



Flora of India
Series - 2

Materials for the Flora of Arunachal Pradesh (HYDROCHARITACEAE – POACEAE)

Volume 3



भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

Botanical Survey of India
Ministry of Environment and Forests

Editors

H.J. CHOWDHERY

G.S. GIRI

&

A. PRAMANIK

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Cover photo : Front : *Coelogyne arunachalensis* Chowdhery & Pal
Eria sharmae H.J. Chowdhery & Pal
Back : *Rhaphidophora glauca* (Wall.) Schott

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Amorphophallus paenifolius (Dennst.) Nicolson



Caryota urens L.



Coelogyne arunachalensis Chowdhery & Pal



Curculigo orchioides Gaertn.



Dendrocalamus giganteus Munro



Eria javanica (Sw.) Blume



Eria sharmae H.J. Chowdhery & Pal



Flickingeria fugax (Rchb.f.) Hawkes



Licuala spinosa Thunb.- frts



Musa velutina Wendl. & Drude



Rhipidophora decursiva (Roxb.) Schott



Rhaphidophora glauca (Wall.) Schott

HYDROCHARITACEAE

Hydrilla verticillata (L.f.) Royle, Ill. Bot. Himal. 1: t. 376. 1839; Hook.f., Fl. Brit. India 5: 659. 1888. *Serpicula verticillata* L.f., Suppl. Pl. 416. 1781.

Submerged leafy herbs. Leaves 3-4-nately whorled, linear or oblong-linear. Male flowers solitary in subglobose, muricate spathes. Female flowers solitary or paired in tubular, 2-toothed spathes. Fruits subulate.

Fls. & Frts.: April June.

Distrib.: Lohit; between 100-1000 m, in stagnant water.

Ottelia alismoides (L.) Pers., Syn. Pl. 1: 400. 1805; Hook.f., Fl. Brit. India 5: 662. 1888. *Stratiotes alismoides* L., Sp. Pl. 535. 1753.

Submerged herbs with fibrous roots. Leaves crowded, long petioled, ovate-lanceolate or oblong, cordate at base. Flowers solitary in tubular, 2-fid spathes, white. Fruits oblong, crowned with dried perianth.

Fls. & Frts.: April-Aug.

Distrib.: Changlang, Kameng, Lohit, Tirap; between 500-1200m, in deep or shallow water along roadsides.

Vallisneria spiralis L., Sp. Pl. 1015. 1753; Hook.f., Fl. Brit. India 5: 660. 1888; A.S. Rao & D.M. Verma in Bull. Bot. Surv. India 12: 140. 1970.

Submerged, stoloniferous, tufted, deciduous herbs. Leaves linear, strap shaped, 5-nerved, entire or serrulate. Flowers many, shortly pedicelled, white. Male spathes on 1-2 cm long scape. Female spathes on long slender scape.

Fls. & Frts.: March June.

Distrib.: Kameng; between 100-1700 m, in ponds and lakes.

ORCHIDACEAE

Acampe ochracea (Lindl.) Hochr. in Bull. New York Bot. Gard. 6: 270. 1910; H.J. Chowdhery, Orch. Fl. Arunachal Pradesh 39, f.11. 1998. *Saccolabium ochraceum* Lindl. in Bot. Reg. 28: misc.2.

1842; Hook.f., Fl. Brit. India 6: 62. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 219, t.291. 1898.

Epiphytic herbs up to 1 m high. Stems erect, stout. Leaves oblong, keeled, unequally bifid at apex. Flowers in leaf-opposed panicle, yellow. Lip 3-lobed, spurred; apical lobe white. speckled with purple.

Fls. & Frts.: Nov. Feb.

Distrib.: Kameng, Tirap; between 200-1000 m, on moss covered branches of large trees in tropical forests.

Acampe papillosa (Lindl.) Lindl., Fol. Orchid. Acampe 2: 1853; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 41, f.12. 1998. *Saccolabium papillosum* Lindl. in Bot. Reg. t. 1552. 1841; Hook. f., Fl. Brit. India 6: 63. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 219, t.290. 1898.

Epiphytic, erect herbs upto 20 cm high. Leaves narrowly oblong, obtusely bilobed at apex. Flowers in leaf-opposed subcorymbose raceme, white with yellowish transverse bars. Lip 3-lobed with conical spur.

Fls. & Frts.: Jan. Aug.

Distrib.: Tirap; between 1000-1500 m, on trees in forests.

Acampe praemorsa (Roxb.) Blatter & McCann in J. Bombay Nat. Hist. Soc. 35: 1495. 1932; Singh, K.P., Phukan & Bujarbarua in Fl. Div. Cons. Strat. India 4: 1786. 2001. *Epidendrum praemorsum* Roxb., Pl. Coromandel. 34. 1795. *Saccolabium wightianum* (Lindl. ex Wight) Hook.f., Fl. Brit. India 6: 62. 1890. *Saccolabium praemorsum* sensu Hook.f., Fl. Brit. India 6: 62. 1890.

Epiphytic, erect, slender herbs up to 50 cm high. Leaves 10-15 cm long, narrow. Flowers small, papillose all over. Lip deeply lobed. Spur rounded, pubescent at the base within.

Fls. & Frts. : August November.

Distrib. : Kameng, Subansiri, between 500-1200 m, on tree trunks in forests.

Acampe rigida (Buch.- Ham. ex Sm.) P.F. Hunt in Kew Bull. 24: 98. 1970; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 41, f.13. 1998. *Aerides rigida* Buch.-Ham. ex Sm. in Rees. Cyclop. 39, *Aerides* n. 12. 1819; Hook.f., Fl. Brit. India 6: 48. 1890. *Vanda multiflora* Lindl., Coll. Bot. t. 38. 1825. *Acampe multiflora* (Lindl.) Lindl., Fol. Orchid. Acampe 1. 1853; H. J. Chowdhery, Orch. Fl.

