

ESTABLISHMENT OF AN ORCHIDARIUM IN THE INSTITUTE CAMPUS

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ABSTRACT

Nearly 200 species of orchids have been recorded from Kerala, but several of them have a restricted distribution. Urgent steps have become necessary for the protection of orchids, especially the rare and endemic species. Although the best way to conserve a species is to conserve its habitat, this is not always practicable in the case of orchids as each species has its own habitat preferences. In addition to *in situ* conservation, *ex situ* conservation is possible through establishment of orchidaria.

An orchidarium was constructed in the institute as per the design obtained from the orchidologist, National Orchidarium, Yercaud, for *ex situ* conservation and multiplication of indigenous orchids. About one hundred species were collected during the study period and 84 species are maintained in the orchidarium, including some rare and endemic species. Herbarium specimens were also prepared and incorporated into the institute herbarium (KFRI). The specimens were identified with pertinent literature and by comparing with authentic specimens. Suitable planting methods were adopted for growing the orchids in the orchidarium depending on their habit and habitat. In general, epiphytic orchids come well under cultivation. Among the orchids collected, five species are records of occurrence for Kerala.

INTRODUCTION

Orchidaceae, one of the largest families of flowering plants, consists of about 700 genera and 30,000 species and with untold number of hybrids. (Dressler, 1979). The beautiful and fascinating orchid flowers contribute much to floriculture. The remarkable feature that made orchid flowers in cut-flower trade is their keeping qualities. Flowers of most of the cultivated species of *Vanda*, *Cymbidium*, *Catleya* etc. easily last for two to eight weeks. But flowers of *Phalaenopsis* sp. are known to keep their freshness upto six months. The ease with which the orchids form hybrids, even multigeneric have proved to be a valuable asset for the unlimited scope for creating new hybrids.

Several Indian orchids have shown dominance of their attractive characters in different crosses. These species have gained global recognition for their ability to transfer their interesting characters in the hybrid offsprings. Indian species that are widely used in hybridization programmes are *Aerides multiflora*, *Ascocentrum curviflorum*, *Cymbidium lowianum*, *Dendrobium nobile*, *Rhynchostylis retusa*, *Vanda* spp., *Paphiopedilum* sp., *Phalaenopsis* sp. etc. Besides the attractive flowers, several Indian orchids are known for their medicinal properties. Among the orchids of Kerala, thirteen species are used medicinally (Muktesh Kumar *et al.*, 1987). The economic potential of several other species have not yet been studied. Species like *Aerides crispum*, *Arundina graminifolia*, *Rhynchostylis retusa*, *Vanda tessellata* are grown as ornamental plants along with other exotics and hybrids. Though about 190 species have been recorded from Kerala, some species are known only by their type collections and few are presumed to be extinct. Henry *et al* (1979) published a list of 224 threatened plants of South India, and among them 13 were orchids. Habitat destruction and over exploitation are the main reasons affecting the survival of orchids. The best way to conserve the orchids is to conserve the habitats. But this is not always practical as orchids are found in varied habitats. The other alternative is to establish orchidaria. The orchidarium is meant to provide artificial conditions similar to the orchid habitats and helps in the *ex situ* conservation and their multiplication, besides providing materials for study purposes. It is with these objectives the establishment of an orchidarium in the Institute has been taken up.

Though hybridization was one of the objectives of the project, this work has not been attempted. During the early stage of the project, Tropical Botanical Garden and Research Institute, Trivandrum has taken up studies on hybridization and tissue culture propagation. Besides duplicating the work, the cost involved in establishing the infrastructural facilities for such works was also high. Since then we have limited our studies on the *ex situ* conservation and systematics.

MATERIALS AND METHODS

A checklist of the orchids of Kerala has been compiled from literature and by scanning the herbarium collections. Several collection trips were made for the collection of orchids from different orchid habitats in the forests, while surveying the orchids, data pertaining to occurrence, availability and habitat of individual species were carefully documented. Collection of epiphytic orchids, especially from the evergreen forests was rather difficult due to the enormous height of the trees on which they were found. It is often from the fallen trees or branches, tiny orchids like *Trias stocksii*, *Bulbophyllum tremulum*, *Smithsonia straminea*, *Oberonia* sp. were collected. Herbarium specimens were also prepared when collected in flower or made later when flowered under cultivation. The herbarium specimens were incorporated to the Institute herbarium (KFRI). The specimens were identified with pertinent literature and by comparing with authentic specimens.

Cultivation of orchids

Orchids are grouped into epiphytes and terrestrial, depending on their growth habitats. Epiphytes are usually perennial species where majority of terrestrial orchids are annuals. Their plant body is visible above the ground only during the growing seasons. They survive by their underground tubers during the unfavourable seasons. Orchids are usually grown in orchid houses. The orchid houses are meant for providing artificial conditions to the orchids, similar to their natural habitats. In tropical countries, where humidity and temperature need not be controlled always, open orchid house is preferred. These orchid houses have provisions for regulating the overhead shade and also to protect the plants from direct sunlight during summer. Usually one portion of the roof is covered with transparent fibre glass to form the "sunny corner", where plants requiring more sunlight are kept. The other portion of the roof is covered with wooden scantlings of 5cm width. Coirmats are provided over the wooden scantlings during summer to reduce the temperature inside. The sides of the orchid house are provided with wiremesh to allow free passage of air. Benches are erected inside to keep the pots and baskets. Our Orchidarium was built as per the design and drawings provided by the Orchidologist, National Orchidarium, Yercaud, Salem.

Orchids are grown in pots, beds, baskets or on wooden blocks depending on the growth habits. The aerial roots of the *Osmunda* and basal stem portion of *Cyathea* and *Alsophila* are well suited for growing epiphytic orchids. But these plants are not common in our forests. We prepared the potting medium for epiphytic orchids with dried coconut husk made into pieces of about 3cm size, broken brick pieces and charcoal in equal proportions.

Chopped tree fern fibre roots and compost manure were also added. This potting medium was filled in earthen pots as well as on wooden baskets of convenient sizes made with teak wood. Charred wooden blocks were also used for growing epiphytes, especially species of *Oberonia* and *Dendrobium*. The climbing orchid *Vanilla wightiana* was attached and tied to standing trees in the campus and they established well. The terrestrial orchids were grown in beds and in earthen pots. The tuberous terrestrial orchids were collected along with a ball of earth covering the tubers and planted in pots filled with garden soil and compost. Species like *Arundina graminifolia* and *Calanthe masuca* are growing well in planting beds as well as in pots.

Farmyard manure was applied twice in a year. Foliar spraying of chemical fertilizer (W. P. Ohio solution) was also applied occasionally. Though no insect damage was noticed, some fungal decay was observed during rainy season. The fungal decay could be controlled with the fungicide Bavastin. Wateting the orchids has to be done carefully and overwatering the pots should be avoided.

ORCHIDS OF KERALA - AN OVERVIEW

The first systematic account of the orchids of Kerala came to light with the publication of the monumental work of Van Rheedee's *Hortus Malabricus* (1678-1693). He described and illustrated 794 plants collected from the erstwhile Malabar and among them 15 were orchids. The contributions of John Lindley (1840, 1852 - 1859) to the taxonomy of orchids resulted in the publication of several new taxa from peninsular India. During the middle of the nineteenth century Wight published *Icones Plantarum Indiae Orientalis* (1840-1853) with excellent illustrations of Peninsular Indian plants, including 169 Orchids. J.D. Hooker in the *Flora of British India* (1888 - 1890) gave an account of the then known orchids of the erstwhile British India. He later described and illustrated 101 Indian orchids including several new taxa in the *Annals of the Royal Botanic Garden Calcutta* (1899). In the later works, Fischer (1928); Blatter and McCann (1931); Fyson (1932); Santapau and Kapadia (1966); Balakrishnan (1964); Rathakrishnan (1971); Saldanha (1974); Joseph and Vajravelu (1974, 1978, 1981) Shetty and Vivekanandan (1978); Abraham and Vatsala (1981) Chandra Bose et al (1981); Joseph (1982); Henry and Swarninathan (1982); Bharghavan and Mohanan (1983); Nair et al (1983). Manilal and Sathishkumar (1983, 1984a, 1984b, 1984c, 1984d, 1984e, 1985) and Sasidharan and Muktesh Kumar (1985) new taxa or new records of occurrence were reported from South India.

Muktesh Kumar and Sasidharan (1986) listed 67 genera with 190 species to occur in Kerala and since then a few more taxa have been added.

Epiphytes dominates with 109 species. The Terrestrial orchids include 4 saprophytes. *Habenaria* with 24 species is the largest genus. *Oberonia* with 17 species is the second largest genus. 38 genera are represented by only one species. Sathish Kumar (1986) estimated that there are 85 species endemic to Western Ghats and of them 15 are restricted to Kerala.

Distribution

Orchids are found in Kerala from sea level to the highest peak of 2,400m altitude (Anamudi. Idukki Dist.) *Acampe praemorsa* is the most common and widely distributed species in the plains. *Vanda spathulata* though restricted, confined to trees of the sea coast. *Habenaria diphylla* and *H. plantaginea* prefer open scrub jungle. The majority of orchids are found in the forests and each forest type has its own composition of orchid flora.

The southern hilltop tropical evergreen forest abodes a good number of epiphytes as well as terrestrial orchids. High rainfall and the relatively cool climate coupled with bright sunshine contribute ideal habitat for the growth of epiphytic orchids. The profuse growth of moss on trees is well suited to the growth of small epiphytic orchids. The commonly seen epiphytic orchids are *Sirhookera latifolia*. *S. lanceolata*. *Dendrobium heyneanum*. *D. heterocarpum*. *Eria reticosa*. *Trias stocksii*. *Bulbophyllum tremulum*. *B. fimbriatum*, *Flickingera nodosa*. *Porpax reticulata*. *Oberonia brunoniana*. and *O. santapau*. The terrestrial orchids are mostly *Calanthe masuca*, *Disperis neilgherrensis*, *Habenaria crinifera*. *Epipogon roseum*, *Anectochilus elatus* etc.

The westcoast tropical evergreen forests and westcoast semievergreen forests have more or less same orchid flora. The important epiphytic orchids are *Cleisostoma tenuifolium*, *Gastrochilus flabelliformis*. *Cottonia peduncularis* *Acampe ochracea*. *Dendrobium heyneanum*. *Smithsonia straminea*. *Oberonia brachyphylla* etc. The terrestrial orchids are *Habenaria digitata*. *Tropidia angulosa*. *Nervilia* sp.. *Liparis* sp. *Malaxis* sp. *Geodorum densiflorum* etc.

