March-June

*D i s t.* Rare. in shola forests

Olikkudy, *KKS* 17303

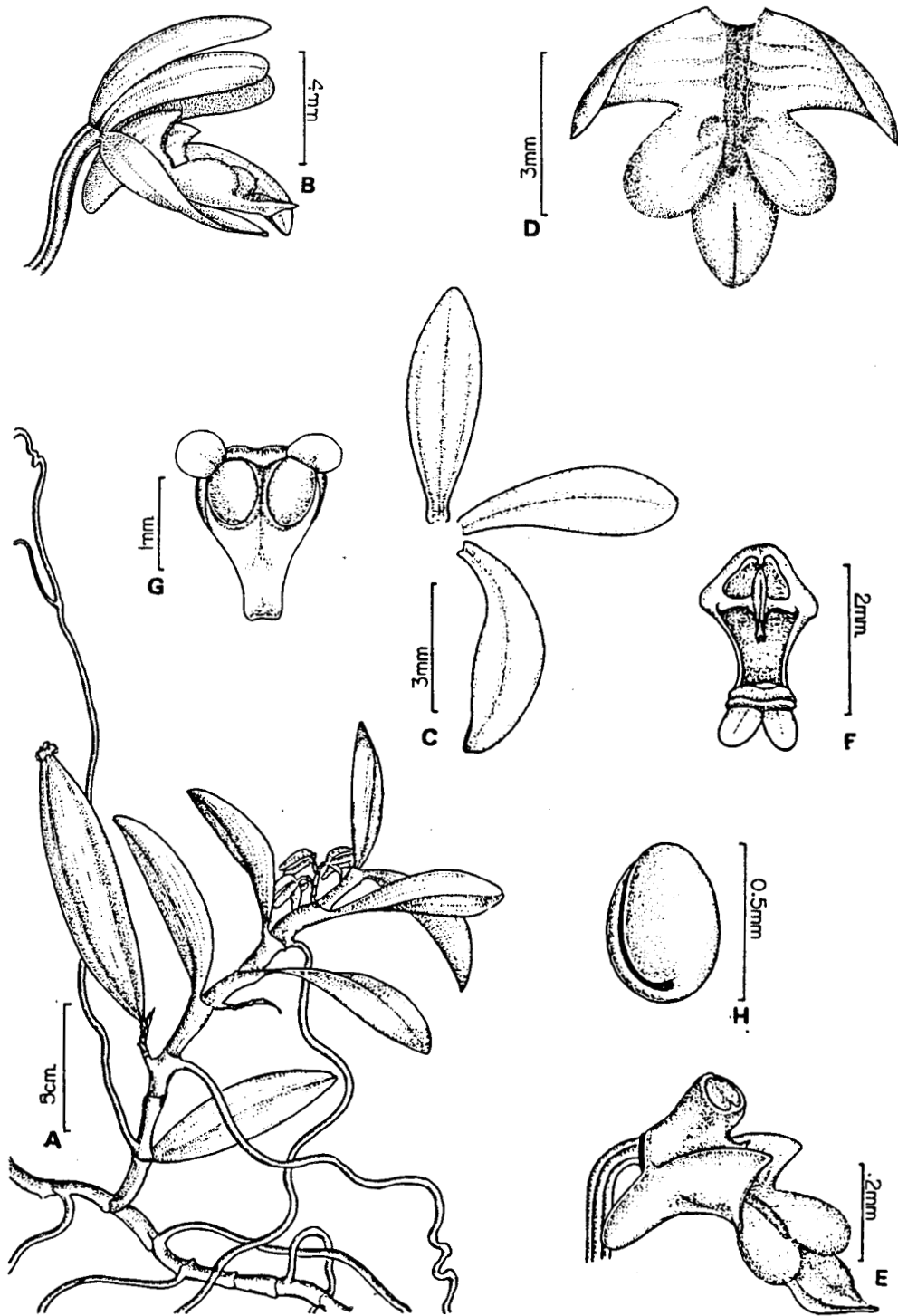


Fig. 12. *Trichoglottis tenera* (Lindl.) Schltr. A. habit, B. flower, C. sepals, D. labellum, E. attached view of labellum, F. column, G. pollinarium, H. pollinium.

**VANDA W. Jones ex R. Br.**

1. Leaves less than 8 cm long; plants rooted along the nodes : *V. spathulata*  
1. Leaves more than 12 cm long; plants not rooted along the nodes : **2**  
2. Flowers to 5 cm across; petals tessellated : *V. tessellata*  
2. Flowers to 1.7 cm across; petals not tessellated : *V. testacea*

*Vanda spathulata* (L.) Spreng., Syst. Veg. 3: 719. 1826; Wight, Ic. t. 915. 1844-1845; Fl. Brit. India 6: 50. 1890; Fl. Pres. Madras 1444. 1928; Matthew, Fl. TN. Carnatic 1599. 1983. *Epidendrum spathulatum* L., Sp. Pl. 952. 1753.

Scandent shrubs. Leaves 2-ranked, to 6 x 1.5 cm, oblong, 2-lobed at apex, coriaceous, base sheathing, sessile. Racemes leaf opposed; flowers 6-8, 4 cm across, yellow; sepals 2.5 cm, obovate, narrowed to the base; petals more or less similar to the sepals; lip 3-lobed, spur to 0.5 cm; column to 1 cm.

*Fl. & Fr.* August-December

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS* 15796

*Vanda tessellata* (Roxb.) Hook. ex G. Don in Loud. Hort. Brit. 372. 1830; Fl. Pres. Madras 1445. 1928; Matthew, Fl. TN. Carnatic 1600. 1983 & Ill. Fl. TN. Carnatic t. 717. 1982. *Vanda roxburghii* R. Br. in Bot. Reg. 6: t. 506. 1820; Fl. Brit. India 6: 52. 1890.

Scandent epiphytic shrubs. Leaves 2-ranked, to 15 x 2.2 cm, oblong, recurved conduplicate, 2-lobed at apex, with a central acute tip, base sheathing, coriaceous, closely packed. Racemes axillary; flowers 5 cm across, white outside, inner tessellate with brown spots; petals to 5 cm; lip bluish dotted with purple, 3-lobed, side lobes 7 mm; spur 5 mm, conical; column 5 mm.

*Fl.* March-July

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15703

*Vanda testacea* (Lindl.) Reichb. f. in Gard. Chron. 2: 166. 1877; Matthew, Fl. TN. Carnatic 1599. 1983. *Aerides testaceum* Lindl., Gen. Sp. Orchid. Pl. 238. 1833. *Vanda parviflora* Lindl. in Edward's Bot Reg. 30: Misc. 57. 1844; Wight, Ic. t. 1669. 1851; Fl. Brit. India 6: 50. 1890; Fl. Pres. Madras 1444. 1928.

Erect epiphytes. Leaves to 25 x 1.5 cm, linear-oblong, keeled, unequally 2-lobed at apex, fleshy. Racemes to 25 cm long; flowers 1.7 cm across, creamy yellow with purple or reddish pink lip; petals 1 x 0.5 cm, spathulate, lip 1 x 0.5 cm, spur 3-lobed; column 3 mm high. Capsule to 3 cm long, clavate, ridges winged.

*Fl. & Fr.* January-March

*D i s t.* Occasional in moist deciduous forests

Ichampetty, *KKS* 18312

**ZEUXINE Lindley**

*Zeuxine longilabris* (Lindl.) Benth. ex Hook. f., Gen. Sp. Pl. 3: 600. 1883; Fl. Brit. India 6: 107. 1890; Fl. Pres. Madras 1456. 1928; Seidenf., Dansk Bot. Ark. 32: 91. 1978; Matthew, Fl.

TN. Carnatic 1558. 1983 & Ill. Fl. TN. Carnatic t. 693. 1982. *Monochilus longilabris* Lindl., Gen. Sp. Orch. 478. 1840.

Slender herbs, basal part of the stem prostrate, rhizome swollen at nodes. Leaves to 3.5 x 1.5 cm, ovate, acute, sheathing at base, membranous, pinkish on drying. Racemes to 10 cm, villous; flowers white; dorsal sepals connate with the lateral petals to form a hood, 8 mm long; lateral sepals subfalcate; lip with claw, 1.2 x 0.5 cm, obovate, saccate, sac with 2 spur on the cavity, deeply forked from the apex.

*Fl.* March-June

*D i s t.* Occasional in shola forests

Olikkudy, *KKS 17301*

## ZINGIBERACEAE

### HEDYCHIUM Koenig

**Hedychium coronarium** Koenig in Retz., Obs., 3: 73. 1783; Fl. Brit. India 6: 225. 1892; Fischer in Gamble Fl. Madras 1485. 1928; Burt. & Smith in Rev. Handb. Fl. Ceylon 4: 506. 1983.

Herbs. Leaves to 30 x 10 cm, glabrate, ligule acuminate. Spike to 15 x 7 cm, ovoid; bracts 5 x 2 cm, obtuse; flowers 2-4 in each bract; calyx 4 cm long; corolla tube 9 cm long; lip 4 x 6 cm, lobes emarginate, white; anthers 1.5 cm long.

*Fl. & Fr.* October-December

*D i s t.* Occasional in moist deciduous forests

Alampetty, *KKS 15967*

## AMARYLLIDACEAE

### PANCRATIUM L.

**Pancratium triflorum** Roxb., Fl. Ind. 2: 126. 1832; Fl. Brit. India 6: 285. 1892; Fl. Pres. Madras 1505. 1928; Matthew, Fl. TN. Carnatic 1626. 1983. **P. verecundum** auct. non Ait. 1789; Wight, Ic. t. 2023. 1853; Fl. Brit. India 6: 286. 1892.

Stemless herbs, bulb globose, to 4 cm across. Leaves 14 x 5 cm, lanceolate, acute. Umbels to 25 cm long; flowers 3-8, white, perianth tube to 5 cm long, throat dilated, lobes to 2 cm long, linear, staminal tube to 6 mm long with bifid teeth between the filaments.

*Fl. & Fr.* March-May

*D i s t.* Common in wet areas in moist deciduous forests

Ichampetty, *KKS 18313*

## HAEMODORACEAE

1. Filaments free; leaves linear

: **Ophiopogon**

1. Filaments united in to a ring; leaves elliptic

: **Peliosanthes**

### OPHIOPOGON Ker-Gawl.

*Ophiopogon intermedius* D. Don, Prodr. 48. 1825; Fl. Brit. India 6: 209. 1892; Fl. Pres. Madras 1499. 1928; Henry et al, Fl. Tamil Nadu 3: 31. 1989. *O. indicus* Wight, Ic. t. 2050. 1853.

Tufted herbs. Leaves 25-40 x 0.8 cm, linear-oblong, ribbed, decurrent to the base. Racemes 4-10 flowered; pedicel 5 mm long; tepals 6, 6 x 4 mm, oblong, obtuse; stamens 6, anthers sagittate at base; ovary 3-celled, inferior; ovules one in each cell; style one, slender; stigma terminal. Berry 7 mm across, globose, blue.

*Fl. & Fr.* August-March

*D i s t.* Common in shola forests

Olikkudy, *KKS 15846*

### PELIOSANTHES Andr.

*Peliosanthes teta* Andr. subsp. *humilis* (Andr.) Jessop, Blumea 23: 155. 1976 & in Steenis Fl. Males. I. 9: 299. 1979. *P. humilis* Andr., Bot. Rep. 10, t. 634. 1811. *P. neilgherrensis* Wight, Ic. t. 2052. 1853; Fl. Brit. India 6: 266. 1892; Fl. Pres. Madras 1498. 1928. *P. courtallensis* Wight, Ic. t. 2051. 1853; Fl. Brit. India 6: 266. 1892; Fl. Pres. Madras 1498. 1928.

Stemless herbs. Leaves to 30 x 6.5 cm, elliptic, apex acuminate, coriaceous; petiole to 30 cm. Racemes to 25 cm: bracts 0.7 cm, ovate; pedicels 0.5 cm; perianth lobes 6, 3 mm, broadly ovate, dark brown; stamens 6, filaments united; ovary 3-celled, stigma sessile, 3-lobed.

*Fl.* February-May

*D i s t.* Common in shola forests

Olikkudy, *KKS 17266*

## HYPOXIDACEAE

### CURCULIGO Gaertn.

*Curculigo orchioides* Gaertn. Fruct. 1: 63. t. 16. f. 11. 1788; Fl. Brit. India 6: 279. 1892; Fl. Pres. Madras 1502. 1928; Matthew. Fl. TN. Carnatic 1627. 1983 & Ill. Fl. TN. Carnatic t. 733. 1982. *C. malabarica* Wight. Ic. t. 2043A. 1853.

Stemless herbs, root stock elongate. Leaves to 15 x 2 cm, lanceolate, apex acute, pilose, plicate; petiole to 3 cm. Scapes 3-5, to 5 cm, slender, concealed by leaf sheaths; bracts lanceolate, spathaceous; flowers yellow; perianth 2-seriate, 0.8 cm long, elliptic, acute; stamens 6, filaments 3 mm; ovary 3-celled, oblong, pilose, apex rostrate, 3.5 mm; ovules 2 per cell, style 2 mm, stigma 3-lobed. Fruit 2 cm, oblong, pilose; seeds black, glossy.

*Fl. & Fr.* April-June

*D i s t.* Common in moist deciduous forests

Mavelikkudy, *KKS 15661*

## DIOSCOREACEAE

### DIOSCOREA L.

- |                                                                      |                           |
|----------------------------------------------------------------------|---------------------------|
| 1. Leaves 3-7 foliate                                                | : 2                       |
| 1. Leaves simple                                                     | : 3                       |
| 2. Leaves glabrous to glabrescent, bulbils present in the leaf axils | : <b>D. pentaphylla</b>   |
| 2. Leaves densely tomentose, bulbils absent in the leaf axils        | : <b>D. tomentosa</b>     |
| 3. Leaves coriaceous, reticulations prominent                        | : <b>D. spicata</b>       |
| 3. Leaves chartaceous, reticulations faint                           | : <b>D. oppositifolia</b> |

*Dioscorea oppositifolia* L., Sp. Pl. 1033. 1753; Wight, Ic. t. 813. 1844; Fl. Brit. India 6: 292. 1892; Fl. Pres. Madras 1512. 1928; Matthew, Fl. TN. Carnatic 1634. 1983 & Fur. Ill. Fl. TN. Carnatic t. 612. 1988. ***D. oppositifolia*** L., var. ***linnaei*** Prain & Burkill in J. Asiat. Soc. Bengal 10: 30. 1914; Fl. Pres. Madras 1512. 1928.

Twiners. Leaves opposite or subopposite, to 8 x 4.5 cm, ovate, apex acute or acuminate, 3-5 nerved at base, puberulus; petiole to 2 cm. Male flowers in panicles and female in racemes; bracts 1.5 mm, ovate, perianth lobes 6, 2 mm, lanceolate; stamens 6, filaments 0.5 mm. Capsule 2.5 x 2 cm, obovoid; seeds *ca.* 6, winged.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Sivapura, *KKS 11932*; Karumpara, *11816*

*Dioscorea pentaphylla* L., Sp. Pl. 132. 1753; Wight, Ic. t. 814. 1844; Fl. Brit. India 6: 281. 1892; Fl. Pres. Madras 1511. 1928; Matthew, Fl. TN. Carnatic 1635. 1983 & Fur. Ill. Fl. TN. Carnatic t. 613. 1988. ***D. pentaphylla*** L. var. ***linnaei*** Prain & Burkill in J. Asiat. Soc. Bengal 10: 23. 1914; Fl. Pres. Madras 1511. 1928.

Twiners, bulbils present in the axils of leaves. Leaves alternate, 3-5 foliolate, segments to 8 x 5 cm, broadly ovate to elliptic, apex cuspidate or acuminate, base acute or cuneate; petiole to 5 cm, petiolule to 0.5 cm. Racemes axillary, in clusters, 5-10 cm, pubescent; bracts to 5 mm, bracteole 2, 2 mm, pubescent, connate; outer perianth lobes 1.5 mm, broadly ovate, acuminate, pubescent, inner 1 mm, ovate; stamens 3, staminodes 3, pistillode distinct.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11734*; Churullipetty, *15848*

*Dioscorea spicata* Roth, Nov. Pl. Sp. 571. 1821; Fl. Brit. India 6: 291. 1892; Fl. Pres. Madras 1512. 1928.

Twiners. Leaves opposite or subopposite, rarely alternate, to 10 x 5 cm, ovate or lanceolate, apex cuspidate, coriaceous, basally 5-nerved, reticulations prominent; petiole 3.5 cm. Male flowers in axillary spikes, to 25 cm; perianth lobes 6, 1.5 x 1 mm, ovate; stamens 6, filaments 0.5 mm; pistillode conical.

*Fl. & Fr.* February-April

D i s t. Common in shola forests

Olikudy, *KKS 17236*

*Dioscorea tomentosa* Koen. ex Spreng. Pl. Min. Cogn. Pug. 2: 92. 1815; Fl. Brit. India 6: 289. 1892; Fl. Pres. Madras 1511. 1928; Matthew, Fl. TN. Carnatic 1636. 1983 & Ill. Fl. TN. Carnatic t. 738. 1982.

Twiners. Leaves alternate, 3-5-7-foliolate, upper leaves simple, broadly ovate, cordate, tomentose, terminal leaflets to 7 x 4 cm, elliptic-obovate, apex obtuse, mucronate, densely tomentose, laterals oblique. obovate, slightly smaller; petiole 8-10 cm, petiolule 8 mm. Spikes axillary, solitary or in clusters; bracts 2 mm; bracteoles 1.5 mm, ovate, perianth lobes 1.5 and 1 mm, tomentose; stamens 3, included. staminodes 3; pistillode minute.

*Fl. & Fr.* September-December

D i s t. Common in dry deciduous forests

Chinnar, *KKS 11628*; Churullipetty, *15861*

## .LILIACEAE

- |                                                          |                |
|----------------------------------------------------------|----------------|
| 1. Plants spinescent; cladodes present                   | : Asparagus    |
| 1. Plants not spinescent, cladodes absent                | : 2            |
| 2. Plants climbing; leaf apex transformed into a tendril | : Gloriosa     |
| 2. Herbs or subshrubs; tendrils absent                   | : 3            |
| 3. Leaves radical: fleshy, thick                         | : 4            |
| 3. Leaves both cauline and radical; not fleshy           | : 5            |
| 4. Margins of leaves spinescent, flowers reddish         | : Aloe         |
| 4. Margin not spinescent; flowers white or cream         | : Sansevieria  |
| 5. Plants with stems; flowers trumpet shaped             | : Lilium       |
| 5. Plants without stem                                   | : 6            |
| 6. Flowers in racemes                                    | : 7            |
| 6. Flowers solitary or in corymbs                        | : Iphigenia    |
| 7. Root stock bulbous                                    | : Urginea      |
| 7. Root stock not bulbous                                | : Chlorophytum |

## ALOE L.

**Aloe vera** (L.) Burm. f., Fl. India 83. 1768; Fl. Pres. Madras 1520. 1928; Matthew, Fl. TN. Carnatic 1639. 1983 & Ill. Fl. TN. Carnatic t. 740. 1982. *A. perfoliata* var. **vera** L., Sp. Pl. 320. 1753.

Herbs. Leaves radical, aggregated. ensiform, fleshy, spinous on margins. Racemes terminal; peduncles to 1 cm long; bracts to 1.5 cm, ovate, scarious; flowers reddish; pedicels to 1 cm; perianth tube, to 3 cm, lobes free at apex; staminal tube 3 cm; ovary 8 mm, ovoid.

*Fl.* September-November

D i s t. Occasional in rocky areas near to settlements

Palapetty, *KKS 18292*



### ASPARAGUS L.

**Asparagus racemosus** Willd., Sp. Pl. 2: 152. 1799; Wight, Ic. t. 2056. 1853; Fl. Brit. India 6: 316. 1892; Fl. Pres. Madras 1517. 1928; Matthew, Fl. TN. Carnatic 1639. 1983 & Ill. Fl. TN. Carnatic t. 741. 1982.

Scandent shrubs, roots fleshy, tuberous, stems spiny. Cladodes 2-6, clustered at the nodes, to 3 x 0.2 cm, triquetrous, linear. Racemes axillary simple or branched solitary or 2-4, to 5 cm long; flowers paired, greenish; bracts 1 mm, ovate, scarious; pedicels 4 mm, jointed at the middle, perianth lobes 2.5 mm, obovate; filaments to 2.5 mm; ovary 1 mm, subglobose, style short, stigma 3-fid.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Athiyodai, *KKS 15726*; Olikkudy shola, *17305*; Olikkudy, *17448*

### CHLOROPHYTUM Ker.-Gawl.

**Chlorophytum attenuatum** (Wight) Baker in J. Linn. Soc. Bot. 15: 332. 1876; Fl. Brit. India 6: 335. 1892; Fl. Pres. Madras 1526. 1928. **Phalangium attenuatum** Wight, Ic. t. 2037. 1853.

Herbs, roots fleshy tuberous. Leaves radical, to 30 x 2 cm, flat, lanceolate, apex acute, margins thinly hyaline, ciliate. Racemes terminal; flowers white; bracts to 3 cm, ovate; pedicels to 1 cm, jointed at the middle; perianth lobes 1.5 x 0.5 cm, oblong, spatulate; stamens 7 mm, basally connate; ovary subglobose, 5 mm, style to 1 cm, stigma 3-fid.

*Fl. & Fr.* July-September

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Champakkad, *KKS 15807*

### GLORIOSA L.

**Gloriosa superba** L., Sp. Pl. 305. 1753; Wight, Ic. t. 2047. 1853; Fl. Brit. India 6: 358. 1892; Fl. Pres. Madras 1419. 1928; Matthew, Fl. TN. Carnatic 1643. 1983 & Ill. Fl. TN. Carnatic t. 743. 1982.

Climbing shrubs. Leaves to 15 x 4 cm, ovate-lanceolate, apex acuminate, elongated in to coiled tendril, membranous, sessile. Flowers solitary, axillary, red; pedicels to 20 cm; perianth lobes 8 x 1.5 cm, lacerate, recurved; anthers versatile; ovary 1.5 cm, oblong, style 6 cm, stigma 3-fid.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11597*

### IPHIGENIA Kunth

**Iphigenia indica** (L.) A. Gray ex Kunth, Enum. Pl. 4: 213. 1843; Fl. Brit. India 6: 357. 1892; Fl. Pres. Madras 1528. 1928; Matthew, Fl. TN. Carnatic 1643. 1983 & Ill. Fl. TN. Carnatic t. 744. 1982.

Herbs, bulb globose, to 1.5 cm across. Leaves to 10 x 0.2 cm, linear, lanceolate, acute at apex. Flowers solitary or in few flowered corymbs; pedicels to 3 cm; flowers dark brown; perianth lobes 1 x 0.2 cm. linear-spathulate; filaments 3 mm, papillose, anthers versatile; ovary 5 mm, oblong, style minute, stigma 3 lobed, recurved. Capsule 1.5 x 0.7 cm, 3-valved.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Kalladuthupurai, *KKS I 1698*

#### LILIUM L.

**Lilium wallichianum** Schultes & Schultes f. in L., Syst. Veg. 7(2): 1689. 1830, var. **neilgherrense** (Wight) H. Hara in H. Ohashi, Fl. E. Himalaya 3: 132. 1975. **L. neilgherrense** Wight, Ic. t. 2031 & 2032. 1853; Fl. Brit. India 6: 350. 1892; Fl. Pres. Madras 1523. 1928; Matthew, Fl. TN. Carnatic 1644. 1983. **L. wallichianum** auct. non Schultes & Schultes f.: Wight, Ic. t. 2035. 1853.