Arunachal Pradesh 39.1998. *Saccolabium longifolium* Hook.f., Fl. Brit. India 6: 62. 1890.

Epiphytic, stout herbs up to 90 cm high. Leaves elongated, oblong, unequal at apex. Flowers in leaf-opposed raceme, crowded, yellow with transverse stripes. Lip 3-lobed, saccate, white, purple spotted.

Fls. & Frts.: Sept. Dec.

Distrib.: Kameng, Subansiri; between 500-1500 m, on tree trunks in primary forests.

Acanthephippium striatum Lindl. in Bot. Reg. 24: misc.41, no. 68. 1838; Hook.f., Fl. Brit. India 5: 816. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 43, f.14. 1998.

Terrestrial herbs. Pseudobulbs obpyriform, tapering into cylindrical stems. Stems up to 20 cm long. Leaves elliptic, acute. Flowers in few flowered raceme, pinkish with red lines. Lip 3-lobed, yellow tinged.

Fls. & Frts.: July Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 600-1000 m, underneath primary forests on thick humus soil.

Acanthephippium sylhetense Lindl., Gen. Sp. Orch. Pl. 177. 1833; Hook.f., Fl. Brit. India 5: 815. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 43, f.15. 1998.

Terrestrial herbs. Pseudobulbs ovoid, tapering above into stout, leafy stem. Stems upto 35 cm long. Leaves elliptic, plicate. Flowers in short, lateral sheathed raceme, dull white with yellow blotches. Lip 3 lobed; apical lobes yellow. Capsules purple when ripe.

Fls. & Frts.: April June.

Distrib.: Siang; between 1000-1500 m, underneath forests on thick humus soil.

Acrochaene punctata Lindl., Fol. Orchid. Acrochaene: 1. 1853; Hook.f., Fl. Brit. India 5 : 783. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 43, f.16.1998.

Epiphytic herbs. Rhizomes stout, creeping. Pseudobulbs ovoid. Leaves oblong, obtuse. Raceme growing straight, downwards from the base of pseudobulbs. Flowers glaucous, pale-green. Lip clawed. Capsules clavate.

Fls. & Frts.: Oct. Jan.

Distrib.: Subansiri; between 1000-1500 m, on moss covered branches of trees in subtropical moist forests.

Aerides falcata Lindl. in Paxton, Fl. Gard. 2: 142. 1851; Hook. f., Fl. Brit. India 6: 46. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 47. 1998.

Epiphytic herbs. Stems robust, upto 25 cm long. Leaves linear-oblong, notched at apex. Flowers in axillary, lax flowered raceme, white or pink; rachis decurved. Lip 3-lobed; mid lobe ovate-cordate, erose; spur straight.

Fls. & Frts.: July Sept.

Distrib.: Kameng, Subansiri; between 1000-1800 m, on trees in open forests and forest borders.

Aerides multiflora Roxb., Corom. Pl. 3: 68, t.271. 1820; Hook. f., Fl. Brit. India 6: 44. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 212, t.283. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 49. 1998.

Epiphytic herbs, 10-25 cm long. Leaves narrowly oblong, obliquely bifid, often reddish-purple tinged. Flowers in raceme, white, flushed with pink or purple. Lip indistinctly 3-lobed; spur short, straight. Capsules fusiform.

Fls. & Frts.: May Sept.

Distrib.: Kameng, Subansiri; between 100-1200 m, on tree trunks in forests.

Aerides odorata Lour., Fl. Cochinch. 2: 525. 1790; Hook.f., Fl. Brit. India 6: 47. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 212, t.282. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 49, f.17. 1998.

Epiphytic herbs. Stems 30-45 cm long. Leaves oblong, unequally bilobed at apex. Flowers supra axillary, white with purple blotches, lemon fragrant. Lip deeply 3-lobed; spur large, curved. Capsules fusiform.

Fls. & Frts.: June Aug.

Distrib.: Kameng, Lohit, Siang, Subansiri; between 100-1000 m, on tree trunks in primary and secondary forests.

Aerides rosea Lodd. ex Lindl. & Paxton in Paxton, Fl. Gard. 2: 109, t.60. 1852; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 49. 1998. *Aerides fieldingii* B. S. Williams, Orch. Grow. Man. ed.

2: 39. 1862; Hook.f., Fl. Brit. India 6: 45.1890. *A. williamsii* R. Warner, Sel. Orch. Pl. ser. 1: t. 21. 1862.

Epiphytic herbs upto 25 cm tall. Stems suberect. Leaves linear-oblong, bilobed at apex. Flowers in axillary raceme, pendent, pink. Lip 3-lobed; mid-lobe with bilobed callus at base; spur conical, straight. Capsules fusiform.

Fls. & Frts.: Aug. Nov.

Agrostophyllum brevipes King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 156, t.213. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 51, f.18. 1998. *A. callosum auct. non* Rchb. f.: Hook.f., Fl. Brit. India 5: 824. 1890. *p.p.*

Epiphytic herbs. Stems clavate upto 35 cm long, clothed with membranous sheaths. Leaves linear-oblong. Flowers in terminal heads, small, white. Lip 3-lobed with callii. Capsules narrowly ellipsoid.

Fls. & Frts.: Aug. Nov.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1000-1800 m, on tree trunks in dense primary forests.

Agrostophyllum callosum Rchb.f. in Seem., Fl. Vit. 296. 1868; Hook. f., Fl. Brit. India 5: 824. 1890, *p.p.*; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 155, t.212. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 53. 1998.

Epiphytic herbs. Stems erect, up to 60cm long, arising from rhizomes at a distance of 2-5 cm from each other. Leaves many, sessile, linear-oblong, 10-15 × 1-1.5 cm, gradually tapering from the base to the notched apex. Inflorescence in terminal heads. Flowers pink or reddish, 5-6 mm across. Lip variable, 3-lobed, side lobes broadly rounded; mid lobe obreniform, emerginate, decurved.