In the Southern moist mixed deciduous forest, trees have a leafless period during the months of January to March and thus the orchids are exposed to bright sunshine. Fire is also very frequent during summer. The common epiphytic orchids are *Cymbidium aloifolium*, *Pholidotta pallida*. *Vanda testacea* *Rhynchostylis retusa*. *Arides ringens*, *Luisia teretifolia*. *Acampe praemorsa*. *Dendrobium ovatum*, *D. macrostachyum*, *Eria mysorensis*. *Oberonia* sp. etc. The terrestrial orchids are mostly *Habenaria ovalifolia*, *H. plantaginea*. *Geodorum densiflorum*, *Eulophia epidendrea*. *E. nuda*. *Peristylis gooderioides* etc.

In the southern montane wet temperate forests (Sholas) the trees are usually short boled and highly branched spreading type and the canopy is

more or less closed. This type of forest is mostly seen in valleys adjacent to grasslands at altitudes above 1,200 m and has a relatively cool climate. The epiphytic orchids and ferns are common on almost all trees. The frequently seen epiphytic orchids are *Dendrobium nanum*, *D. aqueum*, *Coelogyne nervosa*, *C. mossiae*, *Diplocentrum recurvum* *Bulbophyllum kaitense*. *Oberonia* spp. The ground orchids are relatively few. *Calanthe masuca*, *Anectochilus elatus* and *Cheirostylis flabellata* are often found.

The grasslands abode several terrestrial orchids. Majority of the *Habenaria* are found in the grasslands. *Pecteilis gigantea*, *Spiranthes sinensis*. *Satyrrium nepalense*. *Peristylis richardianus*, *Arundina graminifolia* and *Liparis* sp. are frequent. On the exposed rocks and small trees *Dendrobiurn barbatulum* and *Coelogyne* sp. are common.

Very few orchids are adapted to a wide range of habitats. *Arides ringens* can be seen from almost sea level to 2,200 m elevation. in plantations of indigenous species like Teak *Rhynchostylis retusa* and *Vanda testacea* are very common. On the contrary, plantations of exotic species hardly have any epiphytic orchids

SPECIES MAINTAINED IN THE ORCHIDARIUM

Among the orchids collected, eighty four species are maintained in the orchidarium. These species are enumerated below. The species are arranged in alphabetical sequence as per their correct name. Important synonyms are also given. A brief description of the diagnostic features are provided. Flowering period, data on distribution and occurrence are also given. Place(s) of collections are given for species with restricted distribution.

Acampe ochracea (Lindl.) Hochr. Bull. New York Bot. Gard. 6 : 720. 1910;
Sharma and Rathakrishnan, J. Bombay Nat. Hist. Soc. 75 : 525. (1979).
Saccolabium ochraceum Lindl., Bot. Reg. Misc. 2. 1842.

Robust non pseudobulbous epiphytic herbs. Leaves distichous, lorate. keeled, thickly coriaceous, 2 lobed at apex, lobes rounded. Flowers in racemose branched panicles, axillary. Flowers many, about 1 cm in diameter. Perianth lobes yellow with red transverse stripes. Lip white, saccate and hairy to the base inside; lateral lobes short and recurved; midlobe ovate, acute or rounded undulate with a stout rounded spur.

Flowering : November to January

Distribution : East Himalayas; Bangladesh, South India and Sri Lanka

Occurrence : Idukki Dist. (Pachakkanam, Pooyamkutty) and Wynad (Chandanathode, Koothuparamba). We collected from Pooyamkutty, Idukki Dist. and from Kuruva Island. Wynad.

Acampe praernorsa (Roxb.) Blatt. & Mc Cann., J. Bombay Nat. Hist. Soc. 35 : 495. 1932. *Epidendrum praemorsum* Roxb., Pl. Corom. 1:34, t 43. 1795. *Acampe wightiana* Lindl. Fol. Orch. Acampe 2, 1853; Fischer in Gamble, Fl. Pres. Madras : 1447. (1011) 1928. *Vanda wightiana* Wight, Ic. t. 1670. 1851.

Robust non pseudobulbous epiphytic herbs. Leaves thickly coriaceous. unequally bilobed apex, lobes rounded. Flowers in compact racemes clustered at apex. Sepals and petals thick, fleshy, streaked with pink. Lip saccate. creamy yellow, midlobe dilated, lateral lobes deflexed, margins waved.

Flowering : March to May
 Distribution : India and Sri Lanka
 Occurrence : Very common throughout Kerala

Acanthephippium bicolor Lindl., Bot. Reg. 20 : t. 1730. 1835; Fischer in Gamble, Fl. Pres. Madras 1426. (997) 1928.

Terrestrial herb with elongated pseudobulbous stem. Leaves few, large with a small plaited petiole. Flowers yellowish white with pink dots in 3-5 flowered lateral racemes. Lateral sepals adnate to the long curved foot of the column forming a large saccate mentum. Lip small, 3-lobed, three longitudinal ribs prominent at the base.

Flowering : March - April
 Distribution : South West India and Sri Lanka
 Occurrence : Fairly common in the evergreen forests at Silent Valley. Agasthyar mala, Ponmudi and Wynad.

Aerides crispum Lindl., Gen. Sp. Orch. 239. 1833; Fischer in Gamble Fl. Pres. Madras 1442. (1008) 1928.

A robust epiphytic herb. Leaves channelled, coriaceous. Flowers fragrant, white with pink shades in 10-12 flowered racemes. sometimes branched. Lip 3-lobed, mid lobe bright pink triangular, finely crenulate. lateral lobes of the lip larger. two callii present on the disc.

Flowering : May - June
 Distribution : India, Burma, Sri Lanka
 Occurrence : This species is not common in Kerala. we collected from Wynad.

Aerides ringens (Lindl.) Fischer in kew Bull. 1928. 284. 1928 ; et in Gamble, Fl. Pres. Madras 1442. (1008) 1928: *Saccolabium ringens* Lindl., Gen. Sp. Orch. 221. 1833. *S. wightianum* Lindl., Gen. Sp. Orch. 221. 1833; Wight, Ic. t. 917. 1845.

Epiphytic herb with stout stem. Leaves linear, coriaceous with bilobed apex. Inflorescence from the axils of upper leaves, very often branched. Flowers light pink to deep pink. Lip pale pink with darker pink streaks in the middle, 3 - lobed, lobes small with two fleshy calli on the disc.

Flowering : March to July

Distribution : South India and Sri Lanka

Occurrence : Common from sea level to 2000 m elevation

Anoechochilus elatus Lindl. in J. Linn. Soc. Bot. 1 : 178. 1887; (elator) Fischer in Gamble, Fl. Pres. Madras 1453.. (1016) 1928.'

Terrestrial leafy herbs with underground creeping stem, rooting at nodes, Leaves orbicular ovate, dark green with silvery veins. Flowers pink and white in erect spikes. Lip spurred, side lobes small, midlobe with toothed claw, channelled.

Flowering : November to January

Distribution : Endemic to South India

Occurrence : Usually found in the evergreen forests under dense shade at Nelliampathy, Munnar, Bonacaud, Silent Valley etc. Collected from Bonacaud and Nelliampathy.

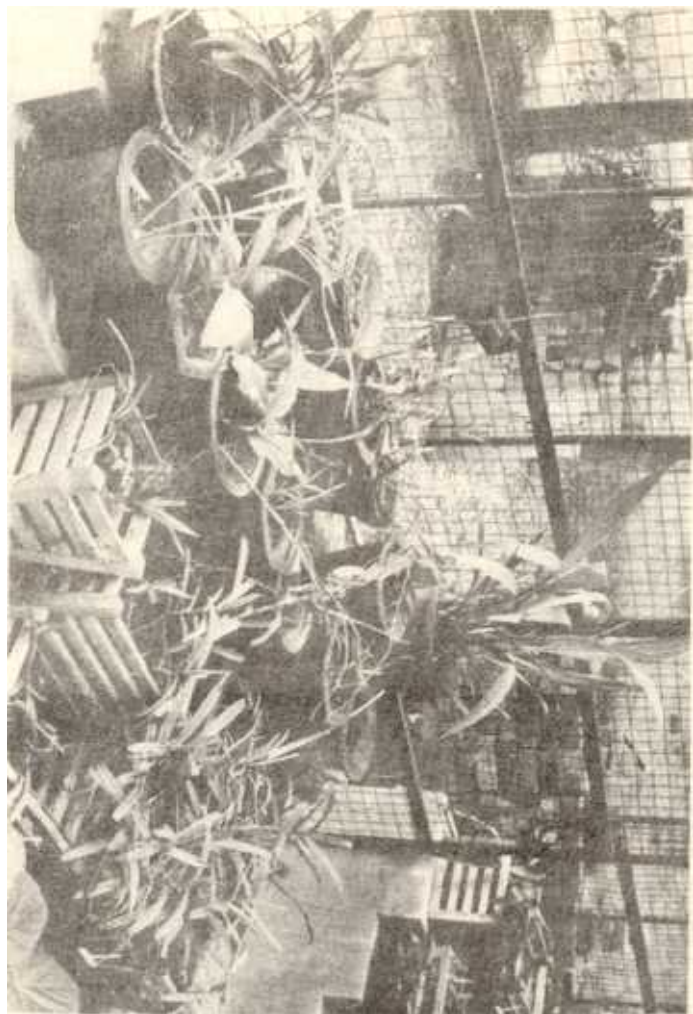
Arundina graminifolia (Don) Hochr., Bull. N.Y. Bot. Gard. 6 : 270 1910; Fischer in Gamble, Fl. Pres. Madras 1432 (1002). 1928. *Bletia graminifolia* Don, Prodr. Fl. Nep. 29, 1825.