Tall erect herbs, stems glossy. Leaves cauline, to 10 x 2.5 cm, lanceolate, flat, attenuate, acute, sessile, usually 5-nerved. Flowers terminal, solitary or 2, white; perianth trumpet shaped, tube to 13 cm, lobes 9 x 4 cm, elliptic, acuminate; filaments 4 cm, flat, anthers versatile, 2 cm; ovary 3 cm, oblong, style to 18 cm, stigma widened, 3-lobed.

*Fl. & Fr.* October-December

*D i s t.* Common in wet areas in moist deciduous forests

Vanchikulam. *KKS 15890*

#### SANSEVIERIA Thunb.

**Sansevieria roxburghiana** Schultes & Schultes f., Mant. Syst. Veg. 7: 357. f. 12 D & E. 1829; Fl. Brit. India 6: 271. 1892; Fl. Pres. Madras 1520. 1928; Matthew, Fl. TN. Carnatic 1631. 1983 & Ill. Fl. TN. Carnatic t. 737. 1982.

Herbs. Leaves basal, 30-60 x 1-1.5 cm, sessile, subterete at base, apex flat, fleshy, base sheathing, sessile. Racemes to 40 cm long; bracts 6 x 3 mm, lanceolate; flowers 3-5 in a cluster; perianth tube to 1 cm, lobes 6, 1 x 0.5 mm, greenish, tinged purple. 1-nerved, base tapering; stamens attached near the middle of the perianth lobes; ovary 3-celled, 1.5 mm, obovoid, ovule solitary in each cell, stigma simple. Berry 5 mm across, globose.

*Fl. & Fr.* December – February

*Dist.* Occasional in dry deciduous forests

Palapetty, *KKS 15765*

#### URCINEA Steinh.

**Urginea indica** (Roxb.) Kunth, Enum. Pl. 4: 333. 1843; Wight, Ic. t. 2063. 1853; Fl. Brit. India 6: 347. 1892; Fl. Pres. Madras 1527. 1928; Matthew. Fur. Ill. Fl. TN. Carnatic t. 617. 1988. **Urginea coromandelina** (Roxb.) Hook. f., Fl. Brit. India 6: 347. 1892; Fl. Pres. Madras 1527. 1928. **U. wightiana** Hook. f., Fl. Brit. India 6: 347. 1892.

Erect herbs, bulb ovoid, to 10 cm across. Leaves rosette, to 40 x 3 cm, linear-lanceolate, acute. Racemes terminal, to 15 cm; bracts peltate, to 1 cm; peduncles to 50 cm; pedicels to 1.5 cm; perianth lobes 6, 1.5 cm long, oblong; filaments 1 cm, flattened, anthers 4 mm, versatile; ovary many ovuled, style 5 mm, stigma capitate.

*Fl. & Fr.* December-March

D i s t. Common in dry deciduous forests

Periyakunnu, *KKS 11770*

## SMILACACEAE

### SMILAX L.

1. Umbels sessile on axillary racemes

: *S. aspera*

1. Umbels peduncled on many branched cymes, sheath of petiole broad : *S. perfoliata*

*Smilax aspera* L., Sp. Pl. 1028. 1753; Fl. Brit. India 6: 306. 1892; Fl. Pres. Madras 1518. 1928.

*S. maculata* Roxb., Fl. Ind. 3: 796. 1832; Wight, Ic. t. 2059. 1853.

Climbing shrubs, stems prickly. Leaves to 8 x 6 cm, broadly ovate, acuminate, base broadly cordate, coriaceous, margins crispate, 5-9 nerved; petiole twisted, to 2 cm, sheath reduced, tendrils axillary from the very base, coiled. Umbels sessile on axillary racemes. flowers unisexual; male flowers-perianth lobes 3 mm, lanceolate; filaments 1.2 mm, anthers 1 mm.

*Fl. & Fr.* February-June

D i s t. Rare, in shola forests

Olikkudy, *KKS 17336*

*Smilax perfoliata* Lour., Fl. Cochinch. 2: 622. 1790; Matthew, Fl. TN. Carnatic 1647. 1983 & Fur. Ill. Fl. TN. Carnatic t. 616. 1988. *S. prolifera* Wall. ex Roxb., Fl. Ind. 3: 795. 1832; Fl. Brit. India 6: 312. 1892; Fl. Pres. Madras 1519. 1928.

Stout climbing shrubs. Leaves to 20 x 12 cm, broadly oblong, ovate, apex obtuse, basally 5-7 nerved, thickly coriaceous, cuspidate; petiole to 4 cm. stout, angled, sheathing to the middle, tendrils coiled. Umbels on axillary racemes, to 12 cm; bracts ovate, 1 cm; outer perianth, 6 x 2 mm, broadly oblong, inner ones 6 x 1 mm, apiculate: filaments 5 mm, anthers 2 mm, oblong; female flowers- staminodes 6, linear; ovary 2 mm, globose, stigma 3, recurved.

*Fl.* February-May

D i s t. Common in wet areas in moist deciduous forests

Olikkudy, *KKS 15998, 18220*

## PONTEDERIACEAE

### MONOCHORIA Presl.

*Monochoria vaginalis* (Burm.) Reliq. Haenk. 1: 128. 1827; Fl. Madras 1529. 1931; Baker in Steenis, Fl. Males. ser. 1, 4: 256. 1951. *Pontederia vaginalis* Burm. f., Fl. Ind. 80. 1768.

Marshy herbs. Leaves few to several, to 6 x 4 cm, ovate, acute at apex, cordate to hastate at base; petiole to 30 cm long. Racemes on upper nodes of emergent stems; bracts 1-1.5 cm long, lanceolate; perianth lobes petaloid, to 15 mm long, blue; stamen 6, one larger than others; ovary ellipsoid, style filiform. Capsule 8 x 6 mm, oblong; seeds many, ribbed, dull brown.

*Fl. & Fr.* December-February

D i s t. Occasional in marshy and aquatic areas

Ichampetty, *KKS 18293*

## XYRIDACEAE

### XYRIS L.

**Xyris capensis** Thunb. var. **schoenoides** (Mart.) Nilsson in Kongl. Vet. Akad. Forth. 3: 154. 1891; Matthew, Fl. TN. Carnatic 1652. 1983. *X. schoenoides* Mart. in Wall. Pl. Asiat. Rar. 3: 30. 1832; Fl. Brit. India 6: 365. 1892; Fl. Pres. Madras 1532. 1931.

Tufted herbs. Leaves all radical, 10-15 x 0.5-0.8 cm, flat, lanceolate, apex acute; scape to 40 cm long. Heads terminal. solitary, ellipsoid, to 1 cm: bracts to 8 mm, orbicular, persistent; outer perianth unequal, deciduous; inner yellow, clawed; stamens 3, filaments to 2 mm; ovary 1 mm, one celled, many ovuled, style tri-fid, stigma papillose.

*Fl.* April-June

D i s t. Common in grasslands

Pothumala, *KKS 17362*

## COMMELINACEAE

- |                                                         |                        |
|---------------------------------------------------------|------------------------|
| 1. Flowers in cymes; stamens 3 or 6                     | : 2                    |
| 1. Flowers in panicles or clusters; stamens 2 or 3      | : 4                    |
| 2. Stamens 6                                            | : 3                    |
| 2. Stamens 3                                            | : <b>Commelina</b>     |
| 3. Flowers not enclosed in spathe; leaf sheath inflated | : <b>Tonningia</b>     |
| 3. Flowers enclosed in spathe; leaf sheath not inflated | : <b>Cyanotis</b>      |
| 4. Flowers regular                                      | : <b>Murdannia</b>     |
| 4. Flowers irregular                                    | : <b>Dictyospermum</b> |

### COMMELINA L.

- |                                          |                       |
|------------------------------------------|-----------------------|
| 1. Spathe cucullate; capsule 3-celled    | : <b>C. maculata</b>  |
| 1. Spathe ovate; capsule 2-celled        | : 2                   |
| 2. Spathes red spotted; seeds pitted     | : <b>C. clavata</b>   |
| 2. Spathes not red spotted; seeds smooth | : <b>C. ensifolia</b> |

**Cornmelina clavata** Clarke, Commelyn. Cyrtandr. Bengal. t. 5. 1874; Fl. Brit. India 6: 371. 1892; Fl. Pres. Madras 1539. 1931; Matthew, Fl. TN. Carnatic 1657. 1983.

Herbs. Leaves to 9 x 1 cm, lanceolate, apex acute, base slightly cordate, sheath to 2 cm, open, long ciliate. Cymes axillary; peduncles to 5 cm, spathe 4.5 x 2 cm, broadly ovate, acuminate. base cordate; outer sepals 5 mm, cucullate; inner 2, smaller: petals 9 mm, obovate;

filaments 8 mm, hairy; ovary 2 mm, style 6 mm, stigma globose. Capsule 2-celled, constructed at the middle; seeds 4, 2 mm, pitted.

*Fl. & Fr.* March-June

*D i s t.* Common in wet areas in moist deciduous forests

Vanchikulam, *KKS 15630*

*Commelina ensifolia* R. Br., Prodr. 269. 1810; Fl. Brit. India 6: 374. 1892; Fl. Pres. Madras 1540. 1931; Matthew, Fl. TN. Carnatic 1658. 1983.

Slender herbs, internodes long. Leaves to 12 x 0.6 cm, lanceolate, acute at apex, with deciduous hairs; sheath 3 cm, oblique at base, long ciliate. Cymes axillary; flowers blue; bracts 1.5 cm, single, broadly ovate, aristate; peduncles to 5 mm, truncate; sepals 4 mm, ovate; petals 7 mm, oblong. Capsule 2-celled, one ovuled each.

*Fl. & Fr.* February-March

*D i s t.* Common in dry rocky areas

Manala, *KKS 11905*

*Commelina maculata* Edgew., Trans. Linn. Soc. London 20: 89. 1846; R. Rao, Blumea 14: 353. 1966. *C. obliqua* Bunch.-Ham ex D. Don, Prodr. 45. 1825; Fl. Brit. India 6: 372. 1892; Fl. Pres. Madras 1539. 1931.

Herbs, pubescent. Leaves to 11 x 4 cm, lanceolate, acute, pubescent, base cuneate; petiole to 1 cm, sheath 2.5 cm, pubescent, mouth oblique with long rufous hairs. Racemes axillary, spathes to 2 cm, cucullate, acute, hirsute outside; flowers blue; sepals 3.5 mm, ovate; petals 8 mm, obovate; anther lobes unequal. Capsule 3-celled, one-ovuled.

*Fl. & Fr.* December-February

*D i s t.* Common in moist deciduous forests

Champakkad, *KKS 18294*

#### CYANOTIS D. Don *nom. cons.*

- |                                                 |                          |
|-------------------------------------------------|--------------------------|
| 1. Root <b>tuberous</b>                         | : <i>C. tuberosa</i>     |
| 1. Root <b>fibrous</b>                          | : <b>2</b>               |
| 2. Plants <b>cottony</b>                        | : <i>C. fasciculata</i>  |
| 2. Plants <b>villous</b> or <b>glabrous</b>     | : <b>3</b>               |
| 3. Bracts at least twice exceeding the cymes    | : <i>C. cristata</i>     |
| 3. Bracts more or less equal to the cymes       | : <b>4</b>               |
| 4. Leaves more than 10 cm long, apex acute      | : <i>C. villosa</i>      |
| 4. Leaves less than 2.5 cm, apex long mucronate | : <i>C. papilionacea</i> |

*Cyanotis cristata* (L.) Don. Prodr. 46. 1825; Wight, Ic. t. 2085. 1853; Fl. Brit. India 6: 385. 1892; Fl. Pres. Madras 1549. 1931; Matthew, Fl. TN. Carnatic 1662. 1983. *Commelina cristata* L., Sp. Pl. 42. 1753.

Herbs, pilose, rooting at the lower nodes, internodes elongate. Leaves to 7 x 1 cm, lanceolate, oblong, apex acute, base cordate, ciliate; sheath to 1 cm. Flowers to 6 mm; bracts longer 7 cm, bracteoles many, recurved. Capsule hairy at the apex.

*Fl. & Fr.* November-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11520, 11643*

*Cyanotis fasciculata* (Heyne ex Roth) Schultes f., *Syst. Veg.* 7: 1152. 1830; Wight,  *Ic. t.* 2086. 1853; *Fl. Brit. India* 6: 387. 1892; *Fl. Pres. Madras* 1550. 1931; Matthew, *Fl. TN. Carnatic* 1662. 1983. ***Tradescantia fasciculata*** Heyne ex Roth, *Nov. Pl. Sp.* 189. 1821.

Slender herbs, decumbent, cottony. Leaves to 8 x 0.6 cm, oblong, apex apiculate, white woolly; sheath 2 cm. Flowers axillary and terminal, blue; bracts to 1.5 cm, exserted; bracteoles ovate, cottony, woolly. Capsule 3 mm, oblong, pilose at the apex.

*Fl. & Fr.* December-January

*D i s t.* Common in dry deciduous forests

Karumpara, *KKS 11809*; Alampetty, *15867*; Ichampetty, *15748*

*Cyanotis papilionacea* (L.) Schultes f., *Syst. Veg.* 7: 1151. 1830; *Fl. Brit. India* 6: 384. 1892; *Fl. Pres. Madras* 1549. 1931. ***Tradescantia papilionacea*** L., *Mant. Pl.* 513. 1771.

Profusely branched herbs, rooting at lower nodes, branchlets pubescent. Leaves to 2 x 0.7 cm, oblong-lanceolate, apex acute, pubescent, mucronate; sheath to 5 mm, pubescent. Flowers axillary and terminal, blue; bracts 1.5 cm, ovate, lanceolate; bracteoles to 10 pairs, pubescent, ciliate, acute. Capsule 2 mm, pilose at the apex, oblong.

*Fl. & Fr.* September-November

*D i s t.* Common in rocky areas in moist deciduous forests

Chinnar, *KKS 11563*; Alampetty, *15863*

*Cyanotis tuberosa* (Roxb.) Schultes f. *Syst. Veg.* 7: 1153. 1830; *Fl. Brit. India* 7: 386. 1892; *Fl. Pres. Madras* 1549. 1931; Matthew, *Fl. TN. Carnatic* 1663. 1983. ***Tradescantia tuberosa*** Roxb., *Pl. Cor. t.* 108. 1799.

Herbs, roots tuberous. Leaves to 20 x 1 cm, lanceolate, oblong, acute, woolly below, margins ciliate. Cymes terminal and axillary; peduncles to 2.5 cm; bracts 1.5 cm, ovate, woolly bracteoles 10- 15 pairs, lanceolate. villous. Capsule to 2 mm; seeds 6, pyramidal.

*Fl. & Fr.* August-September

*D i s t.* Occasional on wet rocks

Chengamperu, *KKS 15816*

*Cyanotis villosa* (Spreng.) Schultes f., *Syst. Veg.* 7: 1155. 1830; *Fl. Brit. India* 6: 387. 1892; *Fl. Pres. Madras* 1540. 1931; Matthew, *Fl. TN. Carnatic* 1664. 1983. ***Tradescantia villosa*** Spreng., *Syst. Veg.* 2: 116. 1825.

Herbs; branchlets weak. Leaves to 12 x 2 cm, lanceolate, acute. base slightly cordate, woolly underneath; sheath to 2.5 cm, pubescent, mouth ciliate. Cymes terminal and axillary, bracteoles to 1.5 cm, pubescent, lanceolate; flowers blue: sepals 7 mm, ciliate outside, ovate, acute; petals

free at the tip, 7 mm, oblong; filaments 4 mm, villous; ovary 1 mm, pubescent, style 3.5 mm, 3-celled, 2-ovuled each.

*Fl. & Fr.* February-March

*D i s t.* Common in shola forests

Olikkudy, *KKS 17261*

#### DICTYOSPERMUM Wight

**Dictyospermum scaberrimum** (Blume) Morton ex Hara *et ul.*, Enum. Fl. Pl. Nepal 1: 82. 1982. *Commelina scaberrima* Blume, Enum. Pl. Jav. 1: 4. 1827. *Aneilemn scaberrimum* (Blume) Kunth, Enum. Pl. 4: 69. 1592; Fl. Brit. India 6: 382. 1892; Fl. Pres. Madras 1546. 1931. *Dictyospermum protensum* Wight, Ic. t. 2071. 1853.

Herbs, procumbent and rooting at lower nodes. Leaves distantly placed, to 20 x 5 cm, oblong-lanceolate, acuminate, base rounded and then cuneate, puberulous above: sheath closed, to 3 cm, puberulous. Mouth with long hairs. Cymes paniced, terminal; bracts 2-5 mm, persistent, funnel shaped; flowers white, 3-merous. Capsule 3 mm across, globose, pubescent; seed one.

*Fl. & Fr.* August-October

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS 18295*

#### MURDANNIA Royle *num. cons.*

- |                                             |                       |
|---------------------------------------------|-----------------------|
| 1. Petals white; seeds 2 rowed in each cell | : <b>M. zeylanica</b> |
| 1. Petals blue; seeds 1 rowed in each cell  | : <b>2</b>            |
| 2. Leafbase amplexicaule                    | : <b>M. spirata</b>   |
| 2. Leafbase not amplexicaule                | : <b>M. dimorpha</b>  |

**Murdannia dimorpha** (Dalz.) Brueck. in Engl. & Prantl, Pflanzenf. (ed. 2) 15a: 173. 1930; Karthik. *et al.*, Fl. India Enum. 28. 1989. *Aneilema dimorpha* Dalz. in Hook.'s J. Bot. Kew Gard. Misc. 3: 138. 1851; Fl. Brit. India 6: 377. 1892; Fl. Pres. Madras 1545. 1931. *A. paniculata* Wight, Ic. t. 2075. 1853.

Herbs, root fibrous. Leaves 3-5 to 5-0.8 cm, lanceolate, acute, margin hyaline. Cymes branched; bracts 2 mm, ovate; flowers blue; sepals 4 x 2.5 mm, oblong; petals 5 x 3 mm, obovate, delicate; filaments 2.5 mm, pilose; ovary 1 mm, style short, stigma minute. Capsule ellipsoid, dehiscent.

*Fl. & Fr.* April-May

*D i s t.* Common in wet areas in moist deciduous forests

Ichampetty, *KKS 15644*

**Murdannia spirata** (L.) Brueck. in Engl. & Prantl, Pflanzenf. (ed. 2) 15a: 173. 1930; Panigr. & Kammathy, Proc. Nat. Acad. Sci. India 33: 495. 1963; Matthew, Fl. TN. Carnatic 1667. 1983 & III. Fl. TN. Carnatic t. 752. 1982. *Commelina spirata* L., Mant. Pl. 176. 1771. *Aneilema spiratum* (L.) R. Br., Prodr. 271. 1810; Fl. Brit. India 6: 377. 1892; Fl. Pres. Madras 1546. 1931.

Procumbent herbs. rooting at lower nodes, fibrous. Leaves to 3 x 1 cm. ovate, lanceolate, acute. base cordate, amplexicaule; sheath to 1 cm. puberulous. Cymes terminal and from the upper axils; flowers blue. Capsule 5 mm, ellipsoid. dehiscent.

*Fl. & Fr.* May-July

**D i s t.** Not common in **wet** sandy areas

Chinnathuvanam, *KKS* 15709

**Murdannia zeylanica** (Clarke) Brueckner var. **longiscapa** (Clarke) R. Rao & Kammathy in Bull. Bot. Surv. India 3: 394. 1961 (1962). *Aneilema zeylanicum* Clarke var. *longiscapa* Clarke in A. DC. Monog. Phan. 3: 304. 1881; Fl. Brit. India 6: 376. 1892; Fl. Pres. Madras 1544. 1931.

Creeping robust herbs. rooting at lower nodes. Leaves to 13 x 3 cm. lanceolate, apex acute or acuminate; sheath closed. to 3 cm. puberulous, many nerved. Panicles terminal. to 12 cm; bracts to 3 cm, lanceolate; flowers white. Capsule 6 mm. 3-valved. dehiscent ellipsoid.

*Fl. & Fr.* September-October

**D i s t.** Common in shola forests: endemic to Peninsular India.

Kariveppinshola, *KKS* 17441

#### TONNINGIA Neck ex A. Juss.

**Tonningia axillaris** (L.) O. Ktze., Rev. Gen. Pl. 2: 721. 1891. *Commelina axillaris* L., Sp. Pl. 42. 1753. *Cyanotis axillaris* (L.) Schultes & Schultes f., Syst. 7: 1154. 1830; Fl. Brit. India 6: 388. 1892; Fl. Pres. Madras 1550. 1931. *Amischophacelus axillaris* (L.) R. Rao & Kammathy in J. Linn. Soc. Bot. 59: 306. 1966; Matthew, Fl. TN. Carnatic 1655. 1983 & Ill. Fl. TN. Carnatic t. 750. 1982.

Prostrate herbs. Leaves to 7 x 0.7 cm, lanceolate, acute, margins, ciliate. flat; sheath 1 cm. oblique, mouth ciliate. open half way down. Cymes in axillary clusters: bracteoles 3 mm, linear; flowers blue: corolla tube to 3 mm; filaments pilose; ovary 3-celled. Capsule beaked.

*Fl. & Fr.* December-February

**D i s t.** Not common in wet areas

Pnchakathithode. *KKS* 11676

## JUNCACEAE

### JUNCUS L.

**Juncus prismatocarpus** R. Br., Prodr. 259. 1810; Fl. Brit. India 6: 395. 1892 p.p.; Fl. Pres. Madras 1553. 1931; Matthew, Fl. TN. Carnatic 1668. 1983 & Ill. Fl. TN. Carnatic t. 753. 1982.

Tufted herbs. rootstock creeping. Leaves both radical and cauline, to 6 x 0.3 cm, terete. hollow, septate; sheath to 2 cm, open, auricled. Cymes terminal, corymbose, 10-15 cm; bracts 1.5 mm, ovate, acuminate; outer perianth lobes concave, 3 mm, lanceolate, acute, hyaline; filaments 1.5 mm; ovary 0.8 mm, one celled, many ovuled, stigma 3-lobed, linear, twisted. Capsule 3 mm, prismatic.



*Fl. & Fr.* April-June

*D i s t.* Common in grasslands

Pothumala. *KKS I7363*

## ARECACEAE

1. Stem climbing; fruits scaly

: **Calamus**

1. Stem erect; fruits not scaly

: **Phoenix**

### CALAMUS L.

**Calamus gamblei** Beccari ex Beccari & Hook. f. in Hook. **f.**, *Fl. Brit. India* 6: 453. 1893; *Fl. Pres. Madras* 1568. 1931.

Culms to 15 m long and 2.5 cm across with sheath. Leaves to 1.2 m long; leaflets many, to 40 x 2.5 cm. lanceolate. acuminate. bristly: petiole to 25 cm long, spines to 2.5 cm long; rachis with hooked spines; sheath green, knee prominent, ochrea inconspicuous, spines on sheath scattered. to 1.5 cm long; flagellum to 4 m long. Fruit shortly stalked. globose, 1.5-2 cm across, slightly tapering at base, scales in 23 rows, deeply channelled.

*Fl. & Fr.* October-April

*D i s t.* Occasional in shola forests: endemic to Peninsular India.

Olikkudy, *KKS I7276*

### PHOENIX L.

**Phoenix loureirii** Kunth, *Enum. Pl.* 3: 257. 1841. **P. humilis** Royle var. *pedunculata* Beccari, *Males.* 3: 379 & 387. t. 44. ff. 13-15. 18-21. 35-27. 1890; *Fl. Brit. India* 6: 427. 1892; *Fl. Pres. Madras* 1560. 1931.