Distrib.: Kameng, Subansiri; between 1000-2000m, on tree trunks in moist forests.

Agrostophyllum myrianthum King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 155, t. 211. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 53, f.20. 1998.

Epiphytic herbs upto 70 cm tall. Rhizomes stout with adpressed lanceolate scales. Stems subcylindric or clavate, many leaved. Leaves linear-lanceolate, notched at apex. Flowers in terminal, globose heads, densely crowded, yellowish. Lip oblong, 3-lobed; apical lobe broadly ovate, entire or slightly notched.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Subansiri; between 200-500 m, on branches of trees in tropical primary forests.

Agrostophyllum planicaule (Wall. ex Lindl.) Rchb. f. in Walp., Ann. 6: 909. 1864. *Eria planicaulis* Wall. ex Lindl. in Bot. Reg. 26: misc.8, no.4. 1840. *Agrostophyllum khasianum* Griff. in Calcutta J. Nat. Hist. 4: 376, t.19. 1844; Hook. f., Fl. Brit. India 5: 824. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 154, t.210. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 53, f.19. 1998.

Epiphytic herbs. Stems tufted, cylindrical at base, flattened at apex. Leaves oblong, obtuse, emarginate at apex. Flowers in terminal heads, white. Lip 3-lobed with yellow patch on apical lobe. Capsules ellipsoid.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 500-800 m, on tree trunk in humid primary forests.

Ania penangiana (Hook.f.) Summerh. in Bot. Mag. 161: t.9553. 1939. *Tainia penangiana* Hook.f., Fl. Brit. India 5: 820. 1890. *Ania hookeriana* (King & Pantl.) T. Tang & F. T. Wang ex Summerh. in Curtis, Bot. Mag. 161: t.9553. 1939; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 55, f. 21. 1998. *Tainia hookeriana* King & Pantl. in J. Asiat. Soc. Bengal 64(3): 336. 1895 *et* in Ann. Roy. Bot. Gard. (Calcutta) 8: 103, t.143. 1898.

Terrestrial herbs. Rhizomes stout. Pseudobulbs in cluster, ovoid. Leaves oblong-lanceolate, plicate. Flowers in laxly many flowered, long raceme, greenish with brown stripes. Lip oblong with curved spur, white.

Fls. & Frts.: March May

Distrib.: Kameng; between 1200-1500 m, on thick humus soil in moist forests.

Anoectochilus brevilabris Lindl., Gen. Sp. Orch. Pl. 499. 1840; Hook.f., Fl. Brit. India 6: 95. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 57. 1998. *Anoectochilus sikkimensis* King & Pantl. in J. Asiat. Soc. Bengal 65 : 124. 1896 *et* in Ann. Roy. Bot. Gard. (Calcutta) 8: 294, t. 391. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 61, f. 26. 1998.

Terrestrial herbs upto 30 cm high. Leaves elliptic-ovate, acute. Flowers in raceme, white or greenish-white; rachis glandular hairy. Lip with two terminal, divergent lobes, spur pouch-like.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1200-1800 m, on humus soil in dense, moist evergreen subtropical forests.

Anoectochilus roxburghii (Wall.) Lindl. in Royle, Ill. Bot. Himal.: 368. 1839 *et* Gen. Sp. Orch. Pl. 499. 1840; Hook.f., Fl. Brit. India 6: 95. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 293, t.390. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 61, f.25. 1998. *Chrysobaphus roxburghii* Wall., Tent. Fl. Nepal. 37, t.27. 1826.

Terrestrial herbs up to 30 cm high. Stems decumbent at base. Leaves unequal, ovate, purplish-brown with a velvety lustre. Flowers in raceme, resupinate, pink. Lip with two prominent callii; hypochile with 6-8 pairs of fimbriate processes; spur conical.

Fls. & Frts.: July Oct.

Distrib.: Kameng; between 1000-1500 m, in shady places on humus rich soil in primary forests.

Anthogonium gracile Wall. ex Lindl., Gen. Sp. Orch. Pl. 426. 1840; Hook.f., Fl. Brit. India 5: 822. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 65, f.28. 1998.

Pseudobulbs underground. Stems upto 10 cm long. Leaves lanceolate. Flowers in terminal raceme, pale to dark pink. Lip trilobulate at apex, dark pink with red spots. Capsules fusiform.

Fls. & Frts.: June Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 900-2500 m, in grasslands and on open hill slopes.

Aorchis roborovskii (Maxim.) Seidenf. in Nord. J. Bot. 2: 9. 1982; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 69, f.29. 1998. *Orchis roborovskii* Maxim. in Mel. Biol. 12: 547. 1886. *Orchis stracheyi* Hook.f., Fl. Brit. India 6: 128. 1890. *Galearis stracheyi* (Hook.f.) P. F. Hunt in Kew Bull. 26(1): 172. 1971; Harid., A. N. Rao & S. N. Hegde in J. Econ. Tax. Bot. 13(1): 111. 1989.

Terrestrial herbs with inflorescence upto 15 cm long. Rhizomes without tuber. Leaf solitary, radical, broadly elliptic. Inflorescence 3-flowered. Flowers white. Lip 3-lobed with incurved spur.

Fls. & Frts.: Aug. Sept.

Distrib.: Lohit; between 2500-3200 m, in open grasslands.

Aphyllorchis alpina King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 261, t.347. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 69, f.30. 1998.

Terrestrial, leafless herbs, 35-80 cm tall. Rhizomes clothed with polished scales. Stems with numerous tubular sheaths. Flowers in laxly flowered raceme, yellowish-red; floral bracts strongly reflexed. Lip with winged claw.

Fls. & Frts.: July Sept.

Distrib.: Kameng; between 1800-2000 m, in moist and shaded places amidst low herbs.