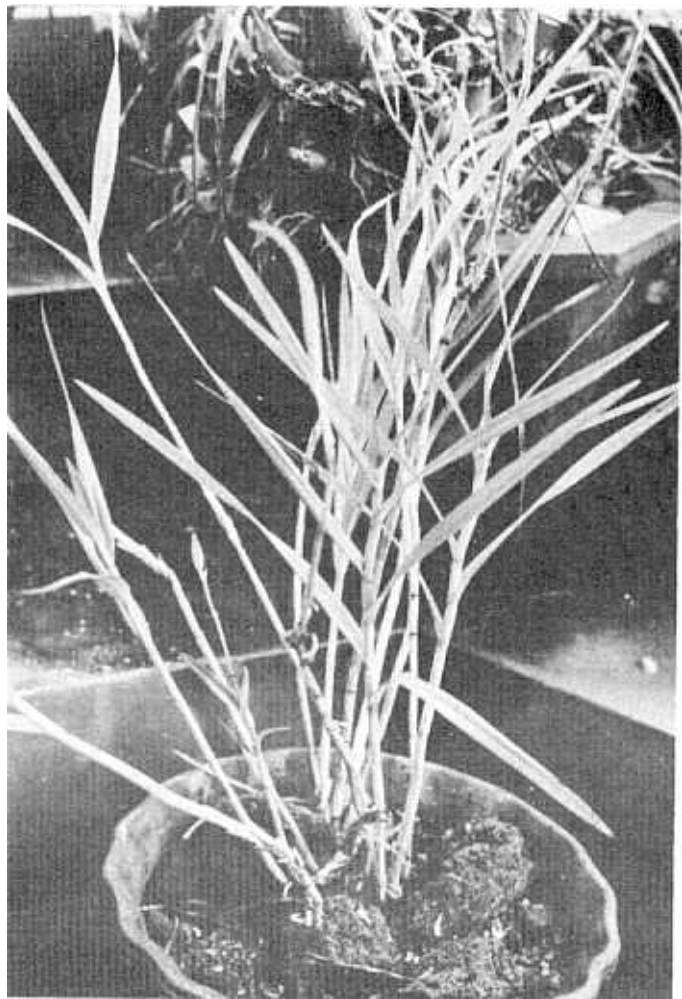
Terrestrial Plants with rigid woody stem, 1 - 2 m tall. Leaves sheathing, linear lanceolate. Flowers pinkish purple 3.5 - 4 cm across, in terminal racemes. Lip 3 lobed, lateral lobes rounded embracing the column, midlobe subrotund, margins wavy; disc with three fimbriate ridges along the centre.

Flowering : August to December

Distribution : India, Sri Lanka and South East Asia

Occurrence : Munnar, Sholayar, Ponmudi. Peermade. Mostly seen in grasslands.







phi:



Vanilla wightiana



Eria pauciflora

Brachycorythis iantha (Wight) Surnerh. in Kew Bull. 1955; 238. 1955; *Platanthera iantha* Wight, Ic. t. 1692-951; *Phyllomphax obcordata* (D. Don) Schltr., Fedde. Reprt, 16. 119. 1919, Fischer in Gamble, Fl. Pres. Madras 1474 (1031) 1928.

Terrestrial tuberous herbs, leaves equally spaced, imbricate with sheathing leaf bases. Flowers 1 cm across, pink in few to many flowered spikes. Lip flabellate, narrowed into a claw at the base, claw ridged puberulous towards the base, margins wavy.

Flowering : August to September

Distribution : South India

Occurrence : Ponmudi, Peermade, Munnar, Nelliampathy

Bulbophyllum kaitense (Wight) Reichb. f. in Walp Ann. Bot. Syst. 6 : 262. 1861. *Cirrhopetalum neilgherrense* Wight Ic. t.-1654. 1851, Fischer in Gamble, Fl. Pres. Madras 1420 (993) 1928.

Small epiphytic herb, pseudobulbs ovoid 2 - 2.5 cm long. Leaves linear oblong, 6-8 cm long. Flowers yellow, mottled with red, about 2 cm long, in 6 - 8 flowered umbels. Lip fleshy, yellowish red

Flowering : July to September

Distribution : Endemic to South India

Occurrence : Collected from Munnar

Bulbophyllum neilgherrense Wight, Ic. t. 1850. 1851; Fischer in Gamble, Fl. Pres. Madras 1418 (992) 1928.

Robust epiphytic herb, pseudobulbs ovoid, 4-angled, 3-4 cm long, yellowish green, smooth, leaves narrowly elliptic to oblong, 5-15 cm long, narrowed at base. Flowers about 1 cm long, yellowish speckled with brown, in many flowered racemes. Lip purple or orange coloured with two recurved auricles at base.

Flowering : December to January

Distribution : Endemic to South India

Occurrence : Fairly common at altitudes 400-1000 m in evergreen and semi-evergreen forests. Collected from Peechi and Sholayar.

Bulbophyllum tremulum Wight Ic. t. 1749. 1851; Fischer in Gamble, Fl. pres. Madras 1418. (992) 928.

Small epiphytic herb, pseudobulbs depressed conical, ridged 1.5 cm in diameter, green. Leaves ovate-lanceolate, 2-5 cm long. Flowers 6-10 on slender scapes. much longer than the leaves. Sepals and petals pale yellow lip linear-oblong, deep purple, fringed with long hairs, basal auricles absent.

Flowering : November to December

Distribution : Endemic to South India

Occurrence : Fairly common in the evergreen forest at Sholayar, Welliempsthy, Silent valley, Thekkady, Ponmudi and Peechi.

Calanthe masuca (D. Don) Lindl., Gen. Sp. Orch. 249. 1833; Fischer in Gamble, Fl. Pres. Madras 1432 (1031). 1928.

Terrestrial herbs, leaves oblong-lanceolate, acuminate upto 30 x 10 cm. plaited sheathing, sparsely pubescent.' Inflorescence, terminal upto 50 cm long. Flowers usually pale pink with violet lip or white with pale violet lip. Lip 3-lobed equal to or smaller than the sepals, the side lobes are very variable, the midlobe cuneate with a cup in the centre. Spur linear spatulate. longer than the sepals.

Flowering : Almost throughout the year

Distribution : Indomalaysia

Occurrence : Fairly widespread in the evergreen forests at Munnar, Sholayar Ponmudi etc. Collected from Munnar and Sholayar.

Cleisostoma tenuifolium (Linn.) Garey, Bot. Mus. Leaf. Harv. Univ. 23 : 175. 1972. *Epidendrum tenuifolium* Linn. Sp. Pl. 952. 1753. *Sarcanthus peninsularis* Dalz. in Hooker's Kew J. Bot. 3 : 343. 1857; Fischer in Gamble, Fl. Pres. Madras 1447-48. (1017) 1928.

Slender pendulous, epiphytic herbs. Leaves semiterete, linear, straight or falcately curved, obtusely acuminate. Flowers small, Lip spurred, faintly bilobed at apex with a septum inside, which runs longitudinally.

Flowering : September to October

Distribution : South India and Sri Lanka

Occurrence : Fairly widespread in the evergreen forests below 700 m elevations at Wynad. Silent Valley, Sholayar, Thenmala, Pooyamkutty, Edamalaray etc.

Coelogyne breviscapa Lindl., Folia Orch. 4 : 1854; Fischer in Gamble, Fl. Pres. Madras (1012) 1430. 1928; *Coelogyne angustifolia* Wight, 1c. t. 1641. 1851.

Epiphytic of lithophytic herbs with creeping rhizome, pseudobulbs with dark brown adpressed scales. Leaves twb, elliptic-lanceolate. Flowers white with yellowish tinged in 4-8 flowered racemes arising from the base of the terminal pseudobulb. Lip 3-lobed, side lobes small, blunt. midlobe broadly obovate, rounded, apiculate or retuse, keels two, wavy.

Flowering : March to May

Distribution : South India and Sri Lanka

Occurrence : Munnar, Silent Valley, Nelliampathy, Wynad. Sholayar etc.

Coelogyne mosaie Rolfe, Kew Bull. 156, 1894; Fischer in Gamble, Fl. Pres. Madras 1430 (1000) 1928.

Epiphytic or occasionally lithophytic herb, pseudobulb large, yellow. smoothly angled. Leaves 2, oblong-lanceolate, acute. Flowers white. fragrant, in 3-4 flowered racemes, arising from the top of pseudobulbs. Lip yellowish and reddish in the centre, 3 - lobed, side lobes short, triangular. mid lobe, elliptic, subobtuse, Keels two, entire.

Flowering : February to July.

Distribution : Endemic to South India

Occurrence : Munnar and Silent Valley. Collected from Munnar

Coelogyne nervosa A. Rich., Ann. Sci. Nat. Ser. 2. 15: 16. 1841; Fischer in Gamble, Fl. Pres. Madras 1430 (1000) 1928. *Coelogyne corrugata* Wight, Ic. t. 1639. 1851.

Epiphytic or lithophytic herb with greenish yellow, wrinkled and rugose pseudobulbs. Leaves 2, lanceolate to broadly ovate acute. Flowers white with yellowish lip in 3 - 4 flowered racemes, terminal from the top of the young pseudobulbs. Lip 3-lobed, side lobes small, midlobe triangular-lanceolate, acute, keels 3.5 crenulate.

Flowering : April to May

Distribution : Endemic to South India

Occurrence : Munnar, Silent Valley, Sholayar, Agasthyarmala etc.

Cottonia peduncularis (Lindl.) Reichb. f. Cat. Orch. Schiller 52. 1857. *Vanda peduncularis* Lindl. Gen. Sp. Orch. 216. 1833. *Cottonia macrostachya* Wight, Ic. t. 1775. 1852; Fischer in Gamble, Fl. Pres. Madras 1439 (1006) 1928.

Epiphytic herb with stout leafy stem. Leaves lorate, unequally 2-lobed at apex. Flowers greenish purple in racemose panicles. upto 30-60 cm long

Lip greenish brown with a golden villous margin, base with 3 calli, disc with a medium pubescent callus, the whole structure resembling a bee.

Flowering : March to May

Distribution : South India and Sri Lanka

Occurrence : Some what common in the evergreen and semievergreen forests below 600 m elevations at Attappady. Nelliampathy. Sholayar. Trichur, Wynad, Thenmala etc.

Cymbidium aloifolium (Linn.) Sw. Nov. Act. Soc. Upsal. 6 ; 73. 1799; Fischer in Gamble, Fl. Pres, Madras 1436 (1004). 1928, *Epidendrum aloifolium* Linn. Sp. Pl. 1350. 1753. *Cymbidium erectum* Wight, Ic. t. 1753. 1852.

Stout epiphytic herb, sometimes lithophytic. Pseudobulb not well differentiated. Leaves linear-oblong, obtuse, tip unequally and obtusely 2-lobed, 20-50 cm long. Flowers yellowish red in lax many flowered pendulous racemes upto 30 cm long. Lip 3-lobed, side lobes narrow, midlobe ovate-oblongate, decurved, disc with lamellae.

Flowering : March to May

Distribution : India, Sri Lanka and South East Asia

Occurrence : Common in the moist deciduous and semievergreen forests below 700 m elevation.

Cymbidium bicolor Lindl., Gen. Sp. Orch. 164. 1833. Abraham and Vatsala, Intr. Orch. 307. 1981.

Robust epiphytic herbs. Pseudobulbs not distinct, ovoid sheathed by leaf bases. Leaves linear oblong, apex notched with 2 unequal rounded lobes, Flowers purple with yellow margins on sepals and petals in 25-35 cm long racemes. Lip shorter than the petals, 3-lobed, side lobes reflexed, yellow with purple streaks and margins crenulate.