Shrubs. Leaves pinnate. to-100 cm long; leaflets to 60 x 0.8 cm, linear-lanceolate, lowest one to 2 pairs, spinescent, acuminate, coriaceous, sessile. obliquely attached to the rachis. Spadix axillary, many, to 100 cm. branches *ca.* 12, branchlets 12 cm. Fruit 1.6 x 0.5 cm, oblong, brown. perianth lobes persistent.

*Fl. & Fr.* February-May

*D i s t.* Common in moist deciduous forests

Vanchikulam. *KKS I5624*

## TYPHACEAE

### TYPHA L.

**Typha angustata** Bory & Cliaub.. *Exped. Sci. Morec Bot.* 1: 338. 1833; *Fl. Brit. India* 6: 489. 1893; *Fl. Pres. Madras* 1571. 1931; Matthew, *Fl. TN. Carnatic* 1684. 1983 & *Ill. Fl. TN. Carnatic* t. 763. 1982. **T. angustifolia** auct. non L. 1753; Roxb., *Fl. Ind.* 3: 507. 1832.

Herbs. terete. Leaves to 200 x 0.7 cm, distichous, linear. apex acute. base sheathing, narrowed, inside very lamellate, spongy. Spikes cylindrical, male and female flowers separated

by sterile space of 2 cm long; lower flowers females, clustered, to 15 cm long, gynophore 1.5 mm; ovary 1 mm, style to 3 mm, stigma flattened; male flowers clustered to the tip above, 25 cm long; stamens 2 or 3, filaments connate, anthers 2 mm, connectives thickened.

*Fl. & Fr.* January-March

*D i s t.* Common in wet sandy soils near riversides

Manala, *KKS 11907*

## ARACEAE

- |                                                                                                    |                         |
|----------------------------------------------------------------------------------------------------|-------------------------|
| 1. Leaves simple                                                                                   | : 2                     |
| 1. Leaves compound                                                                                 | : 3                     |
| 2. Neutre flowers present                                                                          | : <b>Theriophonum</b>   |
| 2. Neutre flowers absent                                                                           | : <b>Cryptocoryne</b>   |
| 3. Leafless at the time of flowering; leaves tri-partiate and again pinnatisect; flowers monoceous | : <b>Amorphophallus</b> |
| 3. Leafy at the time of flowering; leaves radiatisect; flowers dioecious                           | : <b>Arisaema</b>       |

### AMORPHOPHALLUS Blume ex Decne. nom. cons.

**Amorphophallus bulbifer** (Roth.) Bl., Rumph. 1: 148. 1837; Fl. Pres. Madras 1587. 1931. *Arum bulbiferum* Roxb., Fl. Ind. 3: 510. 1832.

Large herbs, bulb globose, to 10 cm across. Leaves 3-partite, to 40 cm across, segment, pinnatisect, bulbiferous at the base and forks and on the nerves above: petiole to 1 cm long, spotted brown; leaflets, to 20 cm, obovate, lanceolate. Spadix sessile; spathe to 40 x 10 cm, at the broadest part, pale pink; male and female contiguous; female flowers covering 4.5 cm of the spike; male flowers to appendages cylindrical.

*Fl.* January-March

*D i s t.* Rare, in dry deciduous forests

Athiodai, *KKS 18296*

### ARISAEMA Mart.

**Arisaema leschenaultii** Blume, Rumph. 1: 93. 1836; Fl. Brit. India 6: 504. 1893; Fl. Pres. Madras 1585. 1931; Matthew, Fl. TN. Carnatic 1688. 1983 & Ill. Fl. TN. Carnatic t. 765. 1982.

Herbs, corm subglobose, 3 cm across, roots arise from the upper part of the tuber. Leaflets radiatisect, 7-11, to 9 x 3 cm, elliptic, acuminate, margins papillose, caudate at base, nerves close and intramarginal; petiole to 40 cm long, mottled with brown. Spathe 12 x 3 cm, limb as long as the tube, greenish. Spike included; stamens many, in groups of 2-4.

*Fl. & Fr.* April-June

*D i s t.* Rare, in shola forests

Pothumala, *KKS 17344*

### CRYPTOCORYNE Fischer ex Wydler

**Cryptocoryne consubrina** Schott in Bonplandia 5: 222. 1857; Fl. Brit. India 6: 493. 1893; Fl. Pres. Madras 1574. 1931.

Stemless marshy herbs. Leaves radical, to 8 x 1.2 cm, oblong, lanceolate, pilose, acute-acuminate, membranous; petiole to 6 cm, sheathing. Spathe to 12 cm long, connate to tube below and septate above the spike and elongated into acuminate tube, widened at the middle; female flowers at the base of the spike, clustered, male above separated by a sterile region of 1 cm long; ovaries 6, in a whorl, one celled, ovules many; male flowers many, forming a cylinder, 4 mm, apex conical; stamen 1, minute, anthers sessile.

*Fl.* November-February

*D i s t.* Rare, near water streams in dry deciduous forests; endemic to Peninsular India endangered.

Champakkad, *KKS 15930*

### Theriodaphnum Blume

**Theriodaphnum sivaganganum** (Ramam. & Sebastine) Bogner in Bull. Bot. Surv. India 10: 244. 1968; Sivadasan & Nicolson in Kew Bull. 37: 289. 1982; Matthew, Fl. TN. Carnatic 1701. 1983. *Pauella sivagangana* Ramam. & Sebastine in Bull. Bot. Surv. India 8: 348. 1966(1967).

Stemless herbs, corm 2.5 cm across. Leaves to 20 x 0.6 cm, oblong, lanceolate, acute at apex; petiole to 15 cm long, sheathing-at the base. Spadix to 25 cm long, 2 cm at the broadest part; spathe with narrow basal part, tip purplish; female flowers in a ring at the base, obovoid; neuter flowers present between the male and female flowers subulate, upper ones shorter than the basal; male flowers dense.

*Fl. & Fr.* July-October

*D i s t.* Rare, in wet rocky areas in dry deciduous forests; endemic to Peninsular India and endangered.

Chengamperu, *KKS 15815*

## ERIOCAULACEAE

### ERIOCAULON L.

- |                                     |                            |
|-------------------------------------|----------------------------|
| 1. Petals absent in female flowers  | : <b>E. cinereum</b>       |
| 1. Petals present in female flowers | : 2                        |
| 2. Female petals glandular          | : <b>E. quinquangulare</b> |
| 2. Female petals not glandular      | : <b>E. brownianum</b>     |

**Eriocaulon brownianum** Martius ex Wallich, 25. 1832; Fl. Brit. India 576. 1893; Ansari & Balakr., Eriocaul. India 27. 1994. *E. nilagirensis* Steudel 271. 1855. *E. brownianum* Martius var. *nilagirensis* (Steud.) Fyson in J. Indian Bot. Soc. 2: 262. 1921; Fl. Pres. Madras 1619. 1931.

Small herbs, rootstock absent. Leaves rosulate, to 35 x 1.2 cm, linear, subacuminate, sparsely pubescent: peduncles 1-4, sheaths to 30 cm long, limb lanceolate acuminate. Heads globose, to 15 mm across, white or grey; receptacle globose, villous. involucre bracts ca. 4 x 3 mm, oblong-obovate, black. Floral bracts 3 x 1 mm, oblanceolate, acute, black; male flowers -

sepals 2.5 x 1.5 mm, obovate, 3-lobed, petals 3, subequal; anthers 6, black; female flowers - sepals dissimilar, black; petals spatulate, hyaline; seeds oblong-ovoid, dark purple.

*Fl. & Fr.* April-June

*D i s t.* Common in grasslands

Pothumala, *KKS 17364*

**Eriocaulon cinereum** R. Br., Prodr. 254. 1810; Matthew, Fl. TN. Carnatic 1719. 1983 & Fur. III. Fl. TN. Carnatic t. 621. 1988; Ansari & Balakr., Eriocaul. India 179. 1994. *E. sieboldianum* Sieb. & Zeucc. ex Steud. Syn. Pl. Glumac. 2: 272. 1855; Fl. Brit. India 6: 577. 1893; Fl. Pres. Madras 1619. 1931.

Herbs, rootstock absent. Leaves prostrate, to 5 x 0.2 cm, acicular; sheath 2 cm, limb ovate. Heads hemispherical, 4 mm across, black; involucre bracts 1.5 x 0.7 mm, oblong-obovate; floral bracts 2 x 0.2 mm, linear-elliptic, black; male flowers - sepals connate, spathe 3-lobed, black; petals 3, glandular; anthers 6; female flowers - sepals 1 or 2, free, hairy, black; petals absent; ovary stalked; seeds 0.3 x 0.2 mm, ovoid-ellipsoid.

*Fl. & Fr.* March-May

*D i s t.* Common in marshy areas

Ichampetty, *KKS 15578*

**Eriocaulon quinquangulare** L., Sp. Pl. 87. 1753; Fl. Brit. India 5. 582. 1893; Fl. Madras 1620. 1931; Matthew, Fl. TN. Carnatic 1721. 1983; Ansari & Balakr., Eriocaul. India 104. 1994.

Stemless herbs. Leaves to 6 x 0.6 cm, falcate, acuminate. Heads 6 x 5 mm, ovoid; involucre bracts 2 x 2 mm, obovate, toothed at apex, straw coloured; floral bracts 2.5 x 1.2 mm cuneate, abruptly acuminate, black; male flowers-sepals black, minutely hairy, lobes truncate, petal equal hairy; female flowers linear, sparsely hairy, black; petals linear-oblong, hairy, hyaline, glandulose. Seeds oblong. appendages entire or cut into rectangular strips on transverse walls.

*Fl. & Fr.* November-January

*D i s t.* Common in grasslands

Ollavayal, *KKS 18311*

## CYPERACEAE

- |                                                |                              |
|------------------------------------------------|------------------------------|
| 1. Flowers unisexual                           | : 2                          |
| 1. Flowers bisexual                            | : 3                          |
| 2. Nut enclosed in utricle                     | : <b>Carex</b>               |
| 2. Nut not enclosed in utricle                 | : <b>Scleria</b>             |
| 3. Glumes distichous                           | : 4                          |
| 3. Glumes spirally arranged                    | : 8                          |
| 4. Style base dilated at the base, constricted | : <b>Fimbristylis (p.p.)</b> |
| 4. Style base not dilated, constricted         | : 5                          |
| 5. Stigmas 2                                   | : 6                          |

- |                                                                                               |                              |
|-----------------------------------------------------------------------------------------------|------------------------------|
| 5. Stigmas 3                                                                                  | : 7                          |
| 6. Rachilla articulated; spikelets in globose heads                                           | : Kyllinga                   |
| 6. Rachilla persistent; spikelets not in globose head                                         | : Pycurus                    |
| 7. Rachilla persistent                                                                        | : Cyperus                    |
| 7. Rachilla deciduous above the two basal glumes leaving a knob                               | : Mariscus                   |
| 8. Hypogynous scales absent, enclosing the nut; styles not dilated or constricted at the base | : Lipocarpha                 |
| 8. Hypogynous scale 0; styles dilated or constricted at the base                              | : 9                          |
| 9. Style base persistent, if falling, not leaving a tumour on the nut                         | : <i>Fimbristylis</i> (p.p.) |
| 9. Style base deciduous, leaving a tumour on the nut                                          | : <i>Bulbostylis</i>         |

### BULBOSTYLIS Kunth

**Bulbostylis barbata** (Rottb.) Kunth ex Clarke in Hook. f., Fl. Brit. India 6: 651. 1893; Fl. Pres. Madras 1662. 1934; Matthew, Fl. TN. Carnatic 1725. 1983 & Ill. Fl. TN. Carnatic t. 778. 1982. *Scirpus barbatus* Rottb., Progr. 27. 1772.

Culms tufted. slender. Leaves to 10 x 0.025 cm, capillary or filiform; sheath brown, to 2 cm. Spikelets many flowered. to 7 mm long; bracts 3, 1-2 cm; glumes 2 mm, ovate, brown, keeled. 3-nerved, mucronate at apex; stamens 2 or 3, stigmas 3. style persistent. Nut 0.5 mm, obovoid, triangular, pale, smooth.

*Fl. & Fr.* July-September

*D i s t.* Rare, in wet rocky areas

Manala, *KKS 15832*

### CAREX L.

**Carex filicina** Nees in Wight, Contr. 123. 1834; Fl. Brit. India 6: 717. 1894; Fl. Pres. Madras 1686. 1934; Matthew, Fl. TN. Carnatic 1727. 1983 & Ill. Fl. TN. Carnatic t. 779. **1982.**

Robust tall herbs, rhizome clothed with brown scales or remnants. Leaves radical, 30-60 x 1.5 cm, nerves raised. prominent, margins spinulose; sheaths purple brown. Panicles terminal spreading 20-30 cm: bracts 5-15 cm long; spikelets many flowered, androgynous; rachilla persistent, pubescent, glumes 2 mm, ovate, brown; staminate flowers-upper glume 4 mm, lanceolate; stamens 3: female flowers-glumes 3 mm, lanceolate. brown: ovary enclosed in the utricle; beaked, styles 3. Nut trigonous.

*Fl. & Fr.* February-April

*D i s t.* Common in moist deciduous forests

Mavelikkudy, *KKS 17206*

### CYPERUS L.

- |                                             |                        |
|---------------------------------------------|------------------------|
| 1. Spikelets distinctly spicate or racemose | : 2                    |
| 1. Spikelets clustered or digitate          | : 3                    |
| 2. Rachilla winged                          | : <i>C. pangorei</i>   |
| 2. Rachilla hardly winged                   | : <i>C. iria</i>       |
| 3. Glumes distinctly mucronate at apex      | : <i>C. cuspidatus</i> |
| 3. Glumes obtuse at apex                    | : 4                    |

4. Nut trigonous, unequal sided

: *C. difformis*

4. Nut globose

: *C. tenuispica*

*Cyperus cuspidatus* Kunth in H.B.K., Nov. Gen. Sp. 1: 204. 1815; Fl. Brit. India 6: 598. 1893; Matthew, Fl. TN. Carnatic 1735. 1983. *C. uncinatus* sensu Fischer in Gamble, Fl. Pres. Madras 1639. 1931.

Small herbs, reddish brown, obscurely angled. Leaves to 4 x 0.2 cm. Spikelets to 5 x 8 mm, clustered, many flowered; bracts 3, to 3 cm, unequal; rachilla to 4 mm, persistent; glumes 1.5 mm, ovate, brown, distinctly mucronate at apex, 3-nerved. Nut 0.8 mm, trigonous.

*FZ & Fr.* October-February

*D i s t.* Common in wet regions

Churullipetty, KKS 18297

*Cyperus difformis* L., Cent. Pl. 2: 6. 1756; Fl. Brit. India 6: 599. 1893; Fl. Pres. Madras 1640. 1931; Matthew, Fl. TN. Carnatic 1736. 1983 & Ill. Fl. TN. Carnatic t. 781. 1982.

Culms tufted, stem flat. Leaves to 18 x 0.4 cm, apex acute. Umbels compound, primary rays to 4 cm; spikelets in terminal clusters, to 4 mm, sessile, many flowered, brown; bracts 3, 2-15 cm, unequal; rachilla persistent, not winged; glumes 0.7 mm, obovate, hyaline at apex; stamens 2, to 0.5 mm, styles 3, deciduous. Nut trigonous, 0.5 mm, sides unequal, white, smooth.

*FZ & Fr.* October-February

*D i s t.* Common in wet areas

Churullipetty, KKS 25955

*Cyperus iria* L., Sp. Pl. 45. 1753; Fl. Brit. India 6: 606. 1893; Fl. Pres. Madras 1640. 1931; Matthew, Fl. TN. Carnatic 1738. 1983 & Fur. Ill. Fl. TN. Carnatic t. 640. 1988.

Culms few together, stems triangulate, striated. Leaves to 20 x 0.8 cm, apex acute. Umbels compound; rays to 12 cm, many; spikelets to 1 cm, many flowered; bracts 3-5, 15 x 0.5 cm; rachilla persistent, rachis hardly winged; glumes 1 mm, broadly ovate, apex obtuse, stigmas 3. Nut trigonous, enclosed.

*FZ & Fr.* December-February

*D i s t.* Common in wet areas

Champakkad, KKS 15954

*Cyperus pangorei* Rottb., Descr. Ic. 31. 1773; Fl. Pres. Madras 1641. 1931; Matthew, Fl. TN. Carnatic 1740. 1983 & Fur. Ill. Fl. TN. Carnatic tt. 642, 643. 1988; Koyama in Rev. Handb. Fl. Ceylon 5: 176. 1985. *C. tegetum* Roxb., Fl. Ind. 1: 211. 1820; Fl. Brit. India 6: 613. 1893.

Culms solitary, clothed with brown scales, striate. Leaves to 50 x 1 cm, sheath brown. Umbels terminal, decomposed, primary rays many, corymbose, ultimate branches racemes; spikelets 2.5 cm, brown, oblong, many flowered; sheathing bracts 40 x 1 cm, many; rachis persistent; glumes 3 mm, brown, oblong, obtuse at apex, margins hyaline. Nut trigonous.

*Fl. & Fr.* December-February

*D i s t.* Common on the sides of streams

Pachakathithode, KKS 22674

**Cyperus tenuispica** Steud., Syn. Pl. Glum. 2: 11. 1855; Fl. Pres. Madras **1640**. 1931; Matthew, Fl. TN. Carnatic 1744. 1983 & Fur. Ill. Fl. TN. Carnatic t. 651. 1988; Koyama in Rev. Handb. Fl. Ceylon 5: 205. 1985. **Cyperus flavidus** Trin Retz. 1789, sensu. Clarke in Hook. f., Fl. Brit. India **6**: 600. 1893.

Small herbs. Leaves to 12 x 0.2 cm, few leaved at base. Umbels compound, primary rays many; spikelets 5 mm, brown, many flowered; bracts 3-15 cm; rachilla persistent; glumes ovate, not mucronate; stamens 2. Nut 0.15 mm across, globose, mucronate, white.

*Fl. & Fr.* December-February

*D i s t.* Common in wet areas

Kuttar **KKS 15949**

#### FIMBRISTYLIS Vahl *nom. cons.*

- |                                                                                |                            |
|--------------------------------------------------------------------------------|----------------------------|
| 1. Glumes distichous                                                           | : <b>F. tristachya</b>     |
| 1. Glumes spirally arranged                                                    | : <b>2</b>                 |
| 2. Styles 3-fid                                                                | : <b>3</b>                 |
| 2. Styles 2-fid                                                                | : <b>5</b>                 |
| 3. Spikelets crowded, sessile                                                  | : <b>F. uliginosa</b>      |
| 3. Spikelets in umbels, pedicelled                                             | : <b>4</b>                 |
| 4. Stem <del>terete</del> near the umbels; leaves shorter than culms           | : <b>F. cinnamomeforum</b> |
| 4. Stem flattened near the umbels; leaves as long as or longer than the umbels | : <b>F. complanata</b>     |
| 5. Spikelets many, crowded, sessile                                            | : <b>F. argentea</b>       |
| 5. Spikelets in compound umbels, mostly pedicelled                             | : <b>F. bisumbellata</b>   |

**Fimbristylis argentea** (Rottb.) Vahl. Enum. Pl. 2: 294. 1806; Fl. Brit. India 6: 640. 1893; Fl. Pres. Madras 1659. 1934; Matthew, Fl. TN. Carnatic 1752 1983 & Fur. Ill. Fl. TN. Carnatic t. 658. 1988. **Scirpus argenteus** Rottb., Descr. Ic. 27. 1772.

Culms tufted, stems slender, scabrous, pubescent on the margins. Leaves to 15 x 0.2 cm, radical, linear, acute; sheath 2 cm, brownish; bracts 2, to 7 x 0.2 cm, acute. Umbels compound; spikelets 10-20, 8 mm, sessile, crowded at apex, brownish, cylindrical, densely packed; rachilla persistent; glumes 1 mm. ovate. margins scarious, keeled, apex mucronate. Nut 2 mm, obovoid.

*Fl. & Fr.* January-September

*D i s t.* Common in dry rocky areas

Champakkad, **KKS 15767**

**Fimbristylis bisumbellata** (Forssk.) Bubani. Dodecanthea. 30. 1850; Fl. Pres. Madras 1898. 1934; Matthew, Fl. TN. Carnatic 1752. 1983 & Fur. Ill. Fl. TN. Carnatic t. 659. 1988. **Scirpus bisumbellatus** Forssk., El. Aeg.-Arab. 15. 1775. **Fimbristylis dichotoma** sensu Clarke in Hook. f. Fl. Brit. India **4**: 635. 1893 p.p., non (L) Vahl 1805.

Culms tufted. rhizome slender. Leaves to 15 x 0.3 cm, linear; sheath to 4 cm. pubescent, brown, sometimes with bulbous based hairs. Umbels compound, rays to 3 cm; spikelets 8 x 2 mm. pedicelled, oblong, brownish; bracts 1-3, 4-5 cm; rachilla persistent; glumes 1 mm. broadly ovate, mucronate, brownish. Nut 0.5 mm, obovate, tuberculate, white.

*Fl. & Fr.* February-April

*D i s t.* Common in dry sandy areas; endemic to Peninsular India.

Malarevu, *KKS 15542*

***Fimbristylis cinnamometorum*** (Vahl) Kunth, Enum. Pl. 2: 229. 1937; Matthew, Fl. TN. Carnatic 1753. 1983 & Fur. III. Fl. TN. Carnatic t. 660. 1988. *Scirpus cinnamometorum* Vahl, Enum. Pl. 2: 278. 1806. *Fimbristylis cyperoides* R. Br. var. *cinnamometorum* (Vahl) Clarke in Hook. f., Fl. Brit. India 6: 650. 1893; Fl. Pres. Madras 1659. 1931.

Stem striate, terete at apex. Leaves to 15 x 0.2 cm, linear, many from the root stock, pubescent at the base, ciliate along the margins. Spikelets many, 5 mm, ovate, brown, primary rays *ca.* 10, to 4 cm; bracts 3-5; glumes ovate, mucronate at apex, 3 mm, puberulous; ovary 0.5 mm, style articulated, dilated, style 1 mm, stigma 3, pubescent.

*Fl.* November-February

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 11710*

***Fimbristylis complanata*** (Retz.) Link., Hort. Berol. Descr. 1: 292. 1827; Fl. Brit. India 6: 646. 1893; Fl. Pres. Madras 1659. 1931; Matthew, Fl. TN. Carnatic 1753. 1983 & Fur. III. Fl. TN. Carnatic t. 661. 1988; Koyama in Rev. Handb. Fl. Ceylon, 3: 284. 1985. *Scirpus complanatus* Retz., Obs. Bot. 5: 14. 1791.

Culms tufted, flattened near the apex. Leaves to 25 x 0.3 cm, flat, margins incurved, thickened, blunt at apex, margins scabrous, ciliate; sheath to 4, 1-5 cm. Umbels terminal, rays to 7 cm; bracts 2-4, 3-4 cm; spikelets glumes spirally arranged, many flowered, 0.5 cm, ovate, acute at apex, lower 1-3 glumes empty, nut glumes 2 mm, ovate, cuspidate at apex, margins curved. Nut 2 mm, trigonous.

*Fl. & Fr.* July-September

*D i s t.* Common in wet sandy areas

Chinnar, *KKS 15760*

***Fimbristylis tristachya*** R. Br., Prodr. 226. 1810. *F. schoenoides* auct. non (Retz.) Vahl 1805; Fl. Brit. India 6: 634. 1893 p.p.; Fl. Pres. Madras 1658. 1931; Matthew, Fl. TN. Carnatic 1759. 1983 & III. Fl. TN. Carnatic t. 789. 1982.