Aphyllorchis montana (Thw.) Rchb.f. in Linnaea 41: 57. 1876; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 262, t.349. 1898. H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 69. 1998. *Apaturia montana auct. non* Lindl., 1831:Thw., Enum. Pl. Zeyl. 301. 1861. *Aphyllorchis prainii* Hook.f., Fl. Brit. India 6: 117. 1890.

Saprophytic, rhizomatous herbs with several spikes upto 100 cm high. Flowers in raceme, about 1.5 cm across, creamy-yellow. Lip with 3-lobed epichile and erect lateral lobes.

Fls. & Frts.: July Sept.

Distrib.: Subansiri; between 1600-2500 m, on wet humus rich forest floor in temperate forests.

Apostasia odorata Blume, Bijdr. 423. 1825; S. N. Hegde & A.N. Rao in Ind. J. Forestry 10(3): 191. 1987; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 71. 1998.

Terrestrial herbs upto 30 cm high. Leaves many, lanceolate, closely set, filiform at tip. Flowers in terminal panicle, pale-yellow; perianth with dorso-mucro at tip.

Fls. & Frts.: June Aug.

Distrib.: Kameng; between 200-1000 m, in association with *Tropidia curculigoides* in tropical evergreen forests.

Apostasia wallichii R. Br. in Wall. Pl. Asiat. Rar. 1: 75, t.84. 1829; A. N. Rao & S. N. Hegde in Manilal & Sath. Kumar (eds.), Orch. Mem. 127. 2004.

Terrestrial herbs; roots fibrous, cylindrical, nodulated; stem wiry, covered by leafbases; leaves linear-lanceolate, acuminate, plicate; panicle decurved, many flowered; flowers fragrant, yellow.

Fls. & Frts.: April Oct..

Distrib.: Kameng; between 200-1000 m, in tropical evergreen forests.

Arachnis flosaeris (L.) Rchb.f. in Bot. Centralbl. 28: 343. 1886; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 73. 1998. *Epidendrum flos-aeris* L., Sp. Pl. 952. 1753. *Aerides moschifera* Blume, Bijdr. 365. 1825. *Arachnanthe moschifera* (Blume) Blume, Rumphia 4: 55, t. 196. 199. 1848; Hook.f., Fl. Brit, India 6: 28. 1890.

Epiphytic herbs upto 1.75 m high. Leaves loriform or linear-oblong, obliquely notched at apex. Flowers in panicle, 10-12 cm diam, green or yellow with maroon dashes. Lip 3-lobed, shortly spurred below.

Fls. & Frts.: April July.

Distrib.: Kameng, Lohit; between 100-300 m, on branches of trees in tropical primary forests.

Arachnis labrosa (Lindl. & Paxton) Rchb.f. in Bot. Centralbl. 28: 343. 1886; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 73, f. 32. 1998. *Arrhynchium labrosum* Lindl. & Paxton in Paxton, Fl. Gard. 1: 142. 1850. *Arachnanthe bilinguis* (Rchb.f.) Benth. in J. Linn. Soc, Bot. 18: 332. 1881; Hook.f., Fl. Brit. India 6: 28. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 210, t.280. 1898. *Armodorum labrosum* (Lindl. & Paxton) Schltr. in Fedde, Repert. 10: 197. 1911.

Epiphytic herbs. Stems woody, enveloped in the bases of fallen leaves. Leaves keeled, linear-oblong, unequally bilobed at apex. Flowers in axillary, laxly flowered raceme, yellowish with dark-brown markings. Lip with blunt, recurved, cylindrical spur, sagittate, white or yellow with pink line at margins.

Fls. & Frts.: Aug. Nov.

Distrib.: Kameng; between 800-1100 m, on branches of trees in moist primary forests.

Arundina graminifolia (D. Don) Hochr. in Bull. New York, Bot. Gard. 6: 270. 1910; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 74. 1998. *Bletia graminifolia* D. Don, Prodr. Fl. Nepal. 29. 1825. *Arundina chinensis* Blume, Bijdr. 8: 502. 1825; Hook.f., Fl. Brit. India 5: 857. 1890. *A. bambusifolia* (Roxb.) Lindl., Gen. Sp. Orch. Pl. 125. 1831; Hook.f., Fl. Brit. India 5: 857. 1890;

King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 113, t.156. 1898.

Terrestrial herbs, 1-3 m high. Stems terete, woody. Leaves linear. Flowers in terminal few flowered raceme, about 8 cm across, pink, showy. Lip 3-lobed; midlobe oblong, crisped and bifid at apex. Capsules ellipsoid, ribbed.

Fls. & Frts.: March Oct.

Distrib.: Kameng, Lohit, Siang, Triap; Subansiri; between 300-1000 m, on open grassy slopes.

Ascocentrum ampullaceum (Roxb.) Schltr. in Fedde, Repert., 1: 975. 1913; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 74. 1998. *Aerides ampullacea* Roxb., Fl. Ind. 3: 476. 1832. *Saccolabium ampullaceum* (Roxb.) Lindl., Sert. Orchid. 4: t.17. 1838; Hook. f., Fl. Brit. India 6: 64. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 220, t.293. 1898.

Epiphytic herbs. Stems 10-20 cm long, clothed with sheaths of fallen leaves. Leaves narrowly oblong, keeled, bifid at apex, brownish tinged. Flowers in axillary raceme, pink. Lip 3-lobed, spurred. Capsules subclavate.

Fls. & Frts.: March April.

Distrib.: Kameng; between 300-1000 m, on tree trunks in primary forests.

Ascocentrum curvifolium (Lindl.) Schltr. in Fedde, Repert. Beih. 1: 975. 1913; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 75. 1998. *Saccolabium curvifolium* Lindl., Gen. Sp. Orch. Pl. 222. 1833; Hookf., Fl. Brit. India 6: 65. 1890.

Epiphytic herbs. Stems clustered, clothed with sheaths of fallen leaves. Leaves linear, acutely bifid at apex. Flowers in axillary raceme, orange-scarlet. Lip 3-lobed, spurred. Capsules subclavate.