Flowering : March to April

Distribution : India and Sri Lanka

Occurrence : Fairly common at Wynad, Kulathupuzha, Pooyamkutty (Idukki) Nelliampathy, Silent Valley etc.

Dendrobium anamalayanam Chandrabose et al. J. Bombay Nat. Hist. Soc. 78 : 575. 1981.

Epiphytic herb with greenish pink ovoid pseudobulbs covered with membranous sheaths. Leaves elliptic oblong or lanceolate, sheathing at base. Flowers white with pink tinge, in 5-many flowered racemes. Lip broadly obovate. 3-lobed with a broad sinus in between the lobes, side lobes tooth like, midlobe rhomboid ovate, distantly serrulate, disc fleshy broadened and 3-toothed at apex.

Flowering : February to April

Distribution : Endemic to South India

Occurrence : Collected from Munnar

Dendrobium aqueum Lindl., Bot. Reg. 6. t. 59. 1843; Fischer in Gamble, Fl. Pres. Madras 1417 (991) 1928 *Dendrobium album* Wight, k t. 1645. 1851.

Epiphytic herb with reddish brown elongated stem covered with whitish scales. Leaves ovate-lanceolate, acuminate, leafless at the time of flowering. Flowers 2-3, from the axils of fallen leaves, white. Lip yellowish hairy along the throat, 3-lobed, side lobes small, incurved. midlobe broadly triangular.

Flowering : January to April

Distribution : Endemic to South India

Occurrence : Silent Valley, Munnar etc. Collected from Munnar.

Dendrobium bambusaefolium Par. ex Reichb. f. in Trans. Linn Soc. London 30: 149. 1874. *Dendrobium haernoglossum* Thw., Enum. 429. 1864; Fischer in Gamble, Fl. Pres. Madras 1416 (990). 1928.

Epiphytic herb with pendulous slender stem, leafy towards the upper portion. Leaves linear, apex oblique. Flowers 2-4 together, yellow with dark red tinged lip. Lip tongue shaped, acute. glabrous, undulate, adnate to the foot of the column.

Flowering : July to September

Distribution : South India, and Sri Lanka

Occurrence : Collected from Agasthiyarmala (Trivandrum)

Dendrobium barbatulum Lindl., Gen. Sp. Orch. 84. 1830; Fischer in Gamble, Fl. Pres. Madras 1416 (990) 1928.

Small epiphytic sometimes lithophytic herb. Leaves lanceolate. acute, membraneous. Flowering stem leafless, Flowers white with pink shades in lateral and terminal racemes. Lip 3-lobed, side lobes obtuse midlobe rhomboid

ovate, acute or apiculate, hairy at base, disc grooved, obtuse with yellow hairs.

Flowering : March to May

Distribution : South West India

Occurrence : Ponmudi, Wynad, Nelliampathy, Silent Valley

Dendrobium crepidatum Lindl., Praxton, Fl. Gard. I: 63, t. 45. 1850 - 1851; Abraham and Vatsala, intrd. to Orch. 349. 1981.

Epiphytic herb with greenish yellow stem, narrowed at the base, Leaves shed before flowering, oblong lanceolate. sheathing. Flowers white with faint pinkish tinge, in pairs from the upper nodes of stem. Lip yellowish at the throat, hardly lobed. oblong-orbicular, pubescent.

Flowering : April to May

Distribution : India and South East Asia

Occurrence : Silent Valley (Palghat), Chandanathode (Wynad). Collected from Wynad.

Dendrobium herbaceum Lindl.. Bot. Misc. 69. 1840; Fischer in Gamble, Fl. Pres. Madras 1416 (990) 1928. *Dendrobium ramosissimum* Wight Ic. t. 1648. 1851.

Pendulous or erect epiphytic herb, stem narrowed at base, much branched, purplish brown or brownish yellow. Leaves linear-oblong or linear-lanceolate. Flowers small, white in 2 - 5 flowered racemes. Lip greenish white, obscurely 3-lobed, side lobes indistinct or very narrow, midlob ovate entire, subacute.

Flowering : December to April

Distribution : South and North East India

Occurrence : Common at all forest types at 300-1500 m elevations at Ponmudi, Agastiarmala, Pamba, Peermedu, Munnar, Silent valley, Nelliampathy, Wynad, Sholayar.

Dendrobium heterocarpum Wall. ex Lindl.. Gen. Sp. Orch. 78. 1930; Fischer in Gamble, Fl. Pres. Madras 1416 (991) 1928. *Dendrobium aureum* Lindl., Gen. Sp. Orch. 77. 1830; Wight Ic. t. 1646. 1851.

Epiphytic herb, stem elongated, brownish yellow, leafless when in flower. Leaves narrowly oblong-lanceolate, oblique at apex. Flowers creamy

yellow with orange-red lip, in clusters of 1-3, from the axils of fallen leaves. Lip ovate-lanceolate acute side lobes obscure, disc pubescent.

- Flowering : March to April
 Distribution : India, Sri Lanka, South East Asia
 Occurrence : Mostly confined to places above 1000 m elevation at Ponmudi, Peermedu, Wynad, Silent Valley, Varadimala (Palghat)

Dendrobium heyneanum Lindl., Gen. Sp. Orch. 78, 1830: Wight, Ic. t. 909 : 1844- 1845; Fischer in Gamble, Fl. Pres. Madras 1415 (990). 1928.

Epiphytic herb with slender laterally compressed stem, leafy when in flower. Leaves linear-lanceolate, acute. Flowers white, small in 4-8 flowered flexuous mostly axillary racemes. Lip 3 lobed, side lobes acute, midlobe rounded, disc with a channelled ridge ending in a fleshy callus.

- Flowering : February to July
 Distribution : Endemic to South West India
 Occurrence : Munnar, Ponmudi, Sholayar, Wynad, Silent Valley etc

Dendrobium lawianum Lindl. J. Linn. Soc. Bot. 3 : 10. 1859: Muktesh Kumar and Sasidharan; Curr. Sci. 55: 187. 1986.

Epiphytic herb, stem greenish, leafless when in flowers. Flowers white. actinomorphic, being composed of six equal perianth lobes with no distinct lip as in other species of Dendrobium.

- Flowering : February to April
 Distribution : Endemic to South West India
 Occurrence : Collected from Sholayar

Dendrobium mabelae Gammie, J. Bombay Nat. Hist. Soc. 16: 567. 1905; Sasidharan and Muktesh Kumar, ibid 82: 241. 1985.

Small erect epiphytic herb with ovoid conical yellowish green pseudobulbs, covered with membraneous sheaths. Leaves elliptic, subcoriaceous. Flowers small, greenish white in 1 - 3 flowered racemes. Lip obovate. suborbicular curved, 3 - lobed, sidelobes white with reddish nerves, midlobe yellowish green, emarginate, fringed with 2 rows of irregularly arranged papillate hairs.

- Flowering : September to December
 Distribution : Endemic to South West India
 Occurrence : Collected from Chandanathode Wynad

Dendrobium macrostachyum Lindl., Gen. Sp. Orch. 90. 1830; Wight, Ic. t. 1647. 1851; Fischer in Gamble Fl. Pres. Madras 1416 (990) 1928.

Epiphytic herb with elongated, more or less uniformly thickened pendulous stem. Leaves membranous, linear-lanceolate to ovate-lanceolate, acute. Flowers pale green to yellowish brown, tinged with red, solitary or in clusters of 2-4. Lip ovate-oblong, side lobes small, rounded or absent. midlobe hairy.

Flowering : May to June

Distribution : India, Sri Lanka

Occurrence : This species is very common in the forests as well as on the plains below 700 m elevations.

Dendrobium ovatum (Willd.) Krazl in Engl., Pflanzenf 45:17. 1910; Fischer in Gamble, Fl. Pres. Madras 1416 (990). 1928; *Dendrobium barbatulum* auct. non Lindl. 1830; Wight, Ic.t 910. 1845.

Epiphytic herb with elongated, terete stem, leafless when in flower. Leaves oblong lanceolate, acute. Flowers creamy white with greenish lip, in terminal and lateral many flowered racemes. Lip flat, side lobes small, obtuse, midlobe large, quadrate oblong, disc with a channelled ridge, surrounded by hairs.

Flowering : January to April

Distribution : South West India

Occurrence : Fairly common, especially in Moist deciduous forests below 1000 m elevations.

Diplocentrum congestum Wight, Ic. t. 1682. 1851; Fischer in Gamble, Fl. Press. Madras 1449(1013). 1928.

Small epiphytic herb with very short stem. Leaves 2-4, linear-oblong, unequally and obtusely 2-lobed at apex. Flowers small pinkish with dark pink streaks, in few to many flowered racemes arising from below the leaves. Lip white deflexed and truncate at apex, disc naked bordered with 2 short divergent spurs at base.

Flowering : April to May

Distribution : South West India

Occurrence : Rare in Kerala, collected from Vellanimala Trichur and Achenkovil, Quilon.

Eria dalzelli (Hook ex Dalz.) Lindl. J. Linn. Soc. Bot. 3:47. 1858; Fischer in Gamble Fl. Pres. Madras 1425 (996). 1928. *Dendrobium dalzellii* Hook. ex Dalz. in Hooker's J. Bot. Gard. Misc. 4 : 292, 1852.

Epiphytic herb with discoid pseudobulbs. Leaves sessile, oblong-lanceolate, obtuse, sparsely pubescent or glabrous. Flowers yellowish white, in few flowered racemes. Lip very small, ovate lanceolate falcate.

Flowering : August to September

Distribution : Endemic to South India

Occurrence : Fairly widely distributed; Munnar, Silent Valley, Wynad, Agasthiyarmala etc.

Eria mysorensis Lindl., J. Linn. Soc. Bot. 3:54. 1858; Fischer in Gamble, Fl. Pres. Madras 1425(996). 1928. *Eria pubescens* Wight, Ic. t. 1634. 1851.

Epiphytic herb with ovoid conical, brownish red pseudobulbs. Leaves 1-4 terminal on the pseudobulbs, linear to oblong-lanceolate, obtuse or sub-acute. Flowers white, in many flowered racemes. Lip fleshy with a purple colour at the throat, base with 2 arched ridges.

Flowering : July to September

Distribution : Endemic to South India

Occurrence : Very widely distributed in Kerala forests at altitudes between 400-1000 m.

Eria pauciflora Wight, Ic. t.1636, 1851; Fischer in Gamble, Fl. Pres. Madras 1425 (996). 1928,

Epiphytic herbs with clavate pseudobulbs, from a creeping root stock. Leaves 2, from the tip of the pseudobulbs, linear-oblong. Flowers 1-3, from the apex of pseudobulbs. Lip cuneately oblong, lobes obscure.