Tufted herbs. Leaves to 25 x 0.2 cm, basal linear, margins revolute, glaucous; sheath 2-5 cm. Umbels simple, 2-4 cm; rays 1-5 cm, lower 1-3 bracts empty; spikelets to 1 cm, ovoid, gradually tapering to apex; rachilla persistent, glumes broadly ovate, 6 mm long, basal longer than upper, mucronate, hyaline; ovary 1 mm, trigonous. Nut 2 mm, trigonous, mucronate.

*Fl. & Fr.* July-September

*D i s t.* Common in dry deciduous forests

Champakkad, *KKS 15808*; Chinnar, *11615*

***Fimbristylis uliginosa*** Hocst. ex Steud., Syn. Pl. Glum. 2: 109. 1855; Fl. Brit. India 6: 648. 1891; Fl. Pres. Madras 1660. 1931; Matthew, Fl. TN. Carnatic 1762. 1983 & Fur. III. Fl. TN. Carnatic t. 677. 1988.



Culms tufted, rhizome covered with brown scales. Leaves to 10 x 0.2 cm, linear, puberulous, margins recurved. Umbels simple, sessile; bracts 3-5, 2 cm, linear, acute; spikelets to 1 cm, ovoid, brown, acute at apex, sessile; glumes 4 x 3 mm, ovate, acute, slightly mucronate, brown. Nut ovoid, white, smooth.

*Fl. & Fr.* April-June

*D i s t.* Common in grasslands; endemic to Peninsular India.

Pothumala, *KKS 17382*

**KYLLINCA Rottb. nom. cons.**

- |                                                              |                        |
|--------------------------------------------------------------|------------------------|
| 1. Rhizome absent                                            | : 2                    |
| 1. Rhizome creeping                                          | : <b>K. brevifolia</b> |
| 2. Heads solitary, 3 <sup>rd</sup> glume with spinulose keel | : <b>K. squamulata</b> |
| 2. Heads 3-5, glume devoid of keel                           | : <b>K. bulbosa</b>    |

**Kyllinga brevifolia** Rottb., *Descr. Ic.* 13. 1773; *Fl. Brit. India* 6: 588. 1893; *Fl. Pres. Madras* 1624. 1931; Matthew, *Fl. TN. Carnatic* 1765. 1983 & *Fur. III. Fl. TN. Carnatic* t. 682. 1988; Koyama in *Rev. Handb. Fl. Ceylon* 5: 248. 1985. **Cyperus brevifolia** (Rottb.) Hassk. *Cat. Hort. Bogor.* 24. 1884; Kern, *Fl. Males.* 1. 7: 656. 1974.

Rhizome long, creeping, many branches arise from the rhizome. Leaves to 10 x 0.4 cm, puberulous, acute, bracts usually 3-5, to 10 x 0.3 cm, margins minutely serrate. Heads terminal, solitary, ovoid, sessile; glumes distichous; rachilla deciduous above the two basal glumes. 3rd and 4th glumes keeled, pale green; spikelets 1-flowered, spinulose, apex with a recurved cusp; ovary 1 x 1 mm, ovoid, styles 2.

*Fl. & Fr.* January-March

*D i s t.* Common in wet areas

Champakkad, *KKS 11909*

**Kyllinga bulbosa** Beauv., *Fl. d' Oware & Benin* 1: 11. 1804; Koyama in *Rev. Handb. Fl. Ceylon* 5: 245. 1985. **Cyperus triceps** (Rottb.) Endl., *Cat. Hort. Acad. Uindb.* 1: 94. 1842; Matthew, *III. Fl. TN. Carnatic* t. 785. 1982. **Kyllinga triceps** Rottb., *Descr. Ic.* 14. 1773; *Fl. Brit. India* 6: 587. 1893; *Fl. Pres. Madras* 1623. 1931; Matthew, *Fl. TN. Carnatic* 1768. 1983.

Tufted herbs, rhizome almost absent. stem base swollen. Leaves basal, to 10 x 0.3 cm.; bracts 3-5, to 8 x 0.3 cm. Head terminal, usually 3-5, ovoid, central one larger, 8 mm long; spikelets 1-flowered; rachilla disarticulating above the two basal glumes, dissimilar 0.5-1 mm, hyaline, 3rd and 4th glumes 2 mm; ovary 1 mm, oblong. Nut 1.5 mm, laterally flattened.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11564*

**Kyllinga squamulata** Vahl, *Enum. Pl.* 2: 381. 1806; *Fl. Brit. India* 6: 589. 1893; *Fl. Pres. Madras* 1624. 1931.

Herbs, rhizome very short, stem crowded. Leaves to **50 x 0.5** cm, apex acute, base sheathing, margins serrate. Head solitary, sessile, **0.75** cm across, ovoid; bracts 3-5, to **3 x 0.5** cm; spikelets 1-flowered; rachilla deciduous above the two lower glumes, scarious, 1 and **0.5** mm, 3rd glume **2.5** mm, ovate, **3-5** nerved, keel serrate, mucronate, 4th glume 3 mm, ovate, mucronate, recurved, keel entire, styles 2.

**FZ & Fr.** November-January

D i s t. Common in dry deciduous forests

Churullipetty, **KKS 18298**

#### LIPOCARPHA R. Br.

**Lipocarpa chinensis** (Osbeck) Kern., Blumea, Suppl. **4: 167. 1958**; Matthew, Fl. TN. Carnatic **1769. 1983** & Fur. Ill. Fl. TN. Carnatic t. **685. 1988. **Scirpus chinensis** Osbeck, Dago. Ostind. Resa. **220. 1757. **Lipocarpa argentea** (Vahl) R. Br. ex Nees, Linnaea **9: 287. 1835**; Fl. Brit. India **6: 667. 1893**; Fl. Pres. Madras **1670, 1931**; **Hypaelytrum argenteum** Vahl, Enum. Pl. **2: 283. 1806.******

Stem solitary. Leaves base broadly sheathing, to **20 x 0.8** cm. Head with **1-8** spikes, terminal, ovoid, to **0.8** cm; involucre bracts **3-5**, 3 to **10** cm, unequal, dilated at base; bracteoles **3** mm, spatulate, obovate, oblong, triangulare at apex, reddish on the sides; glumes 2, 2 mm, thinly membranous; stamens 1 or **2**; ovary **1.5** mm, continuous with the styles, stigmas 3.

**FZ & Fr.** April-June

D i s t. Common in wet areas in moist deciduous forests

Ichampetty, **KKS 15651**

#### MARISCUS Vahl *nom. cons.*

- |                                                                      |                         |
|----------------------------------------------------------------------|-------------------------|
| 1. Spikelets 1-flowered                                              | : 2                     |
| 1. Spikelets 2-many flowered                                         | : 3                     |
| 2. Spikelets suberect, rhizome absent or very short                  | : <b>M. cyperinus</b>   |
| 2. Spikelets spreading, rhizome creeping                             | : <b>M. sumatrensis</b> |
| 3. Spikelets compressed; glumes aristate, very delicate tufted herbs | : <b>M. squarrosus</b>  |
| 3. Spikelets not compressed; glumes not aristate, <b>stout</b> herbs | : 4                     |
| 4. Umbels simple, base of the stem thickened by turgid sheath base   | : <b>M. dubius</b>      |
| 4. Umbels compound, base not turgid                                  | : <b>M. compactus</b>   |

**Mariscus compactus** (Retz.) Bold. Zakfl. Java **77. 1916**; Fl. Pres. Madras **1645. 1931**; Matthew, Fl. TN. Carnatic **1771. 1983** & Fur. Ill. Fl. TN. Carnatic t. **686. 1988. **Cyperus compactus** Retz., Obs. Bot 5: 10. **1788. **Mariscus microcephalus** C. Presl, Rel. Haenk. 1: **182. 1830**; Fl. Brit. India **6: 623. 1893.******

Robust plants. Leaves basal, to **25 x 1** cm, transverse nervules prominent. Umbels compound, primary rays *ca.* 10, to 10 cm long, secondary rays 13 to 20, **2-4** cm; bracts **4-5** cm; head globose, compact; spikelets with **5-15** florets, to 1 cm; rachilla 2 mm, winged, glumes

ovate, apiculate, margins scarious, brown; stamens 3, 1 mm; ovary 1 mm, ovoid, styles 3. Nut 2 mm, beaked, minutely muricate.

*Fl. & Fr.* Marcli-June

*D i s t.* Common in marshy areas in moist deciduous forests

Vanchikulam, *KKS* 15636

**Mariscus cyperinus** (Retz.) Vahl, Enum. Pl. 2: 377. 1806. var. **pictus** (Nees) Karthik. in Karthik. *et al.*, Fl. Ind. Enum. 63. 1989. *Mariscus pictus* Nees in Wight, Contrib. Bot. India 90. 1834; Fl. Brit. India 6: 621. 1893; Fl. Pres. Madras 1645. 1931.

Herbs, rhizome very short. Leaves basal, to 30 x 0.5 cm. Umbel terminal, rays **6-9**, sessile or peduncled, to 1 cm; bracts 4-7, to 15 x 0.4 cm; spikelets suberect, slightly curved, one flowered, nut bearing glumes 3 mm, cuspidate; ovary 0.5 mm, styles 3. Nut 2 mm, trigonous. beaked.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11571

**Mariscus dubius** (Rottb.) Kuhenth ex Fischer in Gamble, Fl. Pres. Madras 1644. 1931. Matthew, Fl. TN. Carnatic 1772. **1983** & Fur. III. Fl. TN. Carnatic t 588. 1988. *Cyperus dubius* Rottb., Descr. Ic. 20. 1773. *Mariscus dregeanus* Kunth. Enum. Pl. 2: 120. 1837; Fl. Brit. India 6: 620. 1893.

Stems tufted. base of the stem thickened with turgid chestnut brown sheath. Leaves basal, to 25 x 0.4 cm, linear, transverse nerves faint. Head solitary, 1.5 x 1.5 cm, ovoid, sessile; bracts 3.5 to 10 cm; spikelets densely clustered, 3-5 flowered, **8** mm long; nut bearing glume 3 mm. ovate; stamens 3, 0.5 mm; ovary 2 mm, oblong, styles 3.

*Fl. & Fr.* November-January

*D i s t.* Common in wet regions in dry deciduous forests

Chinnar, *KKS* 11621

**Mariscus squarrosus** (L.) Clarht in Hook. f., Fl. Brit. India 6: 623. 1893; Fl. Pres. Madras 1645. 1934; Matthew, Fl. TN. Carnatic 1774. 1983 & Fur. III. Fl. TN. Carnatic t. 691. 1988.

Tufted herbs, stem filiform. Leaves 7-12 x 0.2 cm. Umbels coinpound. rays 3-5; bracts 5-7 to 12 cm, terminal; rachis deciduous above the 2, basal glumes leaving a knob like scar: spikelets 7-8 mm, 6-20 flowered, compressed, brown, nut bearing glumes **2** mm, with an out curved arista; stamens 3. filaments 0.3 mm; ovary 1 mm, oblong, styles 3. Nut 1.5 mm, brown, triquetrous.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11531

**Mariscus sumatrensis** (Retz.) Koyama. Gard. Bull. Straits Settlem. 30: 154. 1977; Matthew. Fl. TN. Carnatic 1775. 1983. *M. siberianis* Nees ex Clarke in Hook. f., Fl. Brit. India **6: 622.** 1893; Fl. Pres. Madras 1645. 1931

Stoloniferous herbs, stolon covered with brown scales. Leaves to 3.5 x 0.5 cm. Umbels terminal, rays usually 9; bracts 4-8, 5-25 cm long; spikelets one flowered, deciduous above the 2 basal glumes, leaving a knob; basal glumes 1 and 0.75 mm, distichous, nut bearing glumes 3 mm, one nerved; stamens 3; ovary 1 mm, ovoid. Nut 2 mm, brown.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11526*

#### **PYCREUS P. Beauv.**

1. Glumes distinctly aristate; rachilla straight, slender plants tufted : **P. pumilus**  
1. Glumes faintly aristate; rachilla zig-zag : **P. odoratus**

***Pycreus polystachyos*** (Rottb.) Beauv., Pl. Oware 2: 48, t. 86. f. 2. 1807. *Pycreus odoratus* Urban, Symb. Antill. 2: 164. 1900; Fl. Pres. Madras 1627. 1931. *P. odoratus* var. *laxiflorus* (Benth.) Clarke in Hook. f., Fl. Brit. India 6: 592. 1893.

Culms few. Leaves basal, to 25 x 0.2 cm, apex acute. Umbels decomposed, rays few to 7 cm; bracts 3-5, unequal, to 6-25 cm; spikelets in racemose, at right angles, brown, many flowered; rachilla persistent, zig-zag, to 5 mm; glumes 2 mm, oblong, keeled, obtuse, margins hyaline, style 2-fid. Nut 1 mm, obovoid, radially compressed.

*Fl. & Fr.* February-April

*D i s t.* Common in wet sandy areas in moist deciduous forests

Kuttar, *KKS 15551*

***Pycreus pumilus*** (L.) Nees, Linnaea 9: 283. 1835; Fl. Brit. India 6: 591. 1893; Fl. Pres. Madras 9: 1627. 1931; Matthew, Fl. TN. Carnatic 1778. 1983 & Fur. Ill. Fl. TN. Carnatic t. 696. 1988. *Cyperus pumilus* L., Cent. Pl. 2: 6. 1756.

Slender herbs, culm few. Leaves basal, to 13 x 0.2 cm. Umbels compound, primary rays many, to 7 cm; bracts 3-5, to 5 cm, sometimes shorter than the umbels; spikelets spreading, ca. 25-flowered, to 1.5 cm; rachilla persistent; glumes 1.5 mm, oblong, distichous, brown, strongly cuspidate, keel strong, margins hyaline; stamens 2-3, style 2-fid, deciduous. Nut obovoid, punctulate.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chengamperu, *KKS 11706*

#### **SCLERIA Berg.**

***Scleria terrestris*** (L.) Fassett in Rhodora 26: 159. 1924; Matthew, Fl. TN. Carnatic 1788. 1983; Verma & Chandra, Bull. Bot. Surv. India 32: 68. 1990(1992). *Zizania terrestris* L., Sp. Pl. 2: 991. 1753. *Scleria radula* Hance, Ann. Sci. Nat. Bot. 18: 232. 1862; Fl. Brit. India 6: 691. 1894. *S. elata* Thw., Enum. Pl. Zeyl. 353. 1864; Fl. Brit. India 6: 690. 1894. *S. cochinchinensis* (Lour.) Druce, Bot. Exch. Club. Brit. Isles Rep 4: 646. 1917; Fl. Pres. Madras 1678. 1934.

Perennial herbs. Leaves to 4 x 2 cm, trinerved; sheaths to 7 cm long, reddish coloured, margins membranous, ciliate. Panicles spreading, to 50 cm, pyramidal; bracts leafy, longer than inflorescence; bracteoles setaceous, elongate; spikelet in fascicles, androgynous or unisexual; female spikelets broadly ovoid; glumes 4 mm, brown; disc 3-lobed, ovate, reaching less than 1/3 rd of the nut. Nut 3.5 mm, globose, reticulate with brown scars, white, hard bony.

*Fl. & Fr.* December-February

D i s t. Common in shola forests

Olikkudy, KKS 18299

## POACEAE

1. Culms woody	: 2
1. Culms herbaceous	: 5
2. Stamens 3	: Sinarundinaria
2. Stamens 6	: 3
3. Staminal filaments free	: 4
3. Staminal filaments united	: Pseudoxytenanthers
4. Spikelets in globose heads; rachilla internodes not elongate	: <b>Dendrocalamus</b>
4. Spikelets not in globose heads; rachilla internodes elongated	: Bambusa
5. Spikelets unisexual	: Coix
5. Spikelets bisexual	: 6
6. Spikelets 2-flowered, rarely 1-flowered; glumes deciduous along with the florets	: 7
6. Spikelets 1-many flowered; glumes persistent	: 36
7. Spikelets paired, 1-pedicelled and other sessile; glumes as long as the spikelets, usually awned	: 8
7. Spikelets solitary or paired, lower glume smaller or absent, usually awnless	: 23
8. Panicles interrupted by spathes	: 9
8. Panicles not interrupted by spathes	: 11
9. Plants aromatic	: Cymbopogon
9. Plants not aromatic	: 10
10. Ligule tri-fid at apex	: Apluda
10. Ligule fimbriate	: Themeda
11. Inflorescence densely silky villous	: 12
11. Inflorescence not silky villous	: 13
12. All spikelets pedicelled	: Imperata
12. Spikelets both sessile and pedicelled	: Saccharum
13. Pedicels fused with internodes, racemes terete	: Rottboellia
13. Pedicels not as above, racemes spreading	: 14
14. Spikelets in threes, 1-sessile and two pedicelled	: <b>Chrysopogon</b>
14. Spikelets in pairs	: 15
15. Inflorescence true panicles	: 16
15. Inflorescence racemes or subdigitate racemes or false panicles	: 17
16. Pedicel with a translucent median line, plants aromatic	: <b>Capillipedium</b>
16. Pedicels without a translucent median line, plants not aromatic	: Sorghum
17. Racemes solitary	: 18
17. Racemes no; solitary	: 20

18. Rachis articulated, lower glume brownish	: Sehima
18. Rachis not articulated, lower glume not so	: 19
19. Racemes heteromorphus, glumes with bulbous based hairs	: Heteropogon
19. Racemes homomorphus, glume without bulbous based hairs	: Pogonatherum
20. Glumes pitted	: 21
20. Glumes not pitted	: 22
21. Lower glume crustaceous and tuberculate	: Hackelochloa
21. Lower glume not so	: Bothriochloa
22. Spikelets similar	: Eulalia
22. Spikelets dissimilar	: Ischaemum
23. Inflorescence digitate	: 24
23. Inflorescence not digitate	: 25
24. Spikelets paired	: Digitaria
24. Spikelets solitary, spikelets awned or aristate	: Alloteropsis
25. Spikes solitary, terminal spikelets densely crowded	: Sacciolepis
25. Spikes in racemes, many	: 26
26. Spikelets subtended by bristles; upper lemma transversally rugose	: <b>Setaria</b>
26. Spikelets not subtended by bristles	: 27
27. Spikelets densely silky villous, brownish	: Rhynchelytrum
27. Spikelets not villous	: 28
28. Spikelets awned or aristate	: 30
28. Spikelets not awned	: 29
29. Racemes stiff, 1-3, glumes scaly, florets clustered, rachis winged	: Trachys
29. Inflorescence not so, rachis not winged	: 31
30. Spikelets 3 or more rowed, congested	: Echinochloa
30. Spikelets 1 or 2 rowed, interrupted, clustered	: Oplismenus
31. Lower glume absent or very minute	: 32
31. Lower glume present, prominent	: 33
32. Spikelets oblong, mat forming grasses, nodes densely ciliate	: <b>Axonopus</b>
32. Spikelets orbicular, rooting at lower nodes; nodes glabrous	: Paspalum
33. Spikelets gibbous	: Cyrtococcum
33. Spikelets not gibbous	: 34
34. Spikelets in open panicles	: Panicum
34. Spikelets in one sided spikes or racemes, distant on a central axis	: 35
35. Spikelets abaxial	: Paspalidium
35. Spikelets adaxial	: Brachiaria
36. Inflorescence spike, solitary or digitate or interrupted	: 37
36. Inflorescence racemes or panicles	: 42
37. Spikes solitary	: 40
37. Spikes digitate	: 38
38. Spikelets 1-flowered	: Cynodon
38. <i>Spikelets 2-many flowered</i>	: <b>39</b>
39. Spikelets 2-flowered, rachis not prolonged	: <b>Chloris</b>
39. Spikelets 4-6 flowered, rachis prolonged into a tooth	: Dactyloctenium
40. Spikes interrupted	: Coelachne
40. Spikes uninterrupted	: 41
41. Spikelets 1 flowered, awnless	: Oropetium
41. Spikelets 1-3 flowered, awned	: Enteropogon
42. Inflorescence solitary raceme	: 43

42. Inflorescence panicles	: 45
43. Spikelets 5-15 flowered	: Tripogon
43. Spikelets 1-flowered	: 44
44. Spikelets solitary, awned	: Perotis
44. Spikelets paired, awnless	: Tragus
45. Spikelets 1-flowered	: 46
45. Spikelets 2-many flowered	: 48
46. Spikelets 3-awned, purplish	: Aristida
46. Spikelets one awned or awnless	: 47
47. Florets awned or the lower glume aristate	: Garnotia
47. Florets awnless and not aristate	: Sporobolus
48. Lemma 9-nerved, 9 awned	: Enneapogon
48. Lemma not as above	: 49
49. Panicles silky villous, woolly pyramidal	: Phragmites
49. Panicles not as above	: 50
50. Lemma long ciliate	: Zenkeria
50. Lemma not ciliate	: 51
51. Florets awned or setaceous	: Arundinella
51. Florets not awned or setaceous	: 52
52. Florets 2-flowered	: Isachne
52. Florets 3-many flowered	: 53
53. Inflorescence a spike, solitary	: Eragrostiella
53. Inflorescence a panicle	: Eragrostis

#### ALLOTEROPSIS J. S. Presl ex C. B. Presl

*Alloteropsis cimicina* (L.) Stapf in Prain, Fl. Trop. Africa 9: 487. 1919; Fl. Pres. Madras 1766. 1934; Matthew, Fl. TN. Carnatic 1799. 1983 & Ill. Fl. TN. Carnatic t. 801. 1982; Sreekumar & Nair, Fl. Kerala Grass. 214. 1991. *Milium cimicinum* L., Mant. Pl. 2: 184. 1771. *Axonopus cimicinus* (L.) P. Beauv., Ess. Agrost. 154. 1812; Fl. Brit. India 7: 64. 1896.

Annuals, nodes glabrous or tubercled hairy. Leaves to 6 x 1.5 cm, ovate, lanceolate, margins undulate, tubercled ciliate, cordate at base; sheath tubercled hairy, to 7 cm; ligules truncate, fimbriate. Racemes 4-10, digitate, corymbose, to 15 cm long; rachis scabrid; spikelets 4 mm, broadly elliptic, margins purple, aristate; lower glume 2 mm, lower florets male, upper bisexual, second lemma aristate, arista 2 mm, margins ciliate.

*Fl. & Fr.* November-February

D i s t. Very common in dry deciduous forests

Chinnar, KKS 11565

#### APLUDA L.

*Apluda mutica* L., Sp. Pl. 82. 1753; Fl. Pres. Madras 1750. 1934; Matthew, Fl. TN. Carnatic 1800. 1983 & Ill. Fl. TN. Carnatic t. 804 & 805. 1982; Sreekumar & Nair, Fl. Kerala Grass. 32. 1991. *A. varia* Hack. in DC. Monogr. Phan. 6: 197. 1889; Fl. Brit. India 7: 150. 1896.

**Perennials.** Leaves to 25 x 1 cm, elliptic. Inneolate, puberulus; ligule membranous, trifold at apex. Panicles interrupted by spathes, to 40 cm; raceme solitary, axillary on the peduncles.

spathe 1 cm, broadly elliptic, green margins hyaline, sessile; spikelets to 6 mm, awned, lower glume bifid, many nerved, upper glume 4 mm, boat shaped, bearded, 1 keeled; lower florets male, upper bisexual; first lemma 3 mm, oblong, lanceolate, delicate, hyaline, palea equal to lemma, second lemma awned, notched, 3-nerved, awns to 12 mm, pedicelled spikelets 5 mm.