Fls. & Frts.: March May.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 300-1000 m, on tree trunks in primary forests.

Ascocentrum himalaicum (Deb, Sengupta & Malick) Christenson in Notes Roy. Bot. Gard. Edinburgh 44(2): 256. 1987; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 75. 1998. *Saccolabium himalaicum* Deb, Sengupta & Malick in Bull. Bot. Soc. Bengal 22(2): 213. 1968; Deori & Das in Bull. Bot. Surv. India 18(1-4): 235. 1976.

Epiphytic herbs with erect stem. Leaves terete, slender. Flowers in axillary raceme; pinkish or brownish. Lip spurred.

Fls. & Frts.: May July.

Distrib.: Kameng; between 800-1200 m, on branches of trees in primary forests.

Ascocentrum semiteretifolium Seidenf. in Bot. Tidsskr. 65: 358, f.26. 1970; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 75. 1998.

Epiphytic herbs upto 18 cm high including leaves. Leaves semiterete. Flowers in axillary, few flowered upto 5 cm long raceme. Lip 3-lobed, with small spur.

Fls. & Frts.: March April

Distrib.: Kameng; between 100-300 m, on tree branches in dense primary forests.

Biermannia arunachalensis A. N. Rao in Rheedeia 16(1): 29. 2006.

Small, monopodial epiphytic herbs; leaves oblanceolate, sub-falcate, obscurely and obliquely bilobed at apex; inflorescence axillary, shorter than leaves; flowers yellow, widely opening, sweetly scented; sepals elliptic to ovate-lanceolate; lip fleshy, 3-lobed with scattered brown patches and many short, glandular villi from base to middle of the disc.

Fls. & Frts.: April – June.

Distrib.: Kameng; at 1100m. on exposed tree trunks in primary forests.

Biermannia bimaculata (King & Pantl.) King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 200, t.267. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 78, f.33. 1998. *Sarcochilus bimaculatus* King & Pantl. in J. As Soc. Bengl 64(3): 340. 1896.

Epiphytic herbs upto 10 cm high. Leaves sessile, obliquely bifid at apex. Scapes erect laxly flowered. Flowers golden-yellow, almost scented.

Fls. & Frts.: April Sept.

Distrib.: Kameng; between 500-1000 m, on large tree trunk in dense tropical primary forests.

Biermannia jainiana S. N. Hegde & A. N. Rao in Bull. Bot. Surv. India 26: 97. f.1-14. 1984; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 78, f.34. 1998.

Epiphytic herbs. Stems 4-8 cm long, decurved. Leaves oblong-oblongeolate, obliquely bilobed at apex. Flowers in leaf-opposed raceme, white. Lip entire with many calli. Capsules linear-oblong.

Fls. & Frts.: May June.

Distrib.: Kameng; between 1000-1200 m, on tree trunks in dense forests.

Brachycorythis iantha (Wight) Summerh. in Kew Bull. 1955: 238. 1955; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 81, f.35. 1998. *Platanthera iantha* Wight, Ic. Pl. Ind. Orient. 5: t.1692. 1851. *Habenaria iantha* (Wight) Benth. in Benth. & Hook.f., Gen. Pl. 3: 626. 1883; Hook.f., Fl. Brit. India 6: 164. 1890, *p.p.*

Terrestrial herbs upto 15 cm high. Leaves more or less imbricate on stem, narrowly oblong. Flowers in spikes, purple. Lip suborbicular; spur short, conical.

Fls. & Frts.: Nov. Jan.

Distrib.: Kameng; between 1500-2000 m, on grassy hill slopes.

Brachycorythis obcordata (Buch.-Ham. ex D. Don) Summerh. in Kew Bull. 1955: 24. 1955; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 81, f.36. 1998. *Orchis obcordata auct. non Willemet*: Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 230. 1825.

Terrestrial, tuberous herbs up to 25 cm tall. Leaves oblong. Flowers in spikes, purple. Lip broadly cuneiformly obcordate, spurred.

Fls. & Frts.: July Sept.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 500-1500 m, in moist situations along roadsides.

Bulbophyllum acutiflorum A. Rich. in Ann. Sci. Nat. Ser. 2, 15: 18, t. 7. 1841; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 87, f.37. 1998. *Cirrhopetalum acutiflorum* (A. Rich.) Hook.f., Fl. Brit. India 5: 779. 1890.

Epiphytic herbs. Pseudobulbs ovoid. Leaves oblong. Flowers in umbels, greenish-white. Lip recurved.

Fls. & Frts.: July Sept.

Distrib.: Kameng; between 1000-2000 m, on moss covered tree trunks in moist forests.

Bulbophyllum affine Lindl., Gen. Sp. Orch. Pl. 48. 1830; Hook. f., Fl. Brit. India 5: 756. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 67, t.91. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 87, f. 38. 1998.

Epiphytic herbs. Pseudobulbs at a distant on stout rhizomes covered with scales, cylindrical. Leaves narrowly oblong, obtuse. Flowers in 2-3 flowered raceme, about 2 cm across, greenish-yellow with brown-purple stripe. Lip linear-oblong, obtuse, red-brown.

Fls. & Frts.: June Aug.

Distrib.: Changlang, Kameng, Lohit, Siang, Subansiri, Tirap; between 1200-1800 m, in shaded forests.

Bulbophyllum amplifolium (Rolfe) N. P. Balakr. & S. Chowdhury in Bull. Bot. Surv. India 9: 89. t.14. 1967; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 87, f.39. 1998. *Cirrhopetalum amplifolium* Rolfe in Notes Roy. Bot. Gard. Edinburgh 8: 21, t. 10. 1913.

Epiphytic herbs. Pseudobulbs at a distant on much branched creeping rhizomes, ovoid or oblong. Leaves solitary, elliptic-oblong. Raceme from the base of pseudobulbs, solitary, subumbellate. Flowers about 1.5 cm across, brownish-yellow with purplish spots. Lip oblong, fleshy, dark purple.