Flowering : August to September

Distribution : Endemic to South India

Occurrence : Silent Valley, Munnar

Eria pseudocalvicaulis Blatt. & Mc Cann, J. Bombay Nat. Hist. Soc. 32: 159. 1928; Fischer in Gamble, Fl. Pres, Madras 1426 (997) 1928.

Epiphytic herb with elongated clavate pseudobulbs. Leaves 2-3, oblong lanceolate, acute. Flowers white, tinged with pink, 1 or 2 flowers, terminal on pseudobulbs, between the leaves, the pseudobulb covered with 2 sheaths. Lip

shorter than the sepals, broadly ovate, side lobes slightly crisped, midlobe puberulous.

- Flowering : August to September
 Distribution : Endemic to South India
 Occurrence : Collected from Munnar and Agasthiyarmala

Eria reticosa Wight, Ic. t. 1637. 1851. *Eria braceata* auct. non Lindl. (1859); Fischer in Gamble, Fl. Pres. Madras 1425 (996) 1928.

Small epiphytic herb with depressed globose, green pseudobulbs, enclosed in a reticulate sac. Leaves 2, elliptic or oblong-lanceolate. Flowers white, solitary on the scape emerging from in between the leaves. Lip equal to the sepals, marked with yellow and purple, 3 lobed, Lip equal to the sepals, marked with yellow and purple, 3 lobed, disc with 2 yellow ridges.

- Flowering : August to September
 Distribution : Endemic to South India
 Occurrence : Munnar. Silent Valley, Ponmudi, Agasthiyarmala etc.

Eulophia epidendrea (Koenig) Schltr., Die Orchideen 346. 1915; Fischer in Gamble, Fl. Pres. Madras 1434. (1003). 1928; *Serapias epidendrea* Koenig in Retz. Obs. Bot. 6:65. 1791.

Terrestrial herbs with conical smooth, green pseudobulbs. Leaves narrow, linear acuminate, 1-ribbed. Flowers greenish yellow with a white purple streaked lip, in elongated branched racemes, lateral from the pseudobulbs. Side lobes of the lip small, embracing the column, midlobe ovate oblong, margins wrinkled, disc with 5 crested nerves.

- Flowering : November to January
 Distribution : India, Sri Lanka
 Occurrence : Fairly common in the deciduous and semievergreen forests below 500 m elevation. Collected from Peechi.

Eulophia graminea Lindl., Gen. Sp, Orch. 182. 1833; Fischer in Gamble, Fl. Pres. Madras 1435 (1928).

Terrestrial herb with conical pseudobulbs, stem covered with membranous sheaths. Leaves lanceolate, acuminate. Flowers yellowish-green, in elongated racemose lax flowered panicles. Lip obovate oblong, sidelobes

small, erect, midlobe obovate, rounded at apex, disc with 5 ridges, crested with glochidiate processes.

- Flowering : October to December
 Distribution : Indomalaysia
 Occurrence : Collected from Agasthiyarmala

Eulophia nuda Lindl. Gen. Sp. Orch. 180. 1833; Fischer in Gamble, Fl. Pres. Madras 1435 (1003). 1928. *Cyrtopera fusca* Wight, Ic. t. 1690. 1851.

Terrestrial herbs with large horizontal tuberous rootstock, leafless when in flower. Leaves linear-lanceolate, plaited, acuminate, base narrowed into a long sheath. Flowers greenish purple with white to purplish lip in lax flowered racemes from the base of the tubers. Lip ovate-oblong, side lobes rounded, erect, margins crispid, midlobe oblong, bifid crispid, disc with several crenulate veins.

- Flowering : March to May
 Distribution : Indomalaysia
 Occurrence : Fairly widely distributed, mostly seen in grasslands at Silent Valley, Wynad, Ponmudi, Sholayar, Nelliampathy, Peechi etc.

Flickingera nodosa (Dalz.) Seidenf. Dansk Bot. Ark. 34 : 41. 1980. *Dendrobium nodosum* Dalz. in Hook. J. Bot. Kew Gard. Misc. 3 : 292. 1852. *Desomtrichum fimbriatum* auct. pp. non Bl., Fischer in Gamble, Fl. Pres, Madras 1412 (987) 1928.

Epiphytic or lithophytic herb, rhizome creeping, profusely branched. ending in linear-oblong, fusiform pseudobulbs. Leaves solitary on pseudobulb sessile, ovate-lanceolate. Flowers small, white solitary, sometimes two. axillary. Lip obovate, subplicate. side lobes erect, spotted with pink! midlobe creamy white speckled with red spots.

- Flowering : Flowers during most of the months in the year
 Distribution : India and Sri Lanka
 Occurrence : Fairly common in the forests. Collected from Vazhachal-Munnar, Silent Valley, Parambikulam and Pooyamkutty.

Gastrochilus flabelliformis (Blatt. & Mc Cann) Saldanha in Saldanha and Nicholson, Fl. Hassan 830. 1976. *Saccolabium flabelliforme* Blatt. & Mc. Cann, J. Bombay Nat. Hist. Soc. 35: 722. t. 16.1931.

Small epiphytic herb with very short stem. Leaves 4-5, falcate, with purple tinges. Flowers small, yellow. with red blotches on sepals and petals in few flowered racemes, lateral from the stem. Lip white saccate, keeled, side lobes obscure, midlobe retuse, finely crenate.

Flowering : November to January

Distribution : Endemic to South West India

Occurrence : Collected from Nilambur, Sholayar and Peechi

Geodorum densiflorum (Lamk.) Schltr., Fedde. Report. 4: 259. 1919; Fischer in Gamble, Fl. Pres. Madras 1437 (1004). 1928. *Limodorum densiflorum* Lamk., Eucyl. 3: 516, 1792.

Terrestrial herbs with tuberous root stock, stem arising laterally from the rootstock. Leaves 2 or 3, elliptic - lanceolate, plicate. Flowers purplish white crowded in decurved racemes. Lip sessile, subpandurate, rounded at apex, emarginate or 2 - fid, streaked with purple, disc with a median yellow channelled ridge, ventricose at base.

Flowering : March to May

Distribution : Indomalaysia

Occurrence : Fairly common in the moist deciduous and semievergreen forest below 600 m elevation. Collected from Sholayar, Peechi and Wynad.

Habenaria crinifera Lindl., Gen. Sp. Orch. 323. 1835; Wight, Ic. t. 926. 1845; Fischer in Gamble Fl. Pres. Madras 1471 (1028). 1928.

Terrestrial herb with ovoid tubers. Leaves towards the base of the stem, oblong-lanceolate, narrowed to the base. Flowers white, showy, in few flowered terminal racemes. Lip thrice long as the sepals, 3-lobed, sidelobes cuneiform, outer margins dentate, midlobe 2-lobed.

Flowering : August to October

Distribution : South West India and Sri Lanka

Occurrence : Fairly common at Munnar, Silent Valley, Sholayar, Ponmudi etc. Collected from Sholayar, Ponmudi and Peechi.

Habenaria digitata Lindl. var. *travancorica* (Hook. f.) Fischer in Gamble, Fl. Pres. Madras 1469 (1026). 1928. *Habenaria travancorica* Hook. f., Fl. Brit. India 6 : 135. 1890.

Terrestrial herbs with ovoid globose tubers. Leaves alternate, ovate oblong, acute or acuminate, sheathing at base. Flowers white in many flowered racemes. Sepals pubescent. Petals 2 partite. Lip 3 lobed from the base, mid-lobe slightly longer than the side lobes, spur lanceolate, as long as the ovary.

Flowering : July to August

Distribution : South India

Occurrence : Collected from Sholayar

Habenaria heyneana Lindl. Gen. Sp. Orch. 320. 1835; Wight, Ic. t. 923. 1845; Fischer in Gamble Fl. Pres. Madras 1471 (1028) 1928.

Small terrestrial tuberous herbs with erect stem. Leaves sheathing, ovate to linear. Flowers white in 5-10 flowered spikes. Lip as long as the sepals deflexed, 3 partite, side lobes linear, midlobe broader than the side lobes, spur obtuse as long as or shorter than the ovary.

Flowering : August to November

Distribution : South West India

Occurrence : Collected from Munnar, Silent Valley, Agasthiyarmala

Habenaria longicorniculata Grah. Cat. Bombay Pl. 202. 1839. *H. longicalcarata* A. Rich. Ann. Sci. nat. Ser. 2, 15: 71. t. 313. 1841; Wight, Ic. t. 925. 1845; Fischer in Gamble, Fl. Pres. Madras 1470 (1027). 1928.

Tuberous terrestrial herb. Leaves about 6, subradical, elliptic lanceolate, acute, sheathing at base. Flowers white, usually 2, in erect scapes. Lip 3 partite to the middle, much longer than the sepals, lateral lobes broader than the sepals, lateral lobes broader than the midlobe, cunneate at apex, midlobe linear, obtuse, spur much longer than the ovary, with a small triangular tigule at the mouth, broadened towards the distal end.

Flowering : August to December

Occurrence : Mostly seen in grasslands. Collected from Ponmudi (Trichur) and Ponmudi (Trivandrum).

Habenaria longicornu Lindl., Gen. Sp. Orch. 323. 1835; Fischer in Gamble, Fl. Pres. Madras 1470 (1027) 1928.

Terrestrial tuberous herbs. Leaves cauline, linear-oblong or lanceolate, obtuse or acute. Flowers white, in 2-8 flowered spikes, lateral sepals ovate, acute. Lip as along as the lateral sepals 3 partite, side lobes recurved. crenate, midlobe with a callus on the mouth, spur twice as long as the ovary.

- Flowering : August to October
 Distribution : Endemic to South India
 Occurrence : Munnar. Silent Valley, Ponmudi (Trichur) etc.

Habenaria ovalifolia Wight Ic. t. 1708. 1851; Fischer in Gamble, Fl. Pres. Madras 1471 (1028). 1928.

Terrestrial herb with irregularly ellipsoid tubers. Leaves 4-6, clustered towards the middle of the stem, elliptic lanceolate or oblanceolate, acute or acuminate. Flower greenish yellow, in many flowered lax spikes. Lip 3 lobed, as long as the sepals, side lobes linear oblong lanceolate, entire or slightly notched at apex, midlobe fleshy, ovate oblong, longitudinally grooved, truncate at apex, spur longer than the ovary somewhat dilated at apex.

- Flowering : August to October
 Distribution : South West India
 Occurrence : Collected from Peechi.

Habenaria plantaginea Lindl., Gen Sp. Orch. 323. 1835; Wight, Ic. t. 1710 1851; Fischer in Gamble, Fl. Pres. Madras 1470 (1027) 1928.