*Fl. & Fr.* December-February

*D i s t.* Common in wet rocky areas near streams

Chinnar, *KKS 11579*; Alampetty, *11783*

#### ARISTIDA L.

***Aristida adscensionis*** L., Sp. Pl. 82. 1753; Fl. Brit. India 7: 224. 1896; Rang. & Tad., Handb. South Indian Grass. tt. 171. & 172. 1921; Matthew, Fl. TN. Carnatic 1801. 1983 & Fur. III. Fl. TN. Carnatic t. 712. 1988. *A. depressa* Retz., Obs. Bot. 4: 22. 1786; Fl. Pres. Madras 1809. 1934.

Perennials. Leaves to 10 x 0.2 cm, linear, ciliate; ligule ciliate. Panicles terminal, branches slender, to 20 cm, contracted; spikelets linear-lanceolate, 1-flowered, purplish; callus bearded; glumes persistent, lower glume 5 mm, acute, upper glume 8 mm, acuminate, lemma lanceolate, 8 mm, 3 awned at apex, awns to 2 cm, palea 1 mm hyaline.

*Fl. & Fr.* April-June

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 17396*; Athiodai, *I7425*

#### ARUNDINELLA Raddi

- |                                                                                |                        |
|--------------------------------------------------------------------------------|------------------------|
| 1. Upper lemma with 2 setae on the sides of the awn                            | : 2                    |
| 1. Upper lemma without setae on the sides of the awn: leaves basally clustered | : <i>A. ciliata</i>    |
| 2. Spikelets glabrous                                                          | : <i>A. setosa</i>     |
| 2. Spikelets pubescent with bulbous based hairs                                | : <i>A. mesophylla</i> |

***Arundinella ciliata*** (Rosb.) ex Miq. in Verh., Kon. Ned. Inst. 3:30. 1851; Matthew, Fl. TN. Carnatic 1806. 1983 & Ill. Fl. TN. Carnatic tt. 810 & 811. 1982; Sreekumar & Nair Fl. Kerala Grass. 335. 1991. ***Holcus ciliatus*** Rosb., Fl. Ind. 1: 321. 1820. ***Arundinella holcooides*** auct. non Trin. 1836; Fl. Pres. Madras 1801. 1934. *A. agrostoides* auct. non Trin., 1836; Fl. Brit. India 7: 71. 1896.

Annuals, culms tufted, nodes ciliate. Leaves mostly radical, to 20 x 1 mm, lanceolate, tubercled hairy, apex acute. Panicles terminal, constricted spiciform, to 15 cm, ciliate, bulbous based; spikelets 4 mm, ovate: lower glumes ovate, 5-nerved, bulbous based hairy at the lower half, upper glume 4 mm, acuminate, bulbous based hairy at the lower half, 5-nerved; lower floret male; upper florets bisexual. lower lemma 2 mm, ovate, hyaline, upper lemma 1 mm, pubescent, awned, 3 mm.

*Fl. & Fr.* December-February

*D i s t.* Common in grasslands

Palapetty, *KKS, 11934*



**Arundinella mesophylla** Nees ex Steud., Syn. Pl. Glum. 1: 115. 1854; Fl. Brit. India 7: 69. 1896; Fl. Pres. Madras 1801. 1934.

Perennials. Leaves to 7 x 0.7 cm, lanceolate, acute, puberulus, ciliate; sheath to 3.5 cm, sparsely ciliate. Panicles effuse, spreading, densely ciliate; spikelets 5 mm, lower glume 3-nerved, ovate, aristate, densely ciliate, upper glume, ovate, acuminate, 5-nerved, densely ciliate, lower lemma 4 mm, oblong, chartaceous; lower florets male; upper bisexual, upper lemma, 2 mm, oblong, awns to 8 mm, minutely muricate, bearded at the base, with 2 setae on either side of the awn at tip.

*Fl. & Fr.* December-February

*D i s t.* Common in grasslands; endemic to Peninsular India.

Alampetty, *KKS 11782*; Chengamperu, *11719*

**Arundinella setosa** Trin., Gram. Panic. 63. 1826; Fl. Brit. India 7: 70. 1896; Fl. Pres. Madras 1801. 1934; Matthew, Fl. TN. Carnatic 1807. 1983 & Fur. Ill. Fl. TN. Carnatic t. 714. 1988; Sreekumar & Nair, Fl. Kerala Grass. 344. 1991.

Perennial herbs. Leaves to 20 x 1 cm, lanceolate, apex acute to acuminate, base slightly cordate or truncate, with bulbous based hairs; ligule membranous, fimbriate; sheath 8 cm, with bulbous based hairs. Panicles very lax and broad, to 50 cm, pendulous; spikelets to 6 mm, ovate; glumes dissimilar, lower 4 mm, 3-nerved, ovate, acuminate, upper glume 6 mm, 3-nerved, ovate, long acuminate; lower lemma, 4 mm, hyaline, oblong, upper lemma with 2 setae tuberculate, ciliate at base, awn to 8 mm; lower male; upper bisexual, palea 2 mm, oblong, membranous.

*Fl. & Fr.* October-December

*D i s t.* common in dry deciduous forests

Palapetty, *KKS, 15907*

#### AXONOPUS P. Beauv.

**Axonopus compressus** (Sw.) P. Beauv., Ess. Agrost. 12: 154. 1812; Matthew, Fl. TN. Carnatic 1808. 1983 & Ill. Fl. TN. Carnatic t. 814 & 815. 1982; Sreekumar & Nair 216. t. 217. 1991.

**Milium compressum** Sw., Prodr. Veg. Ind. Orc. 24. 1788.

Perennials, nodes densely ciliate. Leaves to 15 x 1 cm, oblong, obtuse, base obtuse, margins serrate; sheath 6.5 mm, margins hyaline. Racemes 2-8, alternate in the stalk, to 15; spikelets solitary, oblong, 2.5 mm; rachis triquetrous, slightly winged; lower glume absent, upper glume 2.5 mm, oblong-ovate, ciliate; lower floret empty; upper bisexual, first lemma 2 mm, oblong, acute; second lemma 2 mm, crustaceous, incurved; palea 1.5 mm, margins slightly curved.

*Fl. & Fr.* November-January

*D i s t.* Common along the streamsides

Chinnar, *KKS, 15645*

#### BAMBUSA Schreber

**Bambusa bambos** (L.) Voss. Vilm. Blumengaertn. 1: 1189. 1896. **Arundo bambos** L., Sp. Pl. 81. 1753. **Bambusa arundinacea** (Retz.) Willd.. **Sp.** Pl. 2: 245. 1799; Fl. Brit. India 7: 395. 1896; Fl. Pres. Madras 1859. 1934. **Bambos arundinacea** Retz., Obs. Bot. 5: 24. 1788.

Culms to 20 m high, thorny, cylindrical. Leaves to 20 cm long, oblong-lanceolate, serrate; sheath rounded, ligule membranous, contraligule present. Panicle to 35 cm long; branches spreading; spikelets 10-15 mm long, crowded; glumes subequal, 6-10 x 3-5 mm, ovate, acute; florets many; lower lemmas empty; palea 2 keeled, hairy along the keels; stamens 6, free; anthers 3-4 mm long; styles 2, free; stigma plumose.

*Fl. & Fr.* July - February

*D i s t.* common along rocky slopes in moist deciduous forests

Alampetty, *KKS* 18305

#### **BOTHRIOCHLOA O. Ktze.**

*Bothriochloa pertusa* (L.) A. Camus in Ann. Soc. Linn. Lyon, 76: 164. 1931; Matthew, Fl. TN. Carnatic 1809. 1983 & Ill. Fl. TN. Carnatic t. 816. 1982; Sreekumar & Nair, Fl. Kerala Grass. 54. 1991. *Holcus pertusus* L., Mant. 2: 301. 1771. *Andropogon pertusus* (L.) Willd., Sp. Pl. 4: 922. 1806; Fl. Brit. India 7: 173. 1896. *Amphilophis pertusa* (L.) Nash ex Stapf in Agr. News. Bridge. 15: 179. 1916; Fl. Pres. Madras 1731. 1934.

Perennials. Leaves to 12 x 0.4 mm, lanceolate, acute, pilose; sheath to 3.5 cm, pilose; ligule membranous. Panicles terminal, pubescent; sessile spikelets 4 mm, pubescent with long hairs at base; lower glume 4 x 1 mm, lanceolate, faintly 7-9 nerved, with a circular deep pit above the middle; second lemma awned, to 2 cm; pedicels 2.5 mm, hairy, with tufts of hairs at base; pedicelled spikelets 4 mm, not pitted; glumes 4 mm, lanceolate, margins hyaline.

*Fl. & Fr.* November-January

*D i s t.* Occasional in wet forest areas

Palapetty, *KKS*, 15933

#### **BRACHIARIA (Trin.) Griseb.**

- |                                                               |                              |
|---------------------------------------------------------------|------------------------------|
| 1. Spikelets paired                                           | : <i>B. miliiformis</i>      |
| 1. Spikelets solitary                                         | : 2                          |
| 2. Leaves ovate                                               | : 3                          |
| 2. Leaves elliptic or linear-lanceolate                       | : 4                          |
| 3. Racemes 2, upper glume acute                               | : <i>B. distachya</i>        |
| 3. Racemes 3-10, upper glume mucronate                        | : <i>B. semiundulata</i>     |
| 4. Racemes spreading; palea not recurved along the margins    | : <i>B. ramosa</i>           |
| 4. Racemes semiverticillate; palea recurved along the margins | : <i>B. semiverticillata</i> |

*Brachiaria distachya* (L.) Stapf in Prain, Fl. Trop. Africa 9: 565. 1919; Fl. Pres. Madras 1769. 1934; Matthew, Fl. TN. Carnatic 1811. 1983 & Fur. Ill. Fl. TN. Carnatic t. 724. 1988. *Panicum distachya* L., Mant. Pl. 183. 1771; Fl. Brit. India 7: 37. 1896.

Annuals, nodes hairy. Leaves to 4 x 0.7 cm, ovate, acute, base cordate, pilose, margin undulate; sheath to 2.5 cm; pilose. Racemes usually 2, to 3 cm; peduncles pubescent below the racemes; spikelets solitary, 2-flowered, obovate, 2 mm; lower glume, 0.7 mm, upper glume 2 mm, acute. ovate. 5-nerved, lower lemma similar to the upper glume; lower florets empty; palea 2 mm, oblong, second lemma 2 mm, rugose. shining coriaceous, second palea 2 mm, coriaceous. 2-keeled.

*Fl. & Fr.* November-December

*D i s t.* Common in dry deciduous forests

Champakad, *KKS, 11617*

**Brachiaria miliiformis** (J.S. Presl) A. Chase in Contrib. U.S. Nat. Herb. 22: 35. 1920; Fl. Pres. Madras 1769. 1934; Sreekumar & Nair, Fl. Kerala Grass. 220. 1991. ***Panicum miliiforme*** J.S. Presl ex C. Presl, Red. Haenk. 1: 300. 1830; Fl. Brit. India 7: 37. 1896.

Perennials, culms tufted, nodes pubescent. Leaves to 12 x 0.4 cm, linear, lanceolate, acute, pubescent; ligule membranous; sheath to 6 cm. Panicles to 12 cm; racemes alternate, 8-12, rachis triquetrous, ciliate; spikelets usually paired, ovate, acute, 3 mm, with long hairs; lower glume, 1.5 mm, ovate, acute, pubescent, upper glume 3 mm, ovate; lower lemma similar to upper glume, 3 mm, 5-nerved, upper lemma 2.5 mm, ovate, crustaceous, rugose, palea incurved, 2.5 mm, crustaceous.

*Fl. & Fr.* June-August

*D i s t.* Common in dry deciduous forests

Champakad, *KKS 17419*

**Brachiaria ramosa** (L.) Stapf in Prain, Fl. Trop. Africa. 9: 542. 1919; Fl. Pres. Madras 1770. 1934; Matthew, Fl. TN. Carnatic 1812. 1983 & Fur. Ill. Fl. TN. Carnatic t. 726. 1988; Sreekumar & Nair, Fl. Kerala Grass. 223. 1991. ***Panicum ramosum*** L., Mant. Pl. 1: 29. 1767; Fl. Brit. India 7: 36. 1896.

Perennials. Leaves to 8 x 0.8 cm, elliptic, acuminate, pubescent; ligule hairy; sheath to 4 cm. Panicles to 10 cm, lax; racemes 3-15, to 4.5 cm; rachis triquetrous, pubescent; spikelets 3 mm, broadly elliptic; lower glume 1.5 mm, ovate, softly hairy, upper glume 3 mm, softly hairy, lower floret empty; upper bisexual, upper lemma 3 mm, rugose, mucronate, coriaceous, upper palea mucronate, 2 mm.

*Fl. & Fr.* August-September

*D i s t.* Common in moist deciduous forests

Chinnar, *KKS 11521, 15799*

**Brachiaria semiundulata** (Hochst.) Stapf in Prain, Fl. Trop. Africa 9: 556. 1919; Fl. Pres. Madras 1770. 1934; Matthew, Fl. TN. Carnatic 1814. 1983 & Fur. Ill. Fl. TN. Carnatic t. 729. 1988; Sreekumar & Nair, Fl. Kerala Grass. 224. 1991. ***Panicum semiundulatum*** Hochst. in Flora 24. 715. 1841.

Small annual berbs. Leaves to 3 x 0.7 cm, ovate, pubescent, one margin undulate; ligule with a row of hairs; sheath 3.5 cm, ciliate at the margins. Racemes alternately arranged on a central axis, to 10 cm; spikelets solitary, obovoid, 1.5 mm; lower glume 0.5 mm, ovate, bristles few at the base of the spikelets; upper glume ovate, 1.5 mm, mucronate, 3-5 nerved, puberulus; lower floret empty; upper bisexual; lower lemma 1.5 mm, ovate, 5-nerved; second lemma 1.5 mm, ovate, rugulose, coriaceous; palea 1.5 mm, 2 keeled, rugulose.

*Fl. & Fr.* January-March

D i s t. Common in dry shola margins; endemic to Peninsular India.

Olikkudy, *KKS 17212*

*Brachiaria semiverticillata* (Rottl.) Alston in Trimen, *Handb. Fl. Ceylon* 6 (Suppl.) 318. 1931; *Fl. Pres. Madras* 1770. 1934; Matthew, *Fl. TN. Carnatic* 1815. 1983 & *Ill. Fl. TN. Carnatic* t. 817 & 818. 1982. *Panicum semiverticillatum* Rottl. in Ainslie, *Mat. Med. Hindost.* ed. 1. 219. 1813; *Fl. Brit. India* 7: 38. 1896.

Large perennials. Leaves lanceolate, elliptic, base slightly cordate, puberulus; ligule membranous, mouth pubescent; sheath to 12 cm. Panicles to 28 cm; rachis pubescent, racemes semiverticillate, to 7 cm; spikelets solitary, 4 mm, elliptic, turgid, awnless; pedicels 0.2 mm, with long hairs at base; lower glume 2 mm, ovate 7-5 nerved, upper glume 4 mm, ovate, 7-nerved; lower floret male; upper bisexual, lower lemma similar to the upper glume, upper lemma, stipitate, 4 mm, crustaceous, transversely rugose; palea recurved at the margins, crustaceous.

*Fl. & Fr.* November-February

D i s t. Common in dry deciduous forests

Kathitheetimala, *KKS 11829*

#### CAPILLIPEDIUM Stapf

*Capillipedium assimile* (Steud.) A. Camus in Lecomte, *Fl. Gen. Indo-China* 7: 314. 1892; Sreekumar & Nair, *Fl. Kerala Grass.* 55. 1991. *Andropogon assimilis* Steud. in Zoll., *Syst. Verz.* 58. 1854; *Fl. Brit. India* 7: 179. 1896. *Capillipedium glaucopsis* Stapf in Hook., *l.c. Pl.* 31: t. 3085. 1922; *Fl. Pres. Madras* 1730. 1934.

Perennials, nodes densely bearded. Leaves to 25 x 1.2 cm, elliptic, lanceolate, base cordate, hirsute, very coriaceous, margins aristate; sheath to 13 cm; ligule with a tuft of hairs. Panicles broad, to 30 cm, many branched from each nodes with tuft of hairs, peduncles and pedicels capillary; spikelets aromatic; sessile spikelets 4 mm, hairy; lower florets empty; upper bisexual, awned, awns to 15 mm, callus bearded; pedicels spikelets 4 mm, unawned.

*Fl. & Fr.* January-March

D i s t. Occasional in dry deciduous and moist deciduous forests

Churullipetty, *KKS 11874*; Vanchikulam, **15990**

#### CHLORIS Sw.

1. Spikes 3-8, digitate; callus naked

: **C. dolichostachya**

1. Spikes 15-25, racemose; callus bearded

: **C. roxburghiana**

*Chloris dolichostachya* Lagasca. *Gen. Sp. Pl.* 5. 1816; Matthew, *Fl. TN. Carnatic* 1820. 1983 & *Ill. Fl. TN. Carnatic* tt. 825 & 826. 1982. *C. incompleta* Roth, *Nov. Pl. Sp.* 60. 1821; *Fl. Brit. India* 7: 466. 1896; *Fl. Pres. Madras* 1838. 1934.

Perennials. Leaves to 30 x 0.8 cm, lanceolate, acuminate, base obtuse, pilose, convolute; ligule membranous. Spikes digitate, to 25 cm, 3-8 slender, rachis triquetrous, minutely serrate; spikelets 5 mm, linear, awned, 2-flowered; callus bearded; lower glume lanceolate, 2 mm, hyaline, 1 nerved, upper glume 5 mm, lanceolate, aristate, acuminate; fertile lemmas oblong, chartaceous, awns to 15 mm, palea 4 mm, lanceolate, delicate, sterile lemmas reduced to awns, to 6 mm.

*Fl. & Fr.* November-February

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS 11543*

**Chloris roxburghiana** Schultes, Mant. 2: 339. 1824. *C. polystachya* Roxb., Fl. Ind. 1: 332. 1820, non Lagasac 1816; Fl. Brit. India 7: 292. 1896; Fl. Pres. Madras 1838. 1934.

Perennials, culms tufted. Leaves to 20 x 0.3 cm, lanceolate, linear, pubescent; ligule membranous; sheath to 6 cm. Spikes 4-12, digitate, to 7 cm, slender; spikelets 1.5 mm, unequal, lower glume 1 mm, 1-nerved, ovate, acute, upper glume 1.5 mm, ovate, acute; fertile floret 1, imperfect floret 1; spikelets 3-awned, lower lemma 1.5 mm, ovate, chartaceous, awned to 15 mm, barbellate, palea 1.5 mm, ovate, elliptic; infertile floret with 2 awns.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11624*

#### CHRYSOPOGON Trin. *nom. cons.*

- |                                                                     |                        |
|---------------------------------------------------------------------|------------------------|
| 1. Sheath <b>not</b> keeled; pedicelled spikelets 5 mm or less long | : <b>C. velutinus</b>  |
| 1. Sheath keeled; pedicelled spikelets more than 6 mm long          | : <b>C. zeylanicus</b> |

**Chrysopogon veitinus** (Hosk. f.) Bor, Grass. Burma Ceylon India Pak. 119. 1960. Fl. Pres. Madras 1734. 1934. *Andropogon velutinus* Hook. f., Fl. Brit. India 7: 194. 1896.

Perennials, stem tufted. Leaves to 20 x 0.2 cm, linear, lanceolate, acute, pubescent with long hairs at the base; sheath rounded, to 8 cm. Panicles to 10 cm, branchlets and peduncles capillary, to 2 cm; callus hairy; sessile spikelets 5 mm, upper glume aristate, lemma awned, awns to 20 mm; pedicelled spikelets 5 mm, narrowed, glumes pubescent, pedicels 1 mm. *fulvous*.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India and endangered.

Churullipetty, *KKS 11654*

**Chrysopogon zeylanicus** (Nees ex Steud.) Thw., Enum. Pl. Zeyl. 366. 1864; Fl. Pres. Madras 1739. 1934; Sreekumar & Nair, Fl. Kerala Grass. 65. 1991. *Andropogon zeylanicus* Nees ex Steud., Syn. Pl. Glum. 1: 397. 1854; Fl. Brit. India 7: 192. 1896.

Perennials. tufted. Leaves to lanceolate, 30 x 0.5 cm, apex, acute, pubescent, flat; ligule hairy; sheath to 7 cm, hairy. Panicles to 25 cm; callus with brown hairs; sessile spikelets 6-8

mm, awned, lower glume. 6 x 1 mm, oblong, upper oblong, 6 mm, notched and aristate at apex, second lemma awned, to 25 mm; pedicelled spikelets to 13 mm, linear-lanceolate, pedicels 3 mm, densely pubescent, with chocolate brown hairs.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Karumpara, *KKS* 11807

#### COELACHNE R. Br.

**Coelachne simpliciuscula** (Wight & Arn. ex Steud.) Benth. in J. Linn. Soc. 19: 93. 1881; Matthew, Fl. TN. Carnatic 1824. 1983 & Ill. Fl. TN. Carnatic tt. 831 & 832. 1982; Sreekumar & Nair, Fl. Kerala Grass. 415. 1991. *Panicum simpliciusculum* Wight & Arn. ex Steud., Syn. Pl. Glum. 1: 96. 1854.

Perennials, creeping. tufted, nodes bearded. Leaves to 5 x 0.5 cm, oblong, lanceolate, scabrous underneath; ligules a rim of hairs; sheath to 1.5 cm. Inflorescence spiciform to 10 cm, interrupted; spikelets 1.5 mm, ovate, glumes 1 mm, ovate, chartaceous; first lemma 1.5 mm, ovate, chartaceous, palea 1.5 mm, ovate, elliptic, delicate, second lemma situated on a long rachilla, to 0.5 mm, oblong. 2 keeled, ciliate.

*Fl. & Fr.* November-February

*D i s t.* Common in marshy areas

Ollavayal, *KKS*, 17213

#### COIX L.

**Coix lacryma-jobi** L., Sp. Pl. 972. 1753; Fl. Brit. India 7: 100. 1896; Fl. Pres. Madras 1705. 1934; Matthew, Fl. TN. Carnatic 1826. 1983 & Ill. Fl. TN. Carnatic tt. 834 & 835. 1982; Sreekumar & Nair, Fl. Kerala Grass. 207. 1991.

Annuals or perennials. culms tufted. Leaves to 40 x 3.5 cm, lanceolate, base slightly cordate, mid-nerves broad, margin serrulate, sparsely hairy; ligules membranous. Pseudo spikes unisexual; male spikelets 1.5 cm, elliptic-lanceolate, lower glume lanceolate, 15 mm, narrowly winged, many nerved: female spikelets to 15 mm long, ovoid. Caryopsis bony, 8 mm subglobose, white, hollow in the middle.

*Fl. & Fr.* December-March

*D i s t.* Common in dry deciduous forests

Churullipetty, *KKS* 11860

#### CYMBOPOGON Spreng.

**Cymbopogon flexuosus** (Nees ex Steud.) Wats. in Atk. Gaz. N. W. Prov. Ind. 392. 1882; Fl. Pres. Madras 1756. 1934; Sreekumar & Nair, Fl. Kerala Grass. 71. 1991. *Andropogon flexuosus* Nees ex Steud., Syn. Pl. Glum. 1: 388. 1854. *A. nardus* var. *flexuosus* (Nees ex Steud.) Hack. in DC., Monogr. Phan. 6: 603. 1889; Fl. Brit. India 7: 207. 1896.