Fls. & Frts.: Oct. Dec.

Distrib.: Arunachal Pradesh; 1000-1300 m, on trees in subtropical primary forests.

Bulbophyllum andersonii (Hook.f.) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, s. 8: 22. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 92, f.40. 1998. *Cirrhopetalum andersonii* Hook. f., Fl. Brit. India 5: 777. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 90, t.124. 1898.

Epiphytic herbs. Pseudobulbs distant on stout, naked rhizomes, ovate. Leaves oblong. Flowers in umbels, pink with darker pink dots. Lip narrowly oblong, decurved.

Fls. & Frts.: Sept. Nov.

Distrib.: Subansiri; 1400-1800 m, on trees in primary forests.

Bulbophyllum apodum Hook.f., Fl. Brit. India 5: 766. 1890 & Ic. Pl. 21(2): t.2043. 1890. *B. ebulbum* King & Pantl. in J. Asiat. Soc. Bengal 64(3): 334. 1895 et in Ann. Roy. Bot. Gard. (Calcutta) 8: 83, t.115. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 104, f.49. 1998.

Nonpseudobulbous, epiphytic herbs. Rhizomes creeping, smooth. Leaves at a long distant, oblong-lanceolate. Scapes smaller than leaves. Flowers in axillary, many flowered raceme, pale-green. Lip oblong, stipitate.

Fls. & Frts.: June Aug.

Distrib.: Kameng; upto 500 m, on tree trunks in tropical dense forests.

Bulbophyllum bisetum Lindl. in Ann. Nat. Hist. 10: 186. 1842; Hook.f., Fl. Brit. India 5: 767. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 73, t.99. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 92, f.41. 1998.

Epiphytic herbs. Pseudobulbs at a distant on wiry rhizomes, ovoid-conic. Leaves solitary, oblong-lanceolate, obliquely bifid at apex. Scapes pendent, filiform. Flowers in 12-15 flowered raceme, purple. Lip ovate-lanceolate, purple; spur run parallel to perianth.

Fls. & Frts.: Sept. Nov.

Distrib.: Kameng; between 1500-2000 m, on moss covered branches of trees in dense forests.

Bulbophyllum brienianum (Rolfe) J. J. Sm. in Fedde, Repert. 32: 306. 1933; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 92. 1998. *Cirrhopetalum brienianum* Rolfe in Kew Bull. 1893: 62. 1893. *Bulbophyllum obrienianum* Rolfe in Gard. Chron. 2: 332. 1892; S. N. Hegde & A. N. Rao in Indian. J. For. 5(4): 311, t. 2. 1982; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 123, f. 64. 1998.

Caespitose, epiphytic herbs. Flowers widely opening, about 4.5 cm across, pale-yellow spotted with wine-red.

Fls. & Frts.: April Dec.

Distrib.: Arunachal Pradesh; between 1000-1100 m, on branches of trees in subtropical evergreen moist forests.

Bulbophyllum capillipes C. S. P. Parish & Rchb.f. in Trans.Linn. Soc. London 30 : 150. t.32a. 1874; Hook.f., Fl. Brit. India 5: 755. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 92, f.42. 1998.

Epiphytic herbs. Pseudobulbs narrowly obpyriform. Leaves sessile, linear. Flowers in short scapes, yellow with red nerves. Lip pyramidal, violet-purple.

Fls. & Frts.: July Sept.

Distrib.: Arunachal Pradesh; between 1500-2000 m, on moss covered branches of trees in open forests.

Bulbophyllum careyanum (Hook.) Spreng., Syst. Veg. 16(3): 732. 1826; Hook.f., Fl. Brit. India 5: 760. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 71, t.97. 1898; H. J. Chowdhery,

Orch. Fl. Arunachal Pradesh 95, f. 43. 1998. *Anisopetalon careyanum* Hook., Fl. Exot. 2: t. 149. 1825.

Epiphytic herbs. Pseudobulbs at a distant on woody, creeping rhizomes, ovoid, ribbed. Leaves solitary, oblong, notched. Flowers in densely flowered, decurved raceme, copper-brown. Lip oblong, 3-lobed.

Fls. & Frts.: Oct. Dec.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 500-1500 m, on trees in primary forests.

Bulbophyllum cariniflorum Rchb.f. in Walp., Ann. 6: 253. 1861; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 95. 1998. *Bulbophyllum densiflorum* Rolfe in Kew Bull. 1892 : 139. 1892; N. P. Balakr. & S. Chowdhury in Bull. Bot. Surv. India 9: 88. 1967.

Epiphytic, caespitose herbs. Pseudobulbs in clusters on creeping rhizomes, ovoid or obpyriform. Leaves in pair or 3-4, subsessile, lanceolate. Flowers in many flowered spikes, yellowish-green. Lip tongue shaped, fleshy, dark lemon-yellow.

Fls. & Frts.: July -Sept.

Distrib.: Kameng, Siang, Subansiri; between 1800-2000 m, on moss covered branches of trees in open forests.

Bulbophyllum cauliflorum Hook.f., Fl. Brit. India 5: 758. 1890 *et* Ic. Pl. 21(2): t.2036. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 80, t.100. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 99, f. 45. 1998.

Epiphytic herbs. Pseudobulbs at a distant on slender rhizomes, subcylindric. Leaves solitary, oblong, notched at apex. Flowers in raceme, greenish-yellow. Lip oblong-ovate, curved, fleshy.

Fls. & Frts.: June Nov.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1600-3000 m, on trees along slopes.

Bulbophyllum cornucervi King & Pantl. in J. Asiat. Soc. Bengal 64(3): 332. 1895 *et* in Ann. Roy. Bot. Gard. (Calcutta) 8: 74, t.100. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 99. 1998.