Terrestrial herb with very short stem from oblong tubers. Leaves radical, lying flat to the ground, oblong, acute, narrowed at base into a short sheath. Flowers white, in lax few to many flowered racemes. Lip twice as long as the sepals, flabelliform from a narrow claw, 3 lobed, sidelobes semiovate. sub-acute, entire or crenulate, midlobe narrowly linear, spur slender as long as or little longer than the ovary.

- Flowering : August to October
 Distribution : India Sri Lanka
 Occurrence : Fairly common in the moist deciduous and semievergreen forests below 500 m elevation. Collected from Vellanimala (Trichur) Walayar, Achenkovil and Vazhachal.

Liparis artopurpurea Lindl., Gen. Sp. Orch. 28. 1830; Fischer in Gamble, Fl. Pres. Madras 1411 (987). 1928. *L. walkeriae* Graham, Edin. Orchi. Phil. Jour. 1836; Wt. Ic. t. 905, 1844-45.

Terrestrial herb with hardly swollen stem, 15 - 20 cm long. Leaves ovate or orbicular, membranous, 5 - veined, base very unequal sided. Flowers dull purple, about 2 cm across in slender racemes. Dorsal sepal linear.

3 - veined with recurved, margins narrowly linear, spreading. Lip orbicular-ovovate, recurved, margin crenulate, two large confluent tubercles present at the base.

Flowering : August to September

Distribution : South India and Sri Lanka

Occurrence : Fairly common at Munnar, Nelliampathy, Mozhiyar Sholayar

Liparis nervosa (Sw.) Lindl. Gen. Sp. Orch. 26. 1830; Fischer in Gamble, Fl. Pres. Madras 1410 (987). 1928. *Malaxis nervosa* Sw. in Vent. Akad. Niya. Handl. Stock. 21:235. 1800.

Terrestrial herb with elongated stem, swollen at the base. Leaves lanceolate, acuminate, leaf base narrowed into a sheath around the stem. Flowers greenish yellow 1.2 cm across in long peduncled racemes. Dorsal sepal oblong, obtuse, 5 - veined with revolute margin; lateral sepals obliquely oblong, 5 - veined. Petals linear - spatulate. Lip cuneately obovate, crenate towards the apex, faintly trifid, base with 2 - tubercles.

Flowering : July to August

Distribution : India

Occurrence : Collected from Sholayar and Nelliampathy

Liparis prazeri King & Pantl. J. Asiat. Soc. Bengal. Rt. 2. Nat. Hist. 66. 582. 1897. *L. flabo-viridis* Blatt. & Mc Cann, J. Bombay Nat. Hist. Soc. 35: 260. 1931.

Terrestrial herb with short stem above the ground. Leaves usually 2, sometimes upto 5, flat and spreading on the ground, sessile, broadly obovate or elliptic, lanceolate, 7-nerved. Flowers greenish in terminal lax racemes. Sepals lanceolate, the dorsal sepal bent backwards with revolute margins. Petals narrowly linear. Lip clawed, transversely oblong orbicular or orbicular reniform, emarginate at apex, minutely denticulate along the margins, 2 conical calli present at the base.

Flowering : June

Distribution : India and Burma

Occurrence : Earlier recorded from North Kanara. We collected from Kuruwa Island, Wynad.

Liparis viridiflora (Bl.) Lindl., Gen. Sp. Orch. 31. 1830; Fischer in Gamble Fl. Pres. Madras 1410 (987) 1928. *Malaxis viridiflora* Bl., Bijdr. 392. 1825.

Tufted epiphytic herb with elongated conical pseudobulbs, covered with papery sheaths. Leaves usually 2, sessile jointed, oblanceolate or linear lanceolate, erect, 5-7 nerved. Flowers greenish-yellow 4 mm across in many flowered terminal racemes. Lip orbicular ovate, obscurely 3-lobed, fleshy, thickened callus absent.

Flowering : October to December

Distribution : India to South east Asia

Occurrence : Fairly common in the semievergreen and evergreen forests. Collected from Ponmudi, Sholayar. Peechi, Wynad, Nelliampathy and Silent Valley.

Liparis wrayii Hook. f., Fl. Brit. India 6:181. 1890; *L. Pectinifera* Ridley, J. Bot. 36:210. 1898. *L. fimbriata* Kerr, Kew Bull. 215 : 1927. *L. indirai* Manilal and Sathish Kumar, Pl. Syst. Evol. 145:155 1984.

Erect nonpseudobulbous 15-25 cm long terrestrial herbs. Leaves usually 3, ovate or broadly elliptic-lanceolate, acute or slightly acuminate. abruptly narrowed at base, 5-ribbed, membranous. Flowers about 1.5 cm long, pale greenish-yellow or greenish-white in 10-15 cm long terminal lax flowered racemes. Sepals subequal, dorsal sepal oblong, obtuse, lateral sepals ovate-lanceolate. Petals linear-oblong, narrower than the sepals. Lip obovate, emarginate or truncate with toothed apex, two calli present at the base on either side of the median nerve, disc 5-nerved.

Flowering : May to July

Distribution : South and South East Asia

Occurrence : Earlier recorded from Arunachal Pradesh. We collected from Moozhiyar, Pathanathitta.

Luisia evangelinae Blatt. & McCann, J. Bombay Nat. Hist. Soc. 35:493. 1932; Abraham and Vatsala Intro. Orchids 483. 1981.

Epiphytic pendulous herb with 20-40 cm long stems. Leaves cylindrical with a caudate apex. Flowers about 3 cm across in 3-4 flowered racemes, with only one flower open at a time. Sepals subequal, narrowly ovate-oblong, acute, mucronate. Petals narrowly linear oblong, somewhat falcate, entire, green on upper side and faintly purplish below. Lip pale white with purple blotches, obovate-oblong with two small rounded lobes at base, much constructed towards the apex with two divergent upturned oblong orbicular lobes, disc ridged.

Flowering : March to April
 Distribution : South West India
 Occurrence : Earlier known from North Kanara and Decan. Abraham & vatsala (1981) reported from Chandanathode, Wynad. We collected from Sholayar, where it is fairly common.

Luisia zeylanica Lindl., Folia Orch. Luisia 3. 1853; *L. teretifolia* auct. non. Gaud. Fischer in Gamble, Fl. Pres. Madras 1438 (100) 1928.

Small epiphytic herb with 3-10 cm long terete stems. Leaves cylindrical, 4-10 cm long, attenuate, acute, sheathing at base. Flowers about 1 cm long, greenish pink in 2-4 flowered extra axillary racemes. Dorsal sepal ovate, obtuse, concave; lateral sepals ovate, acute, concave, keeled towards the apex and mucronate. Lip about 0.5 cm long, concave towards the base, 3-lobed with dark maroon horizontal bands, lateral lobes thin, erect, auricular; midlobe rhomboid.

Flowering : June to July
 Distribution : India, South East Asia, also in China
 Occurrence : One of the widely seen species in the deciduous forest and is found throughout Kerala.

Malaxis rheedii Sw., Vet. Acad. Nya. Handl. Stockh. 21 : 235. 1800; *M. versicolor* (Lindl.) Abeywicker. in Ceylon J. Sci. Biol Sci. 2: 147. 1959. *Microstylis versicolor* Lindl., Gen. Sp. Orch. 21.1830; Fischer in Gamble, Fl. Pres. Madras 1408 (985). 1928.

Terrestrial or rarely epiphytic herb. Stem erect, 3-25 cm tall, slightly swollen at the base. Leaves 3-5, sheathing, plicate. ovate lanceolate or broadly obovate or elliptic, 8-10 nerved. Flowers about 4 mm across, yellowish with a purple tinge when young and becoming deep purple with age, in 8-30 cm long, dense or lax flowered racemes. Sepals unequal, linear, 3 nerved. Petals slightly curved. Lip rounded, reniform pectinate except for a small portion in the middle.

Flowering : June to August
 Distribution : India and Sri Lanka
 Occurrence : Fairly common in most of the forest types throughout Kerala. Collected from Wynad. Munnar, Peechi, Ponmudi etc,

Nervilia aragoana Gaud. in Freyeinet, Voy. Bot. t. 35. 1826; Fischer in Gamble, Fl. Pres. Madras 1450 (1020) 1928.

Tuberous herb with a single leaf. Tuber subglobose, 1.5-2 cm in diameter white. Leaves appear after the flowering. Leaves lamina orbicular, cor-

date. nerves prominent, upto 18, petiole 8-20 cm long. Flowers 2.5-3 cm long, greenish in few to many flowered lax racemes. Sepals oblanceolate, acute. petals similar to sepals. Lip subsaccate at base, obovate, 3-lobed, lateral lobes erect, midlobe obtuse or subacute irregularly crenate.

Flowering : May to June

Distribution : Indomalaysia

Occurrence : Fairly common in the moist deciduous forest throughout Kerala. Collected from Peechi, Chimmini dam, Neyyar dam etc.

Nervilia plieata (Andr.) Schltr. Bot. Jahrb. 45:403. 1911. Fischer in Gamble, Fl. Pres. Madras 1458 (1020). 1928. *Arethusa plicata* Andr. Bot. Rep. t. 321. 1802.

Small tuberous herbs tuber globose, 1-1.5 cm across. Leaves lying flat on the ground sessile, orbicular, cordate. upper surface dull yellowish green with dark purple blotches. Flowers 2.5-3 cm long, greenish yellow. Lip convolute at base, widening above the middle, tip broadly rounded or slightly cleft, obovate oblong, with a thickened yellowish medium ridge.

Flowering : May to June

Distribution : South West India and North East India

Occurrence : Collected from Peechi and Vellanimala, Trichur

Nervilia prainiana (King & Pantl.) Seidenfaden & Smitin. Orch. Thailand 730. 1964. *Pogonia prainiana* King & Pantl., J. Asiat. Soc. Bengal 65. 129. 1896.

Small tuberous herbs. Leaves lying flat on the ground, reniform cordate, green, upper surface hirsute. Flowers solitary, about 2 cm long sepals and petals yellow. Lip 3 lobed, lateral lobes as long as the midlobe, midlobe fimbriate.

Flowering : May to June

Distribution : South India, North West Himalaya and Thailand

Occurrence : Collected from Kuruva Island, Wynad.

Oberonia brachyphylla Blatt & Mc Cann. J. Bombay Nat. Hist. Soc 35 : 257. 1931; Joseph & Vajravelu, Bull, Bot. Surv. India 20; 169. 1979.

A very small epiphytic herb. Leaves brownish yellow, 1-5 cm long and 1 cm wide. Flowers orange red in densely flowered 5-4 cm long scapes. Lip 3-lobed gland dotted; lateral lobes irregularly pectinate. midlobe with a broad or narrow sinus in between, the lobules irregularly denticulate.

- Flowering : April
 Distribution : Endemic to South West India
 Occurrence : Collected from Vellanirnal, Trichur and Silent Valley.