Perennials, culms tufted. Leaves to 60 x 1.5 cm, linear, lanceolate, flattened, minutely serrate along the margins; ligules membranous, ovate. Panicles very lax, to 90 cm; racemes interrupted by spathes, to 2.5 cm, lanceolate, joints and pedicels densely villous; sessile spikelets 4.5 mm, awned, elliptic, lanceolate; pedicelled spikelets to 3.5 mm, elliptic-lanceolate, awnless, pedicels to 2 mm.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS 11781*

#### CYNODON Pers.

*Cynodon barberi* Rang. & Tad. in J. Bombay Nat. Hist. Soc. 24: 846. 1916 & Handb. South India Grass. tt. 194 & 195. 1921; *Fl. Pres. Madras* 1835. 1934.

Annuals or perennials, erect. Leaves to 9 x 0.5 cm, lanceolate, margins inrolled, ligule glabrous. Spikes 3-5, digitate, to 5.5 cm; spikelets solitary, 1-flowered, 2 mm long, lower glume 0.7 mm, upper glume 2 mm, ciliate, lemma 2 mm, broadly ovate, keels ciliate, palea keeled. Caryopsis 1 mm, obovate.

*Fl. & Fr.* Throughout the year

*D i s t.* Common in dry open localities; endemic to Peninsular India.

Ollavayal, *KKS 28306*

#### CYRTOCOCCUM Stapf

- |                                                                           |                        |
|---------------------------------------------------------------------------|------------------------|
| 1. Pedicels as long as the spikelets                                      | : <b>C. trigonum</b>   |
| 1. Pedicels longer than the spikelets                                     | : <b>2</b>             |
| 2. Glumes and lower lemmas cuspidate; sheath glabrous                     | : <b>C. longipes</b>   |
| 2. Glumes and lower lemmas not cuspidate; sheath with bulbous based hairs | : <b>C. deccanense</b> |

*Cyrtococcum deccanense* Bor, in *Kew. Bull.* 1956: 256. 1956; Sreekumar & Nair, *Fl. Kerala Grass.* 227. 1991. *Panicum patens* auct. non L., 1753; *Fl. Brit. India* 7: 57. 1896.

Creeping annuals, rooted at the nodes, nodes sparsely pubescent. Leaves to 8 x 1 cm, lanceolate, acuminate, hirsute; ligule bearded; sheath tubercle based hairy, to 3.5 cm. Panicles lax, many flowered; spikelets 2 mm, ovate, gibbous, lower glume 1 mm, ovate, upper glume 1.5 mm; lower floret empty; lower lemma 1.5 mm, upper lemma 1.5 mm, shining; palea oblong, 1.5 mm, cmstaceous, 2-keeled.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11510*; Churullipetty, *11668, 21669*

*Cyrtococcum longipes* (Wight & Arn. ex Hook.f.) A. Camus in *Bull. Mus. Hist. Nat. Paris* 27: 118. 1921; *Fl. Pres. Madras* 1786. 1934; Sreekumar & Nair, *Fl. Kerala Grass.* 229. 1991. *Panicum longipes* Wight & Arn. ex Hook.f. *Fl. Brit. India* 7: 58. 1896.

Trailing perennials, rooted at lower nodes. Leaves 10 x 1 cm, lanceolate, acute, ligule membranous. Panicles lax, to 20 cm; spikelets 2 mm, globose, gibbous, with few hairs at the base; lower glume 1.2 mm, 5-nerved, cuspidate; upper glume 1.5 mm, ovate, 5-nerved, cuspidate, lemma ovate, 2 mm, shining; lower floret empty; second lemma 2 mm, deltoid; palea oblong, 1.5 mm.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Mangavada, *KKS 15960*

**Cyrtococcum trigonurn** (Retz.) A. Camus in Bull. Mus. Hist. Nat. Paris 27: 118. 1921; Fl. Pres. Madras 1785. 1934; Matthew, Fl. TN. Carnatic 1831. 1983 & Ill. Fl. TN. Carnatic tt. 839 & 840. 1982; Sreekumar & Nair, Fl. Kerala Grass. 232. 1991. *Panicum trigonum* Retz., Obs. Bot. 3: 9. 1783; Fl. Brit. India 7: 56. 1896.

Creeping annuals, nodes sparsely bearded. Leaves 5 x 0.6 cm, elliptic-lanceolate, acute at apex, slightly oblique at base, minutely puberulus; sheath to 1.5 cm. Panicles terminal, to 6 cm; spikelets 2 mm, puberulus, ovoid; upper glume and lower glumes 2 mm, similar, puberulus, lemma 1.5 mm, shining; second lemma 1.5 mm, deltoid, crustaceous, palea 1 mm, oblong.

*Fl. & Fr.* November-January

*D i s t.* Occasional in dry deciduous forests

Karumpara, *KKS 11802*

#### DACTYLOCTENIUM Willd.

**Dactyloctenium aegyptium** (L.) P. Beauv., Ess. Agrost. 15. 1812; Fl. Pres. Madras 1840. 1934; Matthew, Fl. TN. Carnatic 1831. 1983 & Ill. Fl. TN. Carnatic tt. 841 & 842. 1982; Sreekumar & Nair, Fl. Kerala Grass. 367. 1991. *Cynosurus aegyptius* L., Sp. Pl. 72. 1753.

Annuals, culms creeping or erect, rooting at lower nodes. Leaves to 10 x 0.5 cm, lanceolate, bulbous based hairs along the margins; sheath 3 cm; ligules ovate, fimbriate. Spikes digitate, 2-6, 2-4 cm, rachis prolonged into the awn; spikelets densely crowded, to 4 mm, 4-6 flowered; lower glume ovate, keeled, scabrid, boat shaped; lemma 1.5 mm, keeled, aristate; palea membranous, 1.5 mm. Grain obovate, transversally rugose.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11555*

#### DENDROCALAMUS Nees

**Dendrocalamus strictus** (Roxb.) Nees in Linnaea 9: 476. 1834; Fl. Brit. India 7: 404. 1896; Fl. Pres. Madras 1858. 1934. *Bambusa stricta* Roxb., Pl. Cor. t. 80. 1798.

Culms to 15 m high, unarmed. Leaves to 16 x 1.5 cm, ovate-lanceolate, apex long acuminate, spinescent; ligule dentate. Heads of spikelets globose, to 2.5 cm across; spikelets 6 mm long, ovate, lower glume 4 mm, upper 4.5 mm, ovate, lemmas 2, 5 mm, broadly ovate with a mucro; stamens 6, filaments free. 0.2 mm, anthers 2.5 mm, oblong.



**Fl. & Fr.** October-December

**D i s t.** Common in dry deciduous forests

Palapetty, **KKS 15860**

**DIGITARIA** Haller

1. Inflorescence branches 2; leaf base truncate

: **D. bicornis**

1. Inflorescence branches 15-20; leaf base cordate

: **D. wallichiana**

*Digitaria bicornis* (Lam.) Roem. & Schult., Hort. Brit. 24. n. 1578. 1830; Henr. Monogr. Gen. Digit. 71. 1950; Matthew, Fl. TN. Carnatic 1836. 1983 & Ill. Fl. TN. Carnatic t. 846 & 847. 1982; Sreekumar & Nair, Fl. Kerala Grass. 235. 1991. *Paspalum bicorne* Lam., Tab. Meth. Bot. 1: 176. 1791. *Paspalum heterantherum* sensu Hook. f., Fl. Brit. India 7: 16. 1896; non Nees & Meyen, 1843. *Digitaria bicornis* Willd., Enum. Pl. Hort. Berol. 92. 1809.

Annuals. Leaves to 10 x 0.5 cm, linear-lanceolate, ciliate on the nerves beneath, base truncate; sheaths to 5 cm long, pilose; ligule membranous. Racemes 2, digitate, to 12 cm; rachis slightly winged; spikelets more or less concealed by the winged rachis; sessile spikelets 3.5 mm, pubescent; pedicelled spikelets 3.5 mm, pedicels 2 mm, lower glume 0.5 mm, triangular, with a bristle, upper glume with glossy bristles.

**Fl. & Fr.** November-December

**D i s t.** Common in dry deciduous forests

Chinnar, **KKS 11568**

*Digitaria wallichiana* (Wight & Arn. ex Steud.) Stapf in Prain, Fl. Trop. Africa. 9: 436. 1919; Fl. Pres. Madras 1765. 1934; Sreekumar & Nair, Fl. Kerala Grass. 243. 1991. *Paspalum wallichianum* Wight & Arn. ex Steud., Syn. Pl. Glum. 1: 41. 1854. *Paspalum perrottetii* Hook. f., Fl. Brit. India 7: 20. 1896.

Annuals. rooting at lower nodes, nodes sparsely bearded. Leaves to 7 x 1 cm, oblong, lanceolate, base cordate, woolly along one margin; sheath ciliate; ligule membranous. Pseudopanicles pseudo-verticillate; racemes to 10 cm; rachis triquetrous, minutely serrate, spikelets in pairs at the centre of the rachis; lower glume absent; spikelets 2 mm, lanceolate-ovate.

**Fl. & Fr.** June-August

**D i s t.** Common in wet areas

Ollavayal, **KKS 17411**

**ECHINOCHLOA** P. Beauv.

1. Spikelets awned; ligule a row of hairs

: **E. stagnina**

1. Spikelets awnless; ligule absent

: **E. colona**

*Echinochloa colona* (L.) Link., Hort. Berol., 2: 209. 1833; Fl. Pres. Madras 1776. 1934; Matthew, Fl. TN. Carnatic 1845. 1983 & Fur. Ill. Fl. TN. Carnatic t. 763. 1988; Sreekumar & Nair, Fl. Kerala Grass. 245. 1991. *Panicum colonum* L., Syst. Nat. ed. 10. 2: 870. 1759; Fl. Brit. India 7: 32. 1896.

Annuals. Leaves to 20 x 0.5 cm, lanceolate, acute, base cordate; sheath to 5 cm. Panicles with distant alternate branches, spiciform to 15 cm, branches to 2 cm; spikelets on 3-4 rows, densely packed, to 2 mm, globose; lower glume to 1 mm, pubescent, 5-nerved, upper glume 2 mm, ovate, acuminate, 7-nerved, hispid; first lemma similar to the upper glume, 2 mm, ovate, ciliate, second lemma coriaceous, hyaline, palea 1.5 mm, ovate, mucronate.

*Fl. & Fr.* November-December

*D i s t.* Common in wet areas in moist deciduous forests

Ollavayal, *KKS* 18311

**Echinochloa stagnina** (Retz.) P. Beauv., Ess. Agrost. 53: 162. 1812; Fl. Pres. Madras 1777. 1934; Sreekumar & Nair. Fl. Kerala Grass. 248. 1991. *Panicum stagninum* Retz., Obs. Bot. 5: 7. 1786. *P. crusgalli* sensu Hook. f., Fl. Brit. India 7: 30. 1896, non L. 1753.

Annuals. Leaves to 40 x 1.2 cm, lanceolate, flat; sheaths slightly keeled, to 15 cm; ligules a row of hairs. Panicles to 20 cm, racemes to 5 cm, rachis triquetrous; slightly flattened, pubescent; spikelets crowded, 5 mm, ovate, awned, long ciliate; lower glumes 3 mm, ovate, ciliate, upper glume 5 mm, broadly ovate, acuminate, hairy, 7-nerved, lower lemma 5 mm, ovate, 5-nerved, awned, to 3 mm, palea membranous.

*Fl. & Fr.* November-January

*D i s t.* Occasional in wet areas

Ollavayal, *KKS* 11772

#### ENNEAPOGON Desv. ex Pal.

**Enneapogon schimperanus** (Hochst. ex A. Rich.) Renvoize in Kew Bull. 22: 400. 1968; Matthew, Fl. TN. Carnatic 1849. 1983. *E. elegans* (Nees ex Steud.) Stapf in Kew Bull. 1907: 224. 1907; Fl. Pres. Madras 1841. 1934; Matthew, Ill. Fl. TN. Carnatic tt. 859 & 860. 1982. *Pappophorum elegans* Nees ex Steud., Syn. Pl. Glum. 1: 199. 1854; Fl. Brit. India 7: 301. 1896.

Perennials, nodes bearded. Leaves to 10 x 0.3 cm, lanceolate, sparsely pilose; sheath to 4 cm. Panicles terminal, congested; spikelets solitary, 3-flowered; glumes persistent, chartaceous, lower glumes broadly ovate, 9-nerved; upper 9-nerved, lanceolate, lemma 3, concave, 9-nerved and 9 awned, subulate, 6 mm, base 1.5 mm, pubescent. Caryopsis 0.7 mm, ovoid.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Kuttar, *KKS* 18211

#### ENTEROPOGON Nees

**Enteropogon monostachyos** (Vahl) Schum. ex Engl. in Abh. Koenigl. Akad. Wiss. Berlin 17. 1894; Fl. Pres. Madras 1834. 1934; Matthew, Fl. TN. Carnatic 1850. 1983 & Ill. Fl. TN. Carnatic tt. 861 & 862. 1982. *E. melicoides* (Koen. ex Rottl.) Nees in Lindl., Intr. Nat. Syst.

Bot. ed. 2. 449. 1836; El. Brit. India 7: 284. 1896. *Ischaemum melicoides* Koen. ex Rottl. in Ges. Naturf. Freunde Berlin Neue Schriften 4:211. 1803.

Tufted annual or perennial. Leaves to 25 x 0.5 cm, linear, lanceolate; sheath to 11 cm, puberulus; ligules with a tuft of hairs. Spikes solitary, sometimes to 2 to 3, to 20 cm; rachis trigonous; spikelets sessile, solitary, florets 1-3, sometimes one reduced; lower glume 1 mm, hyaline, one nerved, upper glume 4.5 mm, ovate, one nerved, hyaline; rachis prolonged between the lemma, pubescent in joints; lower florets 7 mm, pubescent, lemma bifid at apex, awned, awns to 5 mm, scabrid, palea coriaceous, lanceolate. Caryopsis 3.5 mm.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, KKS, 17378

#### ERACROSTIELLA Bor

**Eragrostiella bifaria** (Vahl) Bor, Indian Forester 66: 270. 1940 & Grass. India 494. 1960; Matthew, Fl. TN. Carnatic 1851. 1983 & Ill. Fl. TN. Carnatic t. 863. 1982. *E. bifaria* (Vahl) Wight ex Steud., Nomencl. ed. 2. 1: 562. 1840; Fl. Brit. India 7: 325. 1896.

Tufted perennials. Leaves mostly at the base, to 5-10 x 0.3 cm, lanceolate, acute at apes; ligule membranous. Inflorescence spiciform, 30-50 cm; spikelets alternately arranged, dark grey, ca. 20-flowered, to 7 mm, lower glume 3 mm, lanceolate, upper glume 3 mm, oblong, 1-nerved, lemmas 3 mm, ovate, membranous, palea 2.5 mm, ciliate. Caryopsis 1 mm long.

*Fl. & Fr.* November-January

*D i s t.* Common in wet sandy areas near streams

Chinnar, KKS, 11561

#### ERACROSTIS Wolf

- |                                                                       |                           |
|-----------------------------------------------------------------------|---------------------------|
| 1. Panicles spiciform                                                 | : <i>E. riparia</i>       |
| 1. Panicles lax                                                       | : 2                       |
| 2. Pedicels with glandular bands; keels scabrid                       | : <i>E. tenuifolia</i>    |
| 2. Pedicels without glandular bands; keels ciliate or smooth          | : 3                       |
| 3. Ligule a tuft of hairs                                             | : 6                       |
| 3. Ligule membranous                                                  | : 4                       |
| 4. Upper glume 0.8 mm long, branches of panicles verticillate         | : <i>E. diplachnoides</i> |
| 4. Upper glume more than 1 mm long, branches of panicles not as above | : 5                       |
| 5. Leaves inrolled; spikelets grey                                    | : <i>E. atrovirens</i>    |
| 5. Leaves not inrolled; spikelets reddish-brown                       | : <i>E. unioloides</i>    |
| 6. Upper glume less than 1 mm long, oblong                            | : <i>E. tenella</i>       |
| 6. Upper glume more than 2 mm long, ovate                             | : <i>E. nigra</i>         |

**Eragrostis atrovirens** (Desv.) Trin. ex Steud., Nom. Bot. ed. 2, 1: 562. 1840; Matthew, Fl. TN. Carnatic 1854. 1983 & Fur. Ill. Fl. TN. Carnatic t. 772. 1988; Sreekumar & Nair, Fl. Kerala. Grass. 377. 1991.

Perennials, culms densely tufted. Leaves to 30 x 0.5 cm, linear, inrolled; sheath to 9 cm; ligule truncate, membranous. Panicles spreading, to 35 cm long; spikelets 2 cm, oblong, 5-45 flowered, grey; lower glume 1 mm, ovate-lanceolate, acute, 1-nerved, upper glume 1.5 mm.

ovate- lanceolate, 1-nerved. lemma 2 mm, broadly ovate, acute, 3-nerved, palea 2 mm, elliptic, lanceolate, ciliolate. Caryopsis 7 mm long, ellipsoid.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 15548

**Eragrostis diplachnoides** Steud., Syn. Pl. Glum. 1, 268. 1854; Bor, Grass. Bur. Ceyl. Ind. Pak. 508. 1960. *E. interrupta* var. *diplachnoides* (Steud.) Stapf in Hook. f., Fl. Brit. India 7: 316. 1896.

Tall perennials, tufted, nodes glabrous. Leaves to 60 x 1 cm, lanceolate, ligule fimbriate; sheath to 15 cm long. Panicles to 60 cm, effuse, branches verticillate, to 15 cm; pedicels to 1 mm; spikelets 2 mm, 7-10-flowered; lower glume 0.4 mm, upper glume 0.7 mm, lemma 0.8 mm, glabrous, oblong, acute, keeled; palea membranous, 0.4 mm.

*Fl. & Fr.* December-February

*D i s t.* Occasional in disturbed moist deciduous forests

Ollavayal, *KKS* 18270

**Eragrostis nigra** Nees ex Steud., Syn. Pl. Glum. 1: 267. 1854; Fl. Brit. India 7: 324. 1896; Fl. Pres. Madras 1827. 1934; Matthew, Fl. TN. Carnatic 1856. 1983 & Fur. Ill. Fl. TN. Carnatic t. 776. 1988; Sreekumar & Nair, Fl. Kerala Grass. 384. 1991.

Perennials. Leaves to 20 x 0.6 cm, linear-lanceolate, rounded at base; ligule with a row of hairs. Panicles effuse, to 25 cm, pseudowhorled; spikelets oblong, black, 4-8 flowered; lower glume 2 mm, ovate, acute, upper glume 2.2 mm, ovate, acute, lemma 2.5 mm, broadly ovate, acute, black, palea 1 mm, keeled, keel aristate. Caryopsis 1 mm, oblong.

*Fl. & Fr.* December- February

*D i s t.* Common in wet regions

Champakkad, *KKS*, 15647

**Eragrostis riparia** (Willd.) Nees. Agrost. Bras. 512. 1829; Fl. Pres. Madras 1825. 1934; Matthew, Fl. TN. Carnatic 1857. 1983 & Fur. Ill. Fl. TN. Carnatic t. 780. 1988. *Poa riparia* Willd. in Ges. Naturf. Freunde Berlin Neue Schriften 4: 185. 1803. *Eragrostis tenella* (L.) P. Beauv. ex Roem. & Schultes var. *riparia* (Willd.) Stapf in Hook. f., Fl. Brit. India 7: 315. 1896.

Small tufted grass. Leaves to 7 x 0.3 cm, lanceolate, apex acute; sheath to 2 cm; ligule a row of hairs. Panicles spiciform, contracted, to 5 cm long; spikelets 3-8 flowered, 1.5 mm, lower glumes *ca.* 1 mm, 1 nerved. membranous, oblong, upper glume similar to the lower glume; lemma oblong, 1 mm, rounded at apex; palea obovate, 2 keeled, 2-nerved, ciliate along the margins.

*Fl. & Fr.* November-January

*D i s t.* Common near wet areas in dry deciduous forests

Chinnar, *KKS* 11557

**Eragrostis tenella** (L.) P. Beauv. ex Roem. & Schultes, Syst. 2: 576. 1817; Fl. Brit. India 7: 315. 1896. *Poa tenella* L., Sp. Pl. 69. 1753. **Eragrostis plumosa** (Retz.) Link, Hort. Berol. 1: 192. 1827 Fl. Pres. Madras 1826. 1934. *Poa plumosa* Retz., Obs. Bot. 4: 20. 1786.

Annuals, culms tufted. Leaves to 10 x 0.5 cm, lanceolate, base obtuse; sheath 3 cm, ciliate, with a tuft of hairs at the mouth. panicles pyramidal, to 20 cm long, branchlets slender; spikelets 4-10 flowered, sometimes more, 2.5 mm, oblong; lower glume 0.7 mm, upper glume 0.8 mm, oblong, 1-nerved; lemma 1 mm, oblong, 3-nerved, acute at apex, upper lemma 0.8 mm, aristate, 2 keeled, 2-nerved.

*Fl. & Fr.* December-February

*D i s t.* Common in moist deciduous forests

Karumpara, KKS 11803; Sivapura. 11937

**Eragrostis tenuifolia** (A. Rich.) Hochst. ex Steud., Syn. Pl. Glum. 1: 268. 1854; Fl. Brit. India 7: 322. 1896; Fl. Pres. Madras 1827. 1934; Matthew, Fl. TN. Carnatic 1858. 1983 & Fur. Ill. Fl. TN. Carnatic t. 752. 1988; Sreekumar & Nair, Fl. Kerala Grass. 391. 1991. *Poa tenuifolia* A. Rich., Tent. Fl. Abyss. 2: 425. 1851.

Perennials. Leaves to 25 x 0.7 cm, lanceolate, convolute at the margins.; sheath keeled. to 7 cm; ligule membranous. Panicles to 20 cm, lax; pedicels with glandular bands. to 1 cm; spikelets 4-flowered. dark grey; lower 1 mm, glume, oblong. membranous, lobed. upper glume 2 mm, 2-3 lobed at apex; lemma 2 mm, oblong, palea keeled, keels scabrid.

*Fl. & Fr.* November-February

*D i s t.* Common in wet regions

Ollavayal. KKS, 17410

**Eragrostis unioloides** (Retz.) Nees ex Steud., Syn. Pl. Glum. 1: 264. 1854; Fl. Pres. Madras 1826. 1934; Matthew, Fl. TN. Carnatic 1858. 1983 & Fur. Ill. Fl. TN. Carnatic t. 783. 1988; Sreekumar & Nair, Fl. Kerala Grass. 392. 1991. *Poa unioloides* Retz., Obs. Bot. 5: 19. 1789. **Eragrostis amabilis** auct. non Wight & Arn. ex Nees, 1838; Fl. Brit. India 7: 317. 1896.

Perennials, culms tufted. Leaves to 8 x 0.5 cm, lanceolate, sparsely pilose; sheath 4.5 cm; ligule membranous. Panicles to 25 cm, lax, narrowly oblong.; spikelets 8 mm long, 10-40 flowered, ovate, brownish; lower glumes 1.5 mm, oblong-lanceolate, 1-nerved, upper glume 1.5 mm, ovate, lanceolate; lemma 2 mm, broadly ovate, 3-nerved; paleas 2 mm, 2-keeled, 2-nerved. Caryopsis ellipsoid, reddish brown.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chengamperu, KKS 11708

#### GARNOTIA Brongn.

1. Weak decumbent annuals; nodes villous
1. Perennials: nodes glabrous

**G. courtallensis**  
**G. aiata**

**Garnotia courtallensis** (Arn. & Nees) Thw., Enum. Pl. Zeyl. 363. 1864; Fl. Brit. India 7: 244. 1896; Fl. Pres. Madras 1812. 1934; Sreekumar & Nair, Fl. Kerala Grass. 409. 1991. *Miquelia courtallensis* Arn. & Nees, Nov. Act. Nat. Cur. 19. 179. 1843.