Nonrhizomatous, epiphytic herbs. Pseudobulbs crowded in rows, globular, minute. Leaves shortly petiolate, obovate-elliptic. Scapes longer than leaves. Flowers in laxly flowered raceme, brownish-green. Lip obovate-oblong, stipitate, yellow.

Fls. & Frts.: July -Sept.

Distrib.: Kameng; between 700-1000 m on branches of trees in tropical, primary forests.

Bulbophyllum crassipes Hook.f., Fl. Brit. India 5: 760. 1890; A. N. Rao in Arunachal Forest News 12(1): 25. 1994; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 99. 1998. *Bulbophyllum careyanum auct. non* (Hook.) Spreng.: S. N. Hegde & A. N. Rao in Arunachal Forest News 7(1-2): 58. 1989.

Creeping, pseudobulbous, epiphytic herbs. Pseudobulbs 5-7 cm apart on wiry rhizomes, globose-ovoid. Leaves solitary, oblong with apical notch. Flowers in dense-flowered raceme, reddish-brown or orange. Lip oblong with truncate basal lobe.

Fls. & Frts.: Sept. Oct.

Distrib.: Kameng; between 100-500 m, on trees in tropical primary forests.

Bulbophyllum cupreum Lindl. in Bot. Reg. 24: Misc. 183. 1838; Hook.f., Fl. Brit. India 5: 761. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 101. 1998.

Epiphytic herbs. Pseudobulbs at a distant on woody rhizomes, ovoid. Leaves solitary, subsessile, oblong with apical notch. Flowers in lax-flowered raceme, copper-brown, fragrant. Lip oblong with lateral auricle.

Fls. & Frts.: Oct. Dec.

Distrib.: Arunachal Pradesh; between 1000-1500 m, on trees in primary forests.

Bulbophyllum cylindraceum Lindl., Gen. Sp. Orch. Pl. 53. 1830; Hook.f., Fl. Brit. India 5: 765. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 101, f. 47. 1998.

Epiphytic herbs. Rhizomes stout. Leaves oblong-elliptic. Scape blackish-purple, upper sheaths embracing the base of spike. Flowers in densely crowded spikes, blackish. Lip ovate, papillose, deflexed.

Fls. & Frts.: Oct. Jan.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 3000-3500 m, on tree trunks.

Bulbophyllum delitescens Hance in J. Bot. 14: 44. 1876; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 101, f.48. 1998. *B. mannii auct. non* Hook. f.: Rchb. f. in Flora 275. 1872; Hook. f., Fl. Brit. India 5: 780. 1890.

Epiphytic herbs. Pseudobulbs in clusters, ovate. Leaves solitary, oblong. Flowers in umbels, brown.

Fls. & Frts.: Sept. Nov.

Distrib.: Subansiri; between 500-1200 m, on trunks and branches of trees in wet evergreen forests. Rare.

Bulbophyllum depressum King & Pantl. in J. Asiat. Soc. Bengal 66(3): 585. 1897. *B. hastatum* T. Tang & F. T. Wang in Act. Phytotax. Sin. 12: 44. 1974; S. N. Hegde & A. N. Rao in Indian J. Forestry 10(3): 192. 1987; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 111, f.56. 1998.

Epiphytic or lithophytic herbs. Rhizomes very slender. Pseudobulbs obliquely placed on rhizome, ovoid, profusely rooting below. Leaves ovate, acute. Flowers solitary, from the base of pseudobulbs, dark purple with greenish-yellow lip and sepals.

Fls. & Frts.: May July.

Distrib.: Lohit, Siang, Tirap: between 1800-2200 m, on trunk of small trees in subtemperate, evergreen forests and on moss covered stones.

Bulbophyllum elatum (Hook.f.) J. J. Sm. in Bull. Jard. Bot. Buitenz. Ser. 2, s. 8: 23. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 104, f.50. 1998. *Cirrhopetalum elatum* Hook. f., Fl. Brit. India 5 : 775. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 93, t.130. 1898.

Caespitose, epiphytic herbs. Pseudobulbs in clusters, subcylindric, brownish. Leaves solitary, oblong, slightly notched at apex. Scapes arising laterally from the base of pseudobulbs, decurved, speckled with purple. Flowers in many flowered umbels, yellowish with purple dots. Lip oblong.

Fls. & Frts.: May July.

Distrib.: Kameng; between 900-1500 m, on branches of large trees in forests.

Bulbophyllum emarginatum (Finet) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, s. 8: 24. 1912; Seidenf. in Dansk Bot. Ark. 29(1): 57, f. 19. 1973; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 104, f. 51. 1998. *Cirrhopetalum emarginatum* Finet in Bull. Soc. Bot. France 44: 269. t. 8. 1897. *Bulbophyllum brachypodium* var. *geei* A. S. Rao & N. P. Balakr. in Bull. Bot. Surv. India 10: 350. 1968. *B. yoksunense* var. *geei* (A. S. Rao & N. P. Balakr) Bennet in J. Econ. Tax. Bot. 4: 592. 1983.

Epiphytic herbs. Pseudobulbs distant on creeping rhizomes, oblong-cylindric. Leaves solitary, elliptic-oblong. Scape lateral from the base of pseudobulbs. Flowers in raceme, pink. Lip ovate-oblong, purple.

Fls. & Frts.: Sept. Nov.

Distrib.: Kameng; between 1800-2200 m, in forests under shade.

Bulbophyllum eublepharum Rchb.f. in Walp., Ann. 6: 252. 1861; Hook.f, Fl. Brit. India 5: 764. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 78, t.107. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 108, f.52. 1998.

Epiphytic herbs. Pseudobulbs in cluster, ovate cylindric, ribbed, brown. Leaves 1 or 2, oblong, notched at apex. Flowers in long raceme, lax-flowered, greenish. Lip oblong-lanceolate, grooved, glandular-ciliolate at base.

Fls. & Frts.: Aug. Oct.

Distrib.: Changlang, Kameng, Lohit, Siang, Tirap; between 1800-2000 m, in moist forests under shade.

Bulbophyllum gamblei (Hook.f) Hook.f., Fl. Brit. India 6: 188. 1890 *et* Ic. Pl. 21: t.2039(b). 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 82, t.113. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 108, f.53. 1998. *B. leptanthum* var. *gamblei* Hook.f., Fl. Brit. India 5: 759. 1890.

Epiphytic herbs. Rhizomes thread-like. Pseudobulbs at long intervals, obpyriform. Leaves solitary, oblong-lanceolate, notched at apex. Flowers in umbels, yellowish-green. Lip oblong-lanceolate.

Fls. & Frts.: July Sept.

Distrib.: Kameng; between 1500-3000 m, forms large tangled masses on trees in damp forests.

Bulbophyllum griffithii (Lindl.) Rchb.f. in Walp., Ann. 6: 247. 1861; Hook.f., Fl. Brit. India 5: 756. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 66, t. 147. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 108. 1998. *Sarcopodium griffithii* Lindl., Fol. Orchid. Sarcopodium : 2. 1853.

Epiphytic herbs. Pseudobulbs in clusters, narrowly ovoid. Leaves solitary, oblong. Flowers solitary. yellowish with reddish-brown spots. Lip oblong, auricled at base.

Fls. & Frts.: July Sept.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 2500-3500 m, on moss covered tree trunk in open forests.

Bulbophyllum guttulatum Wall. ex Hook.f., Fl. Brit. India 5: 776. 1890 *pro syn.*; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 111, f.54. 1998. *Cirrhopetalum guttulatum* Hook.f., Fl. Brit. India 5: 776. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 94, t.131. 1898. *Bulbophyllum guttulatum* (Hook.f.) N. P. Balakr. in J. Bombay Nat. Hist. Soc. 67: 66. 1970. *nom. superfl.*

Epiphytic herbs. Pseudobulbs ovoid. Leaves solitary, oblong, notched at apex. Flowers in umbels, yellowish or purplish. Lip oblong, spurred, purple.

Fls. & Frts.: July Sept.

Distrib.: Kameng; between 1000-2000 m, in forests under moist shady conditions.

Bulbophyllum gymnopus Hook.f., Fl. Brit. India 5: 764. 1890 *et* Ic. Pl. 21(2): t.2040. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 68, t.93. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 111, f.55. 1998.

Lithophytic herbs. Pseudobulbs at long interval on scale-covered rhizomes, oblong-ovoid, sheathed at base. Leaves solitary, oblong-lanceolate. Flowers in raceme, white with yellow lip.

Fls. & Frts.: Nov. March.

Distrib.: Subansiri; between 1200-1600 m, on moss covered stones, in forests.

Bulbophyllum helenae (Kuntze) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser 2, s. 8: 24. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 115, f.57. 1998. *Phyllorchis helenae* Kuntze, Rev. Gen. Pl. 2: 676. 1891. *Cirrhopetalum cornutum* Lindl. in Edw., Bot. Reg. 24: misc.75, no.138. 1838; Hook.f., Fl. Brit. India 5: 774. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 87, t. 120. 1898.

Epiphytic herbs. Pseudobulbs at a distant on stout naked rhizomes, ovoid, ribbed. Leaves solitary, oblong, obliquely notched at apex. Flowers in laxly radiate umbels, reddish, hairy. Lip oblong with two raised lines.

Fls. & Frts.: May Aug.

Distrib.: Kameng; between 1000-2000 m, in moist shaded forests.

Bulbophyllum hirtum (Sm.) Lindl., Gen. Sp. Orch. Pl. 51. 1830; Hook.f., Fl. Brit. India 5: 762. 1890; King & Pantl. in Ann.

Roy. Bot. Gard. (Calcutta) 8: 84, t.117. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 115, f.58. 1998. *Stelis hirta* Sm. in Rees, Cyclop. 34: Stelis no.11. 1819.

Epiphytic herbs. Pseudobulbs in cluster on short rhizomes, ovoid oblong. Leaves in pair, flaccid, oblong-lanceolate, acute. Flowers in dense flowered spikes, yellowish or whitish. Lip oblong, decurved, yellow.

Fls. & Frts.: Oct. Jan.

Distrib.: Kameng, Lohit, Subansiri, Tirap; between 1000-2000 m, on trees in dense primary forests.

Bulbophyllum hymenanthum Hook.f., Fl. Brit. India 5: 767. 1890 *et* Ic. Pl. 21(2): t.2046. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 76, t.103. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 119, f.60. 1998.

Non-pseudobulbous-epiphytic herbs. Rhizomes wiry, creeping, naked. Leaves ovate or elliptic. Flowers in raceme, yellowish with purple streaks. Lip ovate-lanceolate, deflexed.

Fls. & Frts.: May July.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 2000-3000 m on moss covered tree trunks.

Bulbophyllum khasianum Griff., Notul. 3 : 284. 1851; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 119. 1998. *B. conchiferum* Rchb.f. in Walp., Ann. 6: 253. 1861; Hook.f., Fl. Brit. India 5: 766. 1890. *B. cylindraceum* var. *khasianum* (Griff.) Hook. f., Fl. Brit. India 5: 765. 1890.

Non-pseudobulbous epiphytic herbs. Rhizomes stout, creeping. Leaves long petiolate, oblong-elliptic, acute. Scape arising from the base of petiole, longer than leaves, upper sheaths smaller, at a distant from the spikes. Flowers in densely crowded spike blackish. Lip ovate, papillose, deflexed.

Fls. & Frts.: Sept. Nov.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1000-2000 m, on tree trunk in forests.

Bulbophyllum leopardinum (Wall.) Lindl., Gen. Sp. Orch. Pl. 48. 1830; Hook.f., Fl. Brit. India 5: 756. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 67, t.92. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 119, f.61. 1998. *Dendrobium leopardinum* Wall., Tent. Fl. Nepal. 39, t. 28