Oberonia brunoniana Wight, Ic. t. 1622, 1851; Fischer in Gamble, Fl. Pres. Madras 1406 (984) 1928.

Erect or pendulous epiphytic herbs. Leaves linear oblong, acute falcate or subfalcate. Inflorescence 7-25 cm long, densely flowered. Flowers sessile, reddish. Sepals ovate, acute, sparsely glandular. Petals linear, acute. Lip quadrately oblong, 3-lobed. lateral lobes broadly auricular slightly crenate. midlobe 2 lobulate with a shallow sinus.

- Flowering : November to December
 Distribution : South West India
 Occurrence : Fairly common at altitudes above 500 m at Sholayar. Silent Valley, Ponmudi, Thekkadi, Agasthiyarmala etc.

Oberonia iridifolia Lindl. var. **denticulata** (Wt.) Hook. f., Fl. Brit. India 5 : 676. 1890; Fischer in Gamble, Fl. Pres. Madras 1406 (983). 1928. *O. denticulata* Wight Ic t. 1625. 1851.

Erect or occasionally pendulous epiphytes. Leaves broadly ensiform, ovate oblong to oblong-lanceolate. Flowers orange-yellow, in dense flowered 8-20 cm long spikes. Sepals broadly ovate, acute. Petals ovate-elliptic narrower than the sepals. Lip obscurely 3-lobed, margins pectinate erose. mid-lobe 2 lobulate with a broad sinus in between.

- Flowering : November to December
 Distribution : Indomalaysia
 Occurrence : Reported to occur at Ponmudi. We collected from Peechi.

Oberonia santapau Kapad, J. Bombay Nat Hist. Soc. 57 : 265. 1960. *O. lindleyana* Wight, Ic. t. 1624. 1852; Fischer in Gamble, Fl. Pres. Madras 1407 (984) 1928.

Epiphytic herb upto 20 cm high Leaves ensiform fleshy. Inflorescence decurved towards the apex, densely flowered. Flowers straw coloured. Sepals ovate, obtuse. Petals as long as the sepals or subequal, narrow, linear-ligulate. Lip 3-lobed, margin irregularly crenulate, gland dotted, sidelobes narrowly auricular, incurved midlobe with sinus between the lobules, sometimes overlapping.

Flowering : December to March
 Distribution : South West India
 Occurrence : Ponmudi, Silent Valley, Wynad etc.

Oberonia thwaitesii Hook. f., Fl. Brit. India 5 : 678. 1888; Manilal and Sathish Kumar Curr. Sci. 53 : 1106. 1984.

Tufted epiphytic herb. Leaves distichous. linear, ensiform, slightly curved fleshy. Flowers pale orange in terminal densely flowered 10-25 cm long spiciform racemes. Sepals broadly ovate, acute, pilose outside. Petals oblong-ovate, erose, subacute. Lip coneatly obcordate, 3-lobed, lateral lobes small, midlobe 2-lobulate, lobes rounded with a broad sinus in between, margin distantly crenate.

Flowering : June to July
 Distribution : Sri Lanka and South India
 Occurrence : Recently repoted from Thenmala. We collected from Peechi and Elanad, Trichur.

Pachystoma hirsuta (Joseph & Vajravelu) Sathishkumar & Manila], Kew Bull. 27; 948. 1987. *Eu/ophia hirsuta* Joseph & Vajravelu Bull. Bot. Surv. India 17 : 192. 1975.

Slender terrestrial tuberous herb leafless when in flower, tubers elongated often forked. Leaves grasslike, linear acuminate, sheathing towards the base. Flowers about 1.5 cm long, purplish yellow in 2-5 flowered hirsute racemes. Dorsal sepal ovate-oblong, acute. lateral sepals attached to the sides of a very short foot forming a short gibbous mentum. Petals oblanceolate, narrower than the sepals. Lip 3-lobed slightly shorter than the petals, lateral lobes erect, narrowly auricular, midlobe ovate, obtuse at apex, 3 crested lamellate and hirsute on the dorsal surface.

Flowering : December to February
 Distribution : Endemic to Kerala and Tamil Nadu
 Occurrence : Mostly seen in the grasslands at Ponmudi (Trivandrum). Idukki, Palghat etc. We collected from Ponmudi (Trichur),

Pecteilis gigantea (J. E. Sm.) Rafin., Fl. Tell. 2: 38. 1837. *Orchis gigantea* J. E. Sm., Exot. Bot. 2: 19. t. 100. 1805. *Platanthera susannae* sensu Wight, Ic. t. 920. 1844 non (Linn) Lindl. 1855; Fischer in Gamble, Fl. Pres. Madras 1475 (1031) 1928.

Terrestrial tuberous herb, 60-120 cm high, tubers ellipsoid or ovoid stem with 3-4 sheaths at base and leafy upto the inflorescence. Leaves 7-9 ovate oblong or ovate-lanceolate, acute, sheathing at base. Flowers white

with faint green tinge, fragrant in 2-6 flowered racemes. Bracts oblong lanceolate. longer than the ovary and enclosing it. Dorsal sepals ovate rhomboid revolute along the margins. Lateral sepals oblong acute, revolute on the margins. Petals linear oblong acute much narrower than the sepals. Lip flabellate, tripartite, sidelobes truncate, pectinate, midlobe elliptic. slightly dilated beyond the middle, obtuse spur twice as long as the ovary.

Flowering : August to November
 Distribution : Indo Malaysia
 Occurrence : Mostly confined to the grasslands at Munnar, Wynad, Idukki, Ponmudi. We collected from Wynad and Munnar.

Peristylus goodyerioides (D. Don) Lindl. Gen. Sp. Orch. 299. 1835; Fischer in Gamble Fl. Pres. Madras 1475 (1030) 1928. *Habenaria goodyerioides* D. Don, Prodr. Fl. Nepal. 25. 1825.

Terrestrial tuberous herb, upto 50 cm tall, tubers 1-2, oblong. Stem with 3-5 sheaths at base. Leaves 4-6 clustered towards the middle of the stem, ovate or elliptic ovate acute at apex and sheathing at base. Flowers yellowish brown in 10-20 cm long spikes. Bracts lanceolate, longer than the flowers. Dorsal sepal ovate- oblong, obtuse, lateral sepals oblong, oblique at base, papillose. Lip 3 lobed, midlobe much broader than the side lobes. Spur saccate, ovate globular.

Flowering : July to September
 Distribution : South and South East Asia
 Occurrence : Fairly common in the Moist deciduous forests, throughout Kerala. We collected from Peechi and Vellanimala. Trichur.

Peristylus richardianus Wight, Ic. t. 1697. 1851; Fischer in Gamble, Fl. Pres. Madras 1474 (1030). 1928.

Tuberous herbs, 25-35 cm tall when in flower. Stem with 2-3 tubular sheaths at base. Leaves alternate, ovate-lanceolate or linear-lanceolate, acuminate, sheathing at base. Flowers small, greenish yellow in lax flowered spikes. Bracts lanceolate. acuminate usually longer than the flowers. Dorsal sepals linear lanceolate, narrower than the petals. Petals ovate elliptic to oblanceolate, obtuse. Lip 3 lobed, with a concave claw, side lobes filiform and incurved like horns, midlobe triangular deflexed.

Flowering : August to October
 Distribution : South and North East India
 Occurrence : A rather common species in the grasslands. We collected from Munnar and Wynad.

Phalaenopsis decumbens (Griff.) Holtum. Gard. Bull. 11:286. 1947. *Aerides decumbens* Griff., Notul. Pl. As. 3:365. 1851. *Kingiella decumbens* (Griff.) Rolfe, Orch. Rev. 25: 197. 1917; Fischer in Gamble, Fl. Pres-Madras 1439 (1006) 1928. *Kingidium dcumbens* (Griff.) P. Hunt, Kew Bull. 24:97. 1970.

Epiphytic herb with short, 2-3 cm long stem. Leaves 2 or 3 oblong, obtuse, coriaceous, margins undulate. Flowers about 2 cm across, creamy yellow, marked with purple, in few flowered racemes. Petals narrower than the sepals. Lip 3 lobed, base saccate, side lobes ridged, truncate, with fleshy appendage inside, midlobe cuneate, tip two lobed, disc fleshy with 2 awned appendage at the base.

Flowering : August to October
 Distribution : South and South East Asia
 Occurrence : We collected from Sholayar.

Pholidotta pallida Lindl., Bot. Reg. sub. t. 1777. 1836. *P. imbricata* Lindl. Bot. Reg. t. 1213 non Lindl. in Hook. Exot. Fl. t. 138. 1825; Fischer in Gamble, Fl. Pres. Madras 1431 (1000) 1928.

Epiphytic herb with crowded pseudobulbous stem, pseudobulbs ovoid, subtetragonal, truncate 3-6 cm long. Leaves one to a pseudobulb, linear lanceolate or oblong lanceolate, plaited acute or obtuse, base tapering, coriaceous. Flowers pinkish white, 6 mm across in many flowered drooping 5-12 cm long racemes, bracts closey imbricating cymbiform, orbicular cuspidate. Dorsal sepal broadly ovate, obtuse, lateral sepals, ovate cymbiform. ridged or keeled dorsally connate at the base. Petals linear. Lip panduriform, saccate between the lateral lobes, midlobe and lobules rounded.

Flowering : June to August
 Distribution : Indo Malaysia
 Occurrence : A very common species in the forests below 1000m elevation, throughout Kerala. We collected from Peechi, Kulathupuzha and Nilambur.

Podochilus falcatus Lindl., Gen. Sp. Orch, 234, 1833; Fischer in Gamble, Fl. Pres. Madras 1450 (1014). 1928. *P. malabaricus* Wight, Ic. t. 1748. 1851.

Tufted leafy epiphytic herb with slender stems Leaves small, distichous, equitant, laterally compressed, coriaceous. Flowers small, white with a purple tinge, in short few flowered terminal recurved 2.5-3.5 cm long racemes. Dorsal

sepal broadly lanceolate ovate, acute; lateral sepals lanceolate, one half of the sepals are adhering to the foot of the column forming a spur like mentum. Petals obovate. Lip oblong, lanceolate, obtuse, 3-veined, lateral lobes obscure.

Flowering : October to November

Distribution : India and Sri Lanka

Occurrence : Collected from Chandanathode, Wynad

Polystachya cencrta (Jacq.) Garey & H. R. Sweet, *Orchidologia* 9 : 206. 1974.
Epidendrum concretum Jacq.. Enum. Pl. Carib. 30. 1760. *P. flavescens* (61.) J. J. Sm., Fl. buiteng. 6 : 284. 7905. *P. wightii* Reichb. f. in Walp. An. 6 : 640. 1864; Fischer in Gamble, Fl. Pres. Madras 1437. (1005) 1928.