Annuals, nodes villous. Leaves to 15 x 1 cm, lanceolate, acuminate at apex, base rounded or subcordate; ligule membranous; sheath slightly keeled. Panicles more or less congested, to 30 cm; spikelets 2 mm, lanceolate; lower glume slightly smaller than the upper glume, 3-nerved; lemma awned, to 3 mm.

*Fl. & Fr.* February-April

*D i s t.* Common in dry deciduous forests

Mavelikkudy, *KKS* 17205

**Garnotia elata** (Arn. ex Miq.) Janowski, Fedde. Repert Sp. Nov. 17: 86. 1921; Sreekumar & Nair, Fl. Kerala Grass. 410. 1991. *Berghausia elata* Arn. ex Miq. Verh. Kon. Ned. Inst. 3: 4. 32. 1851. *Garnotia scoparia* Stapf ex Hook. f., Fl. Brit. India 7: 242. 1896; Fl. Pres. Madras 1812. 1934.

Perennials. Leaves to 40 x 0.8 cm, lanceolate. folded or terete, aristate; sheath broadened at base, glaucous; ligule hairy. Panicles to 50 cm; spikelets 5-6 mm, lanceolate; lower glume 5 mm, lanceolate, acuminate, aristate, upper glume lanceolate, 5 mm.

*Fl. & Fr.* June-September

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Ichampetty, *KKS* 15751

#### **HACKELOCHLOA O. Ktze.**

**Hackelochloa granularis** (L.) O. Ktze., Rev. Gen. Pl. 2: 776. 1891; Fl. Pres. Madras 1758. 1934; Matthew, Fl. TN. Carnatic 1862. 1983 & Ill. Fl. TN. Carnatic tt. 874 & 875. 1982; Sreekumar & Nair, Fl. Kerala Grass. 111. 1991. *Manisuris granularis* L. f., Nov. Gram. Gen. 40. 1779; Fl. Brit. India 7: 150. 1896.

Annuals, culms branched, nodes densely hairy. Leaves to 15 x 0.8 cm, oblong, lanceolate, obtuse, shallowly cordate at base, coarsely hispid; sheath to 3 cm, keeled, with bulbous based hairs; ligule membranous. Racemes to 1.5 cm, aggregated into false panicle, sessile; spikelets to 1.5 mm, globose, awnless; lower glume to 1.5 mm, globose, crustaceous, pitted and tuberculate; pedicelled spikelets 2 mm, broadly ovate, pedicels fused with the rachis.

*Fl. & Fr.* November-February

*D i s t.* Common in dry areas

Athiodai, *KKS* 11763

#### **HETEROPOGON Pers.**

**Heteropogon contortus** (L.) P. Beauv. ex Roem. & Schult., Syst. Veg. 2: 836. 1817; Fl. Pres. Madras 1743. 1934; Matthew, Fl. TN. Carnatic 1862. 1983 & Ill. Fl. TN. Carnatic tt. 876 &

877. 1982; Sreekumar & Nair, Fl. Kerala Grass. 112. 1991. *Andropogon contortus* L., Sp. Pl. 1045. 1753; Fl. Brit. India 7: 199. 1896.

Perennials, culms tufted, erect or prostrate. Leaves to 25 x 0.5 cm, linear, lanceolate; ligule truncate; sheath to 9 cm. Racemes solitary, to 6 cm; lower 4-6 pairs of spikelets homogeneous, awnless; upper heterogeneous, awned; sessile spikelets to 6 mm, callus bearded; glumes with bulbous based hairs; pedicelled spikelets 8 mm, awns twisted, to 8 cm long, pilose.

*Fl. & Fr.* November-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11559*

#### IMPERATA Cyrillo

**Imperata cylindrica** (L.) Raeusch. var. **major** (Nees) C.E. Hubb. ex Hubb. & Vaughan, Grass. Maur. 96. 1940; Matthew, Fl. TN. Carnatic 1864. 1983 & Ill. Fl. TN. Carnatic t. 880 & 881. 1982; Sreekumar & Nair, Fl. Kerala Grass. 114. 1991. *Lagurus cylindricus* L., Syst. Nat. (ed. 10.) 878. 1759. *I. koenigii* (Retz.) P. Beauv. var. **major** Nees. Fl. Africa Austr. 90. 1841. *I. cylindrica* (L.) P. Beauv. var. **koenigii** Dur. & Schinz., Consp. Fl. Africa 5: 694. 1894; Fl. Pres. Madras 1707. 1934. *I. arundinacea* Cyrillo, Pl. Rar. Neap. 2: 26. 1792; Fl. Brit. India 7: 106. 1896.

Perennials, culms tufted. nodes densely hairy. Leaves mostly basal, to 50 x 1.2 cm, lanceolate, acute at apex, minutely serrate, narrowed into a petiole; basal sheath villous; ligule ovate, membranous. Panicles spiciform, cylindrical, to 20 cm, densely silky hairy; spikelets similar, 3-4 mm, awnless, enveloped by the silky hairs; lower glume 3 mm, lanceolate, 5-nerved.

*Fl. & Fr.* February-June

*D i s t.* Common in wet areas especially near to streams

Vanchikulam, *KKS 15634*

#### ISACHNE R. Br.

1. Leaves ovate; small annuals

: *I. setosa*

1. Leaves lanceolate; large perennials

*I. walkeri*

**Isachne setosa** Fischer in Kew Bull. 1932: 247. 1932; Fl. Pres. Madras 1797. 1934; Sreekumar & Nair, Fl. Kerala Grass. 425. 1991.

Small annuals, nodes pubescent. Leaves to 2 x 1 cm, ovate, acute, pilose; sheath 1.2 cm, ciliate; ligule a row of hairs. Panicles to 15 cm; spikelets solitary; pedicelled spikelets 2 mm, globose, widely opened; glumes subequal, lower glume 1.8 mm, with hairs; upper glume 1.8 mm, lower lemma 1 mm, (oblong, upper lemma 2 mm, oblong, chartaceous; palea 2 mm, oblong, delicate. Caryopsis 1 mm across.

*Fl. & Fr.* February-April

*D i s t.* Common near streams in shola; endemic to Peninsular India.

Ottikandy, *KKS 17251*

*Isachne walkeri* (Arn. ex Steud.) Wight & Arn. ex Thw., Enum. Pl. Zeyl. 361. 1864; Fl. Brit. India 7: 26. 1896; Fl. Pres. Madras 1797. 1934; Sreekumar & Nair, Fl. Kerala Grass. 426. 1991. *Panicum walkeri* Arn. ex Steud. Syn. Pl. Glum. 1:97. 1854.

Tall perennials. Leaves to 25 x 2 cm, elliptic-lanceolate, margins hyaline, base slightly cordate; sheath to 7 cm, ciliate; ligule with a ring of hairs. Panicles to 50 cm, spreading, laxly flowered; pedicels to 7 cm, slender, with glandular bands; spikelets 4 mm, solitary; glumes persistent, lower glume 5-nerved, ovate, ciliate; upper glume slightly elongated; lower lemma 3.5 mm, upper lemma 3.5 mm, shining ovate; palea recurved at the margins, 3 mm.

*Fl. & Fr.* October-December

*D i s t.* Common in grasslands

Ollavayal, *KKS*, 18301

#### ISCHAEMUM L.

*Ischaemum nilagiricum* Hack. in Oesterr. Bot. 51: 150. 1901; Fl. Pres. Madras 1722. 1934; Sreekumar & Nair, Fl. Kerala Grass. 153. 1991. *I. hirtum* sensu Hook. f., Fl. Brit. India 7: 135. 1896.

Perennials. Leaves to 10 x 0.8 cm, lanceolate, acute; sheath to 6 cm, ciliate, with long hairs at the joints; ligules truncate. Racemes 3-6, to 7 cm long, paniculate, pubescent; sessile florets to 5 mm; lower glume ciliate, membranous, emarginate at apex, many nerved;; upper glume acuminate, aristate, margin broadly winged above, ciliate, keel not flattened, ciliate, ovate, upper lemma membranous, awned, to 1.2 cm; pedicelled spikelets 7 mm, ciliate, aristate.

*Fl. & Fr.* November-January

*D i s t.* Rare, in dry deciduous forests: endemic to Peninsular India.

Champakad, *KKS* 15931

#### OPLISMENUS P. Beauv. *nom. cons.*

*Oplismenus undulatifolius* (Ard.) P. Beauv. ex Roem. & Schultes, Syst. 2: 482. 1817; Fl. Brit. India 7: 66. 1896. *Panicum undulatifolius* Ard. Animadv. Bot. Spec. Alt. 14. t. 4. 1764.

Decumbent annuals or perennials, rooting at lower nodes. Leaves to 12 x 1.2 cm, elliptic, sparsely hirsute, acute, margins aristate; sheath 2.5 cm, covered with tubercled hairs, ciliate along the margins; ligule a rows of hairs. Spikelets in groups, alternate along the long rachis, groups to 4 or 5; lower glume to 5 mm, 3-nerved, ovate-lanceolate, awns brownish to 8 mm; upper glume 5-nerved, lanceolate: first lemma 4 mm, broadly ovate. acute, palea to 2 mm, lanceolate; second lemma to 3 mm, elliptic, subcoriaceous.

*Fl. & Fr.* October-December

*D i s t.* Rare, in shola forests

Olikkudy, *KKS* 17500

#### OROPETIUM Trin.

*Oropetium thomaeum* (L. f.) Trin., Fund. Agrost. 98. 1820; Fl. Pres. Madras 1830. 1934; Matthew, Fl. TN. Carnatic 1878. 1983 & Ill. Fl. TN. Carnatic t. 903. 1982.



Small annuals, culms tufted. Leaves 1 cm, linear, with long hairs; sheath to 5 mm, with long hairs at the mouth. Spikes 4 mm, terete; spikelets sessile, sunken in rachis, 1-flowered; lower glume minute. upper glume 1 mm, oblong, ridged, curved at the tip, lemma obovate, mucronate, keeled, 0.8 mm.

*Fl. & Fr.* November-December

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Chinnar, *KKS 18206*

#### PANICUM L.

**Panicum trypheron** Schult., Mant. 2: 244. 1824; *Fl. Brit. India* 7: 47. 1896; *Fl. Pres. Madras* 1783. 1934; Matthew, *Fl. TN. Carnatic* 1883. 1983 & Ill. *Fl. TN. Carnatic* t. 904 & 905. 1982.

Annuals. Leaves to 10 x 0.7 cm. lanceolate, base truncate, ciliate with bulbous based hairs, margins aristate: sheath to 6 mm; ligule ciliate. Panicles drooping, to 40 cm, branches alternate or whorled; spikelets 2-flowered. 2.5 mm, ovoid, rachis spinulose: pedicels to 1 cm, slender; lower glume 1.2 mm. broadly ovate, acuminate; upper glume 2.5 mm, 7-nerved, ovate, first lemma similar to the lower glume, palea 1.5 mm, oblong, lower florets barren: second lemma 2 mm, oblong, shining; palea oblong, shining, margins inflexed.

*Fl. & Fr.* October-December

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 18209*

#### PASPALIDIUM Stapf

**Paspalidium flavidum** (Retz.) A. Camus. in Lecomte, *Fl. Gen. Indo-China* 7: 419. 1922; *Fl. Pres. Madras* 1774. 1934; Matthew, *Fl. TN. Carnatic* 1884. 1983 & Fur. Ill. *Fl. TN. Carnatic* t. 807. 1988; Sreekumar & Nair, *Fl. Kerala Grass*. 278. 1991. **Panicum flavidum** Retz., *Obs. Bot.* 15. 1786; *Fl. Brit. India* 7: 28. 1896.

Annuals or perennials. Leaves to 15 x 0.6 cm, oblong-linear, apex blunt, base, shallowly cordate; sheath keeled. Spikes on a central rachis, 3-10, 3-5 cm, alternate, internodes 2 to 3 times longer than spikes; rachis narrowly winged; spikelets 3 mm, ovate, gibbous, awnless; lower glume 1 mm, 3-nerved, chartaceous; upper glume 2-3 mm; first lemma 2-3 mm, 5-nerved, ovate, chartaceous, second lemma 1.5 mm, crustaceous.

*Fl. & Fr.* November-January

*D i s t.* Common in wet areas

Ollavayal, *KKS, 17408*

#### PASPALUM L.

**Paspalum scrobiculatum** L., Mant. Pl. 1: 29. 1767; *Fl. Brit. India* 7: 10. 1896; *Fl. Pres. Madras* 1772. 1934; Matthew, *Fl. TN. Carnatic* 1887. 1983 & Fur. Ill. *Fl. TN. Carnatic* t. 813. 1988; Sreekumar & Nair, *Fl. Kerala Grass*. 287. 1991. **P. orbiculare** Forst., *Fl. Ins. Aust. Prodr.* 7. 1786.

Perennials, rooting at lower nodes. Leaves to 18 x 0.8 cm, lanceolate, base, obtuse, ligule a tuft of hairs; sheath slightly keeled. Spikes 2-4 cm; spikelets 2 mm, orbicular, lower glume absent, upper glume 2 mm, orbicular, membranous; first lemma 2 mm, ovate, orbicular, membranous, second lemma 2 mm, ovate, crustaceous, palea crustaceous, inflexed.

*Fl. & Fr.* January-August

*D i s t.* Common in wet areas

Ollavayal, *KKS 17408, 15643*

#### **PEROTIS Ait.**

*Perotis indica* (L.) O. Ktze., Rev. Pl. 2: 787. 1891; Fl. Pres. Madras 1814. 1934; Matthew, Fl. TN. Carnatic 1889. 1983 & Ill. Fl. TN. Carnatic tt. 912 & 913. 1982; Sreekumar & Nair, Fl. Kerala Grass. 434. 1991. *Anthoxanthum indicum* L., Sp. Pl. 28. 1753. *Perotis latifolia* Ait., Hort. Kew 1: 85. 1789; Fl. Brit. India 7:98. 1796.

Annuals, geniculate. Leaves to 2 x 0.3 cm, oblong-lanceolate, base slightly cordate, wavy at the base; sheath 2 cm; ligule membranous. Racemes to 12 cm, purplish; spikelets 1-flowered, 2 mm, linear-lanceolate; glumes 1.5-2 mm, unequal, 1-nerved, keeled, ciliate along the keels, awns capillary, to 2 cm.

*Fl. & Fr.* November-February

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS 11567*

#### **PHRAGMITES Trin.**

*Phragmites karkd* (Retz.) Trin. ex Steud., Nom. Bot. (ed. 2) 2: 324. 1841; Fl. Brit. India 7: 304. 1896; Fl. Pres. Madras 1807. 1934; Matthew, Fl. TN. Carnatic 1890. 1983 & Ill. Fl. TN. Carnatic tt. 914 & 915. 1982. *Arundo karka* Retz., Obs. Bot. 4: 21. 1786.

Perennials, culms tufted, reed like. Leaves to 60 x 2 cm, oblong, lanceolate, shallowly cordate at base, minutely pubescent: ligule a fringe of hairs. Panicles pyramidal, to 50 cm, woolly; spikelets to 1.7 cm, 3-6 flowered, lanceolate; rachilla densely silky villous; lower glume 3 mm, ovate, keeled, upper glume 5 mm, 3-nerved, fertile lemma to 12 mm, lanceolate, acuminate, palea 3 mm, 2-keeled, hyaline.

*Fl. & Fr.* November-February

*D i s t.* Common near streams in dry deciduous forests

Kuttar, *KKS 11754*

#### **POCONATHERUM P. Beauv.**

*Pogonatherum crinitum* (Thunb.) Kunth, Enum. Pl. 1: 476. 1833; Fl. Brit. India 7: 141. 1896; Matthew, Fl. TN. Carnatic 1891. 1983 & Ill. Fl. TN. Carnatic tt. 918 & 919. 1982; Sreekumar & Nair, Fl. Kerala Grass. 176. 1991. *Andropogon crinitum* Tliunb. Fl. Jap. 40. 1784. *Pogonatherum paniceum* auct non Hack., 1906; Fl. Pres. Madras 1713. 1934.

Perennials, culms slender, tufted. Leaves to 5 x 0.3 cm, lanceolate, pilose; sheath to 2.5 cm, villous along one margin; ligule hairy. Racemes solitary, terminal, 4 cm; sessile spikelets 2 mm, lanceolate, awned, creamy-yellow: upper glume and second lemma awned, pedicelled spikelets 2 mm, similar to the sessile ones.

*Fl. & Fr.* February-April

*D i s t.* Common in shola forests

Olikkudy, *KKS 17246*

## PSEUDOXYTENANTHERA Soderstrom & Ellis

**Pseudoxytanthera monadelpha** (Thw.) Soderstrom & Ellis, Smiths. Contrib. Bot. 72: 52. 1988. *Dendrocalamus monadelphus* Thw., Enum. Pl. Zeyl. 376. 1864. *Oxytanthera monadelpha* (Thw.) Alston in Trim. Handb. Fl. Ceylon 6(Suppl.) 342. 1931; Fl. Pres. Madras 1861. 1934.

Culms tufted. Leaves to 20 x 3 cm, ovate, lanceolate, long acute at apex, margins, minutely serrate. Panicles of spicate branches; spikelets in clusters, forming pseudo-panicles, to 1.5 cm long, with 1 fertile and 2 dormant florets, lower glume 5 mm, obovate-triangular, mucronate. ciliate along the margins and upper part; upper glume 9 mm, oblong-triangular, lemma 12 mm, ovate-elongate, mucronate; palea little smaller; stamens 6, filaments united.

Fl. & Fr. February-January

D i s t. Rare, along the margins of shola forests

Olikkudy, KKS 17313, 17442

## RHYNCHELYTRUM Nees.

**Rhynchelytrum repens** (Willd.) C.E. Hubb. in Kew Bull. 1934. 110. 1934; Matthew. Fl. TN. Carnatic 8893. 1983 & Ill. Fl. TN. Carnatic tt. 924 & 925. 1982; Sreekumar & Nair, Fl. Kerala Crass. 297. 1991. *Saccharum repens* Willd., Sp. Pl. ed. 4. 1: 322. 1798. *Rhynchelytrum villosum* Chisu in Annuario R. Inst. Bot. Roma 8: 310. 1908; Fl. Pres. Madras 1791. 1934. *Tricholaena wightii* Nees & Arn. ex Steud., Syn. Pl. Glum. 1: 93. 1854 pro syn: Fl. Brit. India 7: 65. 1896.

Perennials tufted. Leaves to 20 x 0.7 cm, lanceolate, puberulus or glabrous; sheath to 8 cm. tubercled hairy; ligules a row of hairs. Panicles to 20 cm, densely pubescent, purplish brown; pedicels pilose at the tip, capillary; spikelets 3-7 mm, ovate, villous; lower glume 1 mm, oblong, emarginate, upper glume 6 mm, boat shaped, emarginate, first lemma 4 mm, boat shaped, marginate, palea 2-nerved. heels ciliate, second lemma 3 mm, coriaceous; palea 2 keeled.

Fl. & Fr. February-May

D i s t. Very common in rocky areas in dry deciduous forests

Gellimala, KKS 15547

## ROTTBOELLIA L. f.

**Rottboellia cochinchinensis** (Lour.) W. D. Clayton in Kew Bull. 35: 817. 1981; Sreekumar & Nair, Fl. Kerala Grass. 183. 1991. *Stegosia cochinchinensis* Lour., Fl. Cochinch. 1: 51. 1790. *Rottboellia exaltata* L. f., Suppl. Pl. 114. 1781; Fl. Brit. India 7: 156. 1896; Fl. Pres. Madras 1759. 1934; Matthew, Fl. TN. Carnatic 1894. 1983 & Ill. Fl. TN. Carnatic tt. 926 & 927. 1982.

Tall perennials. Leaves to 30 x 1.2 cm, lanceolate, margins minutely serrate and hirsute; sheath to 20 cm, covered with tubercled hairs, brownish; ligule ovate, membranous. Spikes terminal terete, to 15 cm long, terminating in acute apex, jointed, abscission hollow; sessile spikelets 5 mm, ovate; glumes coriaceous, ciliate, many nerved, lemma 4 mm, semi-coriaceous, palea membranous; pedicelled spikelets 5 mm long, ovate-lanceolate.

Fl. & Fr. February-April

D i s t. Occasional in dry forests areas

Vanchikulam, KKS 15969

### SACCHARUM L.

**Saccharum spontaneum** L., Mant. Pl. 2: 183. 1771; Fl. Brit. India 7: 118. 1896; Fl. Pres. Madras 1709. 1934; Matthew, Fl. TN. Carnatic 1895. 1983 & Ill. Fl. TN. Carnatic tt. 928 & 929. 1982; Sreekumar & Nair, Fl. Kerala Grass. 185. 1991.

Perennials, densely tufted, nodes pubescent. Leaves to 30 x 1.5 cm, lanceolate, acute, base rounded, serrulate along the margins, densely ciliate at the mouth; ligule membranous. Panicles to 30 cm, densely silky: spikelets 6 pairs, similar, awnless; sessile spikelets 4 mm, lanceolate, reddish brown, pedicels to 1 mm, dilated, villous.

*Fl. & Fr.* December-February

*D i s t.* Common near streams

Kuttar, *KKS 11753*

### SACCIOLEPIS Nash

**Sacciolepis indica** (L.) A. Chase in Proc. Biol. Soc. Wash. 21: 8. 1908; Fl. Pres. Madras 1787. 1934; Matthew, Fl. TN. Carnatic 1896. 1983 & Fur. Ill. Fl. TN. Carnatic t. 818. 1988; Sreekuinar & Nair. Fl. Kerala Grass. 298. 1991. *Aira indica* L., Sp. Pl. 1753. *Panicum indicum* L., Mant. Pl. 2: 184. 1771; Fl. Brit. India 7: 41. 1896.

Annuals, culms tufted. Leaves to 20 x 0.7 cm. lanceolate, pilose, base cordate; sheath to 6 cm, tubercled hairy; ligule membranous. Inflorescence spiciform, to 10 cm; spikelets densely crowded, 3 mm, ovate, acute, slightly gibbous, pedicels flattened at the tips. lower glume 1.5 mm, ovate, upper glume 2.5 mm, ovate, setose.

*Fl. & Fr.* April-June

*D i s t.* Common in moist deciduous forests

Ichampetty, *KKS 15648*

### SEHIMA Forssk.

**Sehima nervosum** (Rottl.) Stapf in Prain, Fl. Trop. Africa 9: 36. 1917; Fl. Pres. Madras 1724. 1934; Matthew, Fl. TN. Carnatic 1898. 1983 & Ill. Fl. TN. Carnatic tt. 933 & 934. 1982. *Andropogon nervosus* Rottl. in Ges. Naturf. Freunde Berlin Neue Schriften 4: 218. 1803. *Ischaemum laxum* R. Br., Prodr. 205. 1810; Fl. Brit. India 7: 136. 1896p.p..

Perennial herbs, nodes sparsely hairy. Leaves to 20 x 0.5 cm, lanceolate: sheath to 11 cm, pilose; ligule membranous, fimbriate. Racemes terminal, densely packed. to 15 cm; rachis articulated, pubescent; sessile spikelets awned, lower glumes 8 mm, brownish, hyaline, ciliate, lanceolate, lemma membranous, awns to 4 cm; pedicelled spikelets 1 cm, lanceolate.

*Fl. & Fr.* November-January

*D i s t.* Common in dry open forest areas

Chinnar, *KKS, 17378*

### SETARIA P. Beauv. *nom. cons*

1. Spikelets laxly arranged in the inflorescence

: **S. palmifolia**

1. Spikelets densely arranged in the inflorescence

: 2

2. Leaves less than 10 cm long; creeping or decumbent annuals : **S. pumila**  
 2. Leaves more than 25 cm long; perennials : **S. geniculata**

**Setaria palmifolh** (Koen.) Stapf in J. Linn. Soc. 42. 186. 1914; Fl. Pres. Madras 1789. 1935; Matthew, Fl. TN. Carnatic 1900. 1983 & Fur. III. Fl. TN. Carnatic t. 821 & 822. 1988; Sreekumar & Nair, Fl. Kerala Grass. 307. 1991. **Panicum palmaefolium** Koen. in Naturf. 23: 208. 1788. **P. plicatum** Willd., Enum. Pl. 1033.1809; Fl. Brit. India 7: 55. 1896. p.p. nom Lam. 1791.

Perennials. Leaves to 40 x 3 cm, elliptic-lanceolate, acute, plicate, pilose; ligules row of hairs, membrane fimbriate. Panicles to 40 cm; spikelets 3-5 x 1.5 mm, elliptic, bristles one, to 8 mm; lower glumes 1 mm, ovate, 3-5 nerved; upper glume 2 mm, ovate, 7-nerved; lower lemma similar to upper glume, 5-nerved, epaieate, second lemma elliptic, crustaceous, rugose, 5-nerved; palea ovate, 2-keeled, rugose.

*Fl. & Fr.* February-May

D i s t. Common in moist deciduous forests

Alampetty, KKS 11982

**Setaria pumila** (Poir.) Roem. & Schult., Syst. Veg. 2: 891. 1817; Matthew, Fl. TN. Carnatic 1901. 1983 & Fur. III. Fl. TN. Carnatic t. 823. 1988; Sreekumar & Nair, Fl. Kerala Grass. 309. 1991. **Panicum pumilum** Poir., Encycl. Meth. Bot. (Suppl.) 4: 273. 1816. **Setaria pallida-fusca** (Schum.) Stapf & Hubb, Kew Bull. 1930: 259. 1930; Fl. Pres. Madras 1789. 1954. **Setaria glauca** sensu Hook. f., Fl. Brit. India 7: 78. 1896. non P. Beauv., 1812 **Panicum pallida-fusum** Schum., Beskr. Guin. Pl. 58. 1827.

Annuals, culms creeping or decumbent. Leaves to 8 x 0.5 cm, lanceolate, membranous. Inflorescence spiciform, contracted, to 4 cm, bristles to 6 mm, many, retrorsely barbellate, brown; spikelets solitary, 2.5 mm, elliptic, ovate; lower glume 1 mm, ovate, upper glume 1.5 mm, 5-nerved, membranous; first lemma similar to upper glume in texture. 2.5 mm, palea 1.5 mm; second lemma 2.5 mm, elliptic, transversally rugose, crustaceous, palea 2.5 mm, rugose, crustaceous.

*Fl. & Fr.* April-July

D i s t. Common in wet areas in dry deciduous forests

Ichampetty, KKS 15646

**Setaria geniculata** (Lamk.) P. Beauv., Ess. Agrost. 51, 169, 178. 1812. **Panicum geniculatum** Lamk., Encycl. Meth. Bot. 4, 727. 1798. **Setaria imberbis** (Poir.) Roem. & Schult., Syst. Veg. 2. 891. 1817. **Panicum flavum** Nees. Agrost. Bras. 238. 1829.

Perennials, stem geniculate, rooted at the lower nodes. Leaves to 30 x 1.2 cm, lanceolate, acute, slightly plicate at base; sheath to 13 cm; ligule membranous, fimbriate. Panicles to 20 cm, branchlets many; bristles retrorsely barbellate, 5-7 mm; spikelets shortly pedicelled, 2 mm, ovate, lower glume 0.5 mm, upper glume 2 mm, 5-nerved, lower lemma similar to the glumes lower lemma 1.5 mm, crustaceous, rugose, palea 2-keeled, crustaceous, rugose.

*Fl. & Fr.* October-December

*D i s t.* Common in abandoned cultivated areas

Mangapara, *KKS, 18302*

#### SINARUNDINARIA Nakai

**Sinarundinaria walkeriana** (Munro) Chao & Renv. in Kew Bull. 44. 354. 1989. *Arundinaria walkeriana* Munro, Trans. Linn. Soc. London 26: 21. 1868; Fl. Brit. India 7: 377. 1896.

Large shrubs. Leaves 1-2 mm, to 9 x 2 cm, lanceolate, acute, margins thickened, serrate, coriaceous; sheath slightly keeled; ligules membranous. Panicles terminal, branchlets capillary; spikelets 1 cm, lanceolate. blackish-grey when dry, 2-5 flowered, glumes cartilaginous; lower glumes 4 mm, upper 5 mm.

*Fl. & Fr.* February-August

*D i s t.* Common in shola forests

Pothumala, *KKS 17353*

#### SORGHUM Moench

1. Nodes glabrous

: **S. halepense**

1. Nodes densely woolly

: **S. nitidum**

**Sorghum halepense** (L.) Pers. Syn. 1: 101. 1805; Fl. Pres. Madras 1735. 1934; Matthew, Fl. TN. Carnatic 1902. 1983 & Ill. Fl. TN. Carnatic tt. 937 & 938. 1982. *Andropogon halepense* (L.) Brot. Fl. Luist. 1: 89. 1804; Fl. Brit. India 7: 182. 1896. *A. miliaceus* Roxb., Fl. Ind. 1: 276. 1820.

Tall perennials. Leaves to 50 x 3.5 cm, elliptic-lanceolate, acuminate, more or less rounded at base, margin serrate; ligules fimbriate, membranous. Panicles to 50 cm long, pyramidal; sessile spikelets, 4 mm, elliptic, ciliate, creamy-yellow; callus densely hairy ; pedicelled spikelets 4.5 mm, elliptic. hairy; pedicels 2 mm, hairy.

*Fl. & Fr.* February-May

*D i s t.* Common along the margins of shola forests

Olikkudy, *KKS 17231*

**Sorghum nitidum** (Vahl) Pers., Syn. Pl. 1: 101. 1805; Fl. Pres. Madras 1735. 1934; Bor, Grass. Bur. Ceyl. Ind. Pak. 245. 1960. *Holcus nitidus* Vahl, Symb. Bot. 2: 102. 1791. *Andropogon serratus* Thunb., Fl. Jap. 41. 1784; Fl. Brit. India 7: 185. 1896.

Tall perennials, nodes densely woolly. Leaves to 25 x 0.8 cm, linear-lanceolate, puberulus; sheath to 10 cm, puberulus; ligule membranous. Panicles to 30 cm, branches whorled, filiform, different length; callus brown hairy; sessile spikelets to 4 mm, dark brown to black when mature, pubescent; pedicelled spikelets 4 mm, glumes 4 mm, hairy. 7-nerved, lemma and palea ciliate along the margins.

*Fl. & Fr.* April-July

*D i s t.* Common along the margins of shola forests

Pothumala, *KKS, 18303*

### SPOROBOLUS R. Br.

1. Panicles effuse; leaf margins not revolute : *S. indicus* var. *diander*  
1. Panicles congested; leaf margins revolute : *S. indicus* var. *fertilis*

*Sporobolus indicus* (L.) R. Br. var. *fertilis* (Steud.) Jovet & Guedes Taxon 22: 164. 1973; Sreekumar & Nair, Fl. Kerala Grass. 438. 1991. *S. indicus* sensu Hook. f. Fl. Pres. Madras 1817. 1934.

Annuals or perennials. Leaves mostly basal, to 15 x 0.2 cm, linear-lanceolate, margins revolute; ligule membranous. Racemes terminal, contracted, to 30 cm, branches verticillate on the lower half; spikelets lanceolate, lower glume 0.5 mm, truncate, upper glume 1 mm, 1-nerved, lemma 1.5 mm, oblong; palea 1.5 mm, oblong, membranous, hyaline.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Chinnar. *KKS 11569*; Chengamperu, *11716*

*Sporobolus indicus* (L.) R. Br. var. *diander* (Retz.) Jovet & Guedes, Taxon 22:163. 1973; Sreekumar & Nair, Fl. Kerala Grass. 437. 1991. *S. diander* (Retz.) P. Beauv., Ess. Agrost. 26:147. 1812; Fl. Pres. Madras 1817. 1934; Matthew, Fl. TN. Carnatic 1905. 1983 & Fur. Ill. Fl. TN. Carnatic t. 826. 1988.

Perennials, culms tufted. Leaves to 30 x 0.5 cm, lanceolate, base cordate; sheath to 12 cm; ; ligules fimbriate. Panicles to 30 cm, effuse; pedicels 5 mm, slender; spikelets one flowered, 2 mm, lanceolate, grey; lower glume 0.5 mm, truncate, membranous; upper glume 0.75 mm, membranous, lemma and palea 2 mm, ovate, membranous.

*Fl. & Fr.* November-February

*D i s t.* Common in wet areas in moist deciduous forests

Alampetty, *KKS, 18304*

### THEMEDA Forssk.

1. Involucral spikelets inserted on the same point at rachis;  
awns more than 3 cm long : *T. triandra*  
1. Involucral spikelets in superposed pairs on rachis;  
awns less than 1.5 cm long : *T. cymbaria*

*Themeda cymbaria* (Nob.) Hack., DC. Mono. Phan. 6:668. 1889; Fl. Pres. Madras 1746. 1934; Matthew, Fl. TN. Carnatic 1908. 1983; Sreekumar & Nair, Fl. Kerala Grass. 196. 1991. *Anthistiria cymbarius* (Nob.), Fl. Ind. 1: 255. 1820. quoad descr. excl. basionym *Andropogon cymbarius* L., 1771; Fl. Brit. India 7: 215. 1896.

Perennials. culms tufted. Leaves to 80 x 0.6 cm, lanceolate, minutely serrate, coriaceous; sheath keeled; ligules membranous, ovate, fimbriate. Panicles. to 80 cm, lax, drooping; involucral spikelets 2 pairs in a raceme, 9 mm, lanceolate; pedicelled spikelets 10 mm long, lanceolate.

*Fl. & Fr.* December-February

*D i s t.* Common in dry deciduous forests

Alampetty, *KKS* 11801

Themeda **triandra** Forssk., *Fl. Aeg.-Arab.* 123 & 178. 1775; *Fl. Pres. Madras* 1746. 1934; Matthew, *Fl. TN. Carnatic* 1908. 1983 & *Ill. Fl. TN. Carnatic* tt. 943 & 944. 1982. ***Anthistiria imberbis*** Retz., *Obs. Bot.* 3: 11. 1783; *Fl. Brit. India* 7: 211. 1896.

Tall perennials, densely tufted. Leaves to 30 x 1 cm, linear-lanceolate, margins hyaline, minutely serrate; sheaths keeled, tubercled hairy. Panicles to 75 cm; spathe 8 cm, ciliate at apex; spikelets in clusters; involucre spikelets 2 pairs, to 8-12 mm, tubercled hairy; pedicelled spikelets 2 in a raceme, to 10 and 6 mm, callus pungent; sessile spikelets solitary, awned.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests

Chinnar, *KKS* 11530

#### **TRACHYS Pers.**

Trachys **muricata** (L.) Pers. ex Trin. in *Mem. Acad. Imp. Sci. St.-Petersbourg*, ser. 6, *Sci. Math.* 3: 189. 1834; *Fl. Pres. Madras* 1813. 1934; Matthew, *Fl. TN. Carnatic* 1910. 1983 & *Ill. Fl. TN. Carnatic* tt. 947 & 948. 1982. ***Cenchrus muricatus*** L., *Mant. Pl.* 2. 1771. ***Trachys mucronata*** Pers., *Syn.* 1: 85. 1805; *Fl. Brit. India* 7: 96. 1896.

Annuals, creeping, rooting at lower nodes, nodes densely bearded. Leaves to 10 x 1 cm, apex acute, base cordate, margin undulate on one side, densely hispid; sheaths to 6 cm, hispid; ligule membranous. Racemes 1-3, stiff, to 6 cm; rachis broadly winged; spikelets clustered, glumes, to 6 mm long, glumes and lemmas woolly, scaly, awnless, lower florets epaleate.

*Fl. & Fr.* October-February

*D i s t.* Occasional in dry deciduous forests

Chinnar, *KKS* 11547

#### **TRACUS Haller**

Tragus **roxburghii** Panigrahi in *Kew Bull.* 29: 495. 1974; Matthew, *Fl. TN. Carnatic* 1910. 1983 & *Ill. Fl. TN. Carnatic* tt. 949 & 950. 1982. ***T. biflorus*** Schult., *Mant.* 2: 205. 1824; *Fl. Pres. Madras* 1813. 1934; Bor, *Grass. Bur. Ceyl. Ind. Pak.* 682. t. 80. 1960. ***T. racemosus*** sensu Hook. f., *Fl. Brit. India* 7: 97. 1896.

Stoloniferous perennials. Leaves basal, to 3 x 0.3 cm, margins scarious, apex acute, bulbous based along the margins; sheath to 1 cm. Racemes to 5 cm, solitary; spikelets in pairs, 4 mm, ovate, 1-flowered, lower glume minute, upper glume 4 mm, 5-nerved with stout prickles; lemma 3 mm, paleate.

*Fl. & Fr.* November-January

*D i s t.* Common in dry deciduous forests; endemic to Peninsular India.

Alampetty, *NS* 5869; Chinnar, *KKS* 11580



### TRIPOGON Roem. & Schuit.

**Tripogon bromsides** Roem. & Schult., Syst. Veg. 600. 1817; Fl. Pres. Madras 1834. **1934**; Matthew, Fl. TN. Carnatic 1911. 1983 & Ill. Fl. TN. Carnatic t. 951. 1982; Sreekumar & Nair, Fl. Kerala Grass. 399. 1991.

Tufted perennials. Leaves to 15 x 0.3 cm, linear, hairy, apex acute; sheaths hairy; ligule ciliate. Racemes to 15 cm; spikelets 5-10 flowered, lower glume 1.5 mm, oblong, 1-nerved, upper glume 3 mm, ovate, notched, 1-nerved; lemmas 5 mm, ovate, 4-lobed, 3 awned, 3-nerved, awns 2 mm, palea 2.5 mm, elliptic, 2 keeled.

*Fl. & Fr.* June-September

*D i s t.* Common in dry deciduous forests

Ichampetty, *KKS 15752*

### ZENKERIA Trin.

**Zenkeria elegans** Trin., Linnaea 11:150. 1837; Fl. Pres. Madras 1805. 1934; Matthew, Fl. TN. Carnatic 8916. 1983 & Ill. Fl. TN. Carnatic t. 957 & 958. 1982; Sreekumar & Nair, Fl. Kerala Grass. 363. 1991.

Tufted perennials. Leaves to 50 x 1.5 cm, lanceolate, elliptic, convolute, thick, sheath to 20 cm; ligule with a row of hairs. Panicle to 25 cm, branches capillary, to 5 cm; spikelets 2-flowered, 4 mm long, hairy; glumes unequal, 2 mm, ovate, acuminate, membranous, lemma 4 mm, ovate, lanceolate, acuminate, chartaceous, 5-nerved, long villous, palea 3 mm, lanceolate, villous.

*Fl. & Fr.* May-August

*D i s t.* Rare, in dry deciduous forests: endemic to Peninsular India.

Karimutty, *KKS 15733*

## References

- Ahmedullah, M. and M.P. Nayar, 1987. *Endemic Plants of the Indian Region*. Botanical Survey of India, Calcutta.
- Beddome, R.H. 1868-1874. *Icones Plantarum Indiae Orientalis*. Gantz Brothers, Madras.
- Beddome, R.H. 1869-1874. *The Flora Sylvatica for Southern India*. Gantz Brothers, Madras.
- Biju, S.D.; Mathew Philip and V. Manoj Kumar, 1998. *Ipomoea mombassana* Vatke (Convolvulaceae) - A new record for India. *J. Econ. Tax. Bot.* 22(2): 471-473.
- Bor, N.L. 1960. *The Grasses of Burma, Ceylon, India and Pakistan*. Pergamon Press, London.
- Bourdillon, T.F. 1908. *The Forest Trees of Travancore*. Govt. Press, Trivandrum.
- Bridson, D. M and L. Forman, 1991. *The Herbarium Handbook*. Royal Botanic Gardens, Kew.
- Burkill, I.H. 1965. *Chapters on the History of Botany in India*. Govt. of India Press, Delhi.
- Champion, H.G. and S.K. Seth, 1968. *A Revised Survey of the Forest Types of India*. Govt. of India Press, Delhi.
- Chandrasekharan, C. 1962a. Forest Types of Kerala State 1. *Indian For.* 88: 660-674.
- Chandrasekharan, C. 1962b. Forest Types of Kerala State 2. *Indian For.* 88: 731-747.
- Chandrasekharan, C. 1962c. Forest Types of Kerala State 3. *Indian For.* 88: 837-847.
- Cooke, T. 1901-1908. *The Flora of the Presidency of Bombay*, Vols. I-III. Taylon & Francis, London.
- Fischer, C.E.C., 1921. A survey of the flora of the Anamalai Hills in the Coimbatore District, Madras Presidency. *Rec. Bot. Surv. India* 9: 1-218.
- Fyson, P.F. 1932. *The Flora of South Indian Hill Stations*, Vols. I-II. Govt. Press, Madras.
- Gamble, J. S. and C. E. C. Fischer, 1915-1936. *The flora of the Presidency of Madras* Adlard & Son Ltd., London.
- Henry, A.N.; K. Vivekanandan and N.C. Nair, 1979. Rare and Threatened Flowering Plants of South India. *J. Bombay Nat. Hist. Soc.* 75: 684-697.
- Henry, A.N.; G. R. Kumari and V. Chithra, 1987. Flora of Tamil Nadu, India. Ser. 1, Vol. 2. Botanical Survey of India, Coimbatore.
- Henry, A.N.; V. Chithra and N.P. Balakrishnan, 1989. Flora of Tamil Nadu, India. Ser.1, Vol.3. Botanical Survey of India, Coimbatore.
- Hooker, J.D. 1872-1897. *The Flora of British India*, Vol. I-VII. Reeve & Co., London.

- Jain, S.K. and A.R.K. Sastry, 1984. *The Indian Plant Red Data Book*. Botanical Survey of India, Calcutta.
- Joseph, J. 1977. Floristic Studies in India-with Special Reference to Southern Circle of Botanical Survey of India. *Bull. Bot. Surv. India* 19: 109-111.
- Lushington, A.W. 1915. *Vernacular list of trees, shrubs and woody climbers of the Madras Presidency*. Govt. Press, Madras.
- Manilal, K.S. 1988. *Flora of Silent Valley Tropical Rain Forests of India*. Calicut University, Calicut.
- Manilal, K.S. and V.V. Sivarajan, 1982. *Flora of Calicut*. Bishen Singh Mahendrapal Singh, Dehra Dun.
- Matthew, K.M. 1982. *Illustrations on the Flora of Tamil Nadu-Carnatic*. Vol. 2. St. Joseph's College, Tiruchirapalli.
- Matthew, K.M. 1983. *The Flora of Tamil Nadu-Carnatic*. Vol. 3. Part I & II. St. Joseph's College, Tiruchirapalli.
- Matthew, K.M. 1988. *Further Illustration on the Flora of Tamil Nadu-Carnatic*. Vol. 4. St. Joseph's College, Tiruchirapalli.
- Mohanan, M. and A. N. Henry, 1994. *Flora of Thiruvananthapuram*. Botanical Survey of India, Calcutta.
- Nair, N.C.; A.N. Henry, 1983. *Flora of Tamil Nadu, India*. Ser. 1, Vol. 1. Botanical Survey of India, Coimbatore.
- Nair, N.C. and P. Daniel, 1986. The Floristic Diversity of the Western Ghats and its Conservation : A Review. *Pròc. Indian Acad. Sci. (Animal Sc./Pl. Sci.) Suppl.* pp.127-163.
- Nayar, M. P. 1996. *Hot Spots of Endemic Plants of India, Nepal and Bhutan*. Tropical Botanic Garden and Research Institute, Trivandrum.
- Nayar, M. P. 1997. Biodiversity challenges in Kerala and Science of conservation Biology. In : P. Pushpangadan & K. S. S. Nair (eds.) *Biodiversity of Tropical Forests the Kerala Scenario*. STEC, Kerala, Trivandrum.
- Nayar, M.P. and A.R.K. Sastry, 1987, 1988, 1990. *Red Data Book of Indian Plants*, Vols. 1-3. Botanical Survey of India. Calcutta.
- Ramachandran, K.K.; M. Balagopalan and P. Vijayakumaran Nair, 1995. *Use Pattern and Chemical Characterisation of the Natural Salt Licks in Chinnar Wildlife Sanctuary*. KFRI Research Report No. 94. Kerala Forest Research Institute, Peechi.
- Ramachandran, V.S. and V.J. Nair, 1988. *Flora of Cannanore District*. Botanical Survey of India, Calcutta.
- Rama Rao, M. 1914. *Flowering Plants of Travancore*. Govt. Press, Trivandrum.

- Ramesan, R. 1990. The First Management Plan for Chinnar Wildlife Sanctuary from 1990-91 to 1999-2000. Kerala Forest Department.
- Rheede, H. A. van, 1678-1693. *Hortus Indicus Malabaricus*. Amsterdam.
- Roxburgh, W. 1820-1824. *Flora Indica Serampore*, Vol. 1 & 2.
- Sajeev, K.K. and N. Sasidharan, 1997. Ethnobotanical Observations on the Tribals of Chinnar Wildlife Sanctuary. *Ancient Science of Life*, 16: 284-292.
- Sajeev, K.K.; N. Sasidharan and Jomy Augustine, 1998. New Records of Grasses from Kerala. *J. Econ. Tax. Bot.* 22: 491-494.
- Sajeev, K.K. and N. Sasidharan, 1998. Rediscovery of *Albizia lathamii* Hole, a critically endangered species from Chinnar Wildlife Sanctuary. *J. Econ. Tax. Bot.* 22: 629-630. 1998.
- Sasidharan, N. and V.V. Sivarajan, 1996. *Flowering Plants of Thrissur Forests*. Scientific Publishers, Jodhpur.
- Sivarajan, V.V. and Philip Mathew, 1996. *Flora of Nilambur*. Bishan Singh Mahendrapal Singh, Dehra Dun.
- Sreedhara Menon, A. 1975. *Kerala District Gazetteers, Kottayam*. Government Press, Trivandrum.
- Sreekumar, P.V. and V.J. Nair, 1991. *Flora of Kerala-Grasses*. Botanical Survey of India, Calcutta.
- Subramaniam, K. N., 1995. *Flora of Thenmala Division*. International Book Distributors, Dehra Dun.
- Vajravelu, 1990. *Flora of Palghat District*. Botanical Survey of India, Calcutta.
- Velu Pillai, T.K. 1940. *The Travancore State Manual*, Vol. 1. The Government of Travancore.
- Vivekananthan, K. 1981(1983). Floristic studies in Idukki District. *Bull. Bot. Surv. India*. 23: 100-104.
- Wight, R. 1838-1853. *Icones Plantarum Indiae Orientalis*. Madras.
- Wight, R. 1840. *Illustrations of Indian Botany*. Glasgow.
- Wight, R. and Walker-Arnott, 1834. *Prodromus Florae Peninsulae Indiae Orientalis*. London.