Epiphytic herb with spirally arranged ovoid pseudobulbs. Stem short covered with sheathing bracts and bases of leaves. Leaves distichous. oblong elliptic to lanceolate, narrowed into sheathing petiole. Flowers pale greenish yellow, 0.5 cm across, in short panicles. Dorsal sepal ovate, acute. Lateral sepals broadly ovate, apex recurved, oblique at base. Petals linear oblanceolate narrower than the sepals. Lip 3 lobed with an erect median ridge at the base, side lobes erect, otuse, midlobe oblong suborbicular, crenulata.

Flowering : August to September

Distribution : Throughout the tropics

Occurrence : Fairly common in all forest types. We collected from Sholayar and Silent Valley.

Porpax reticulata Lindl.. Bot.Reg. 31. 1845; Fischer in Gamble, Fl. Pres. Madras 1422 (994). 1928.

Small epiphytes or sometimes lithophytic herb with discoid pseudobulbs, covered with sheaths with reticulate nerves. Stem very small, sheathed, sheaths light brown, mebraneous, broadly oblong or suborbicular, gland dotted. Leaves at the time of flowering, sessile broadly oblong or obovate, very small, both surfaces minutely papillate. Flowers deep red, very shortly pedicellate. solitary, arising from below the pseudobulb. Sepals united to form a subcampanulate tube, saccate at base and 3-lobed at apex. Petals small, reaching the cavity of the calyx tube. Lip small, tongue like.

Flowering : April to May

Distribution : South West India

Occurrence : Ponmudi, Silent valley, Thekkady. We collected from Silent Valley.

Rhynchosstylis retusa (Linn.) Blume, Bijdr. 286. t. 49. 1825; Fischer in Gamble. Fl. Pres. Madras 1440 (1007) 1928. *Epidendrum retusum* Linn. Sp. Pl. 953.1753.

Stout non pseudobulbous epiphytic herb, stem 5-25 cm long. Leaves linear, strap shaped, unequally lobed at apex, coriaceous. Flowers tinged with violet pink, 1.5-2 cm broad, in stout compact 20-30 cm long drooping axillary racemes. Dorsal sepal ovate or ovate-oblong; lateral sepals obliquely and broadly ovate. Petals similar to sepals. Lip 3 lobed, clawed, claw deflexed, deeply saccate; lateral lobes obscure, midlobe elongated, inflexed, cuneiform.

Flowering : May to June

Distribution : Indo Malaysia

Occurrence : Fairly widely distributed often frequent in teak plantations.

Satyrrium nepalense D. Don, Prodr. Fl. Nepal 26. 1825; Fischer in Gamble, Fl. Pres. Madras 1476 (1032) 1928.

Erect leafy herb with oblong tubers and fleshy root. Leaves fleshy elliptic or ovate lanceolate acute, base broad and sheathing. Flowers pink, 1 cm broad. in 7-9 cm long terminal spikes. Dorsal sepal oblong-lanceolate obtuse, recurved ciliolate. Petals oblanceolate, obtuse. Lip cupular, crenulate strongly keeled at back with two parallel spurs arched on either sides of the ovary.

Flowering : August to December

Distribution : Indomalaysia

Occurrence : Mostly confined to the grasslands at Munnar, Ponmudi, Agasthiarmala, Peermedu etc. We collected from Agasthiarmala and Munnar.

Sirhookera latifolia (Wight) Ktze., Rev. Ge. Pi. 681. 1891. *Josephia latifolia* Wight, Ic. t. 1743. 1851: Fischer in Gamble, Fl. Pres. Madras 1428 79993. 1928.

Epiphytic herb with thick roots. Leaves broadly oblong, apex rounded, shortly petiolate. Flowers 3-4 mm across, yellowish with purple stripes, in 5-14 cm long axillary panicles. The sepals and petals inflexed. Lip boat shaped, epichile continuous with hypochile.

Flowering : July to December

Distribution : South West India

Occurrence : Fairly common in the evergreen and semievergreen forests at Silent Valley. Sholayar, Ponrnudi etc. Collected from Sholayar and Silent Valley.

Smithsonia maculata (Dalzell) Saldanha, J. Bombay Nat. Nist. Soc. 71:74.1974; Sasidharan and Muktesh Kutnar, *ibid*, 82 : 241. 1985. *Micropera maculata* Dalzell. Hooker's J. Bot. Kew Gard. Misc. 3: 282. 1851.

Epip'hytic herb. Leaves 2-3, narrowly oblong, often mottled with purple, unequal sided at base. Flowers about 1 cm across, yellow with purple spots, in many flowered racemes arising from the base of the leaves. Sepals and petals subequal, obovate-oblong, rounded. Lip white, flushed with pink, 3-lobed. lateral lobes erect, midlobe entire, rounded, spur broadly conical.

Flowering : May
 Distribution : South West India
 Occurrence : This species was reported earlier from Karnataka and Maharashtra. Our collection from Nelliampathy is a record for Kerala

Smithsonia straminea Saldanha, J. Bombay Nat. Hist. Soc. 71 : 33. 1974. Very small epiphytic herbs with stout roots. Leaves 2-4, elliptic oblong, 2 lobed or entire at apex. Flowers small, in 4-8 flowered spikes. Sepals and petals obovate, pale yellow with red spots. Lip white 3-lobed. spurred lateral lobes erect, midlobe, entire, spur conical, pink.

Flowering : April to May
 Distribution : South India
 Occurrence : Earlier reported from Karnataka. Now known to occur at several places in Kerala. We have collected from Vellanimala and Palapally of Trichur Dist.

Trias stocksii Benth. ex Hook. f. Fl. Brit. India 5 : 781. 1890; Vivekananthan, Bull. Bot. Surv. India 10 : 241. 1969.

Small epiphytic herbs with creeping rhizome. Pseudobulbs globose, bearing a solitary leaf. Leaves elliptic, acute, 1-nerved, coriaceous. Flowers about 1 cm across, arising from the base of the pseudobulb. solitary, orange with red dots. Sepals subequal, ovate oblong mucronate, faintly 7 nerved. Dorsal sepal concave petals narrowly linear oblong, acute, 1 nerved, gland dotted. Lip mobile on the apex of the column foot, deflexed, oblong, tuberculate on the upper surface, rounded.

Flowering : January
 Distribution : South West India
 Occurrence : Earlier reported from Maharashtra. Now known from Karnataka and also from several places in Kerala. We have collected from Peechi and Sholayar.

Vanda tessellata (Roxb.) Hook. f. ex G. Don in Loud. Hort. Brit. 372. 1830; Fischer in Gamble, Fl. Pres. Madras 1445. (1010). 1928. *Epidendrum tessellata* Roxb., Pl. Cor. t. 42. 1795.

Stout epiphyte with 30-60 cm long non pseudobulbous stem. Leaves strap shaped, obtusely keeled, coriaceous, distichous. Flowers 5 cm across, greyish blue, buff red or yellow tessellated, in 4-10 flowered 15-2-cm long racemes. Dorsal sepal obovate, faintly trifid. lateral sepals, obovate, obtuse many veined, wavy. Petals obovate obtuse or subacute, margins wavy, Lip funnel shaped, 3-lobed, lateral lobes erect, obliquely oblong. midlobe panduriform, constricted below the bifid apex, disc with fleshy curved ridges. spur short, conical.

Flowering : September to October
 Distribution : India and Sri Lanka
 Occurrence : Mostly seen in the deciduous forests. We collected from Marayur.

Vanda testacea (Lindl.) Reichb. f., Gard. Chron. 2: 166. 1877. *Aerides testaceum* Lindl., Gen. Sp. Orch. 238. 1835. *V parviflora* Lindl., Bot. Reg. 30. Misc. 45. 1844; Fischer in Gamble, Fl. Pres. Madras 1444 (1010). 1928.

Epiphyte with stout non pseudobulbous 10-15 cm long stem. Leaves linear, lorate, distichous, unequally lobed or toothed at apex, coriaceous and keeled. Flowers about 1.8 cm across, yellow with purple or pink lip, in erect many flowered, 6-15 cm long racemes. Sepals similar, obovate spatulate incurved at apex. Petals spatulate, concave, narrowed at base. Lip sessile, 3-lobed, lateral lobes oblong, obtuse, erect; midlobe subquadrate, recurved, dilated at apex, crenulate. disc with two fleshy ridges; spur narrow, funnel shaped.

Flowering : March to April
 Distribution : India and Sri Lanka
 Occurrence : Fairly common in the Deciduous forest at low elevation.

Vanilla wightiana Lindl. ex. Hook. f. Fl. Brit. India 6; 90. 1890; Fischer in Gamble, Fl. Pres. Madras 1451 (1015) 1928.

Climbing aphyllous plants with succulent green stem. Flowers about 3 cm long, pale yellow, in axillary, 3-7 flowered racemes. Sepals and petals oblong-lanceolate. Lip inserted at the base of the column, embracing and fusing with it by a convolute claw and dilating into a trumpet shaped limb with recurved margins, apex triangular acute, disc with 2 broad papillate ridges.

Flowering : March to May
 Distribution : South India
 Occurrence : Though Henry et al (1978) treated it as an endangered species, we have collected it from Kulathupuzha, Sholayar, Ezhimala etc. It is fairly common. It established well under cultivation.

DISCUSSION

Bordered by the Western Ghats, Kerala is endowed with a luxuriant vegetation, rich in species. Angiosperm forms the principal group of plant community, Orchidaceae with about 200 species is the 3rd dominant family. Though about 200 species have been recorded from Kerala, some of them are very rare and are known only by their type collections. The repeated efforts to relocate species like *Acampe congesta*, *Bulbophyllum nodosum*, *Chrysoglossum halbergii*, *Liparis elata* etc. were not successful and it is presumed that these species have become extinct. This necessitates intensive field exploration to locate the species that are presumably in danger of extinction and conservation strategies are to be adopted to protect them.

Field studies indicate that, forests at Munnar, Peermade, Ponmudi, Silent Valley, Wynad, Nelliampathy and Agastiarmala have a fair representation of orchids. During the study period over one hundred species were collected and at present 84 species are maintained in the orchidarium. Effort will be continued to collect the other species viz. *Smithsonia maculata*, *Dendrobium mabelae*, *Pomatocalpa mannii*, *Dendrobium lawianum* and *Liparis wrayii* are collected for the first time from Kerala. In general, epiphytic species come up well under cultivation. Tiny terrestrial orchids like *Spiranthes sinensis* and *Liparis wightiana* survived only for a few months under cultivation. The grasslands abode several terrestrial orchids and many of them are endemic.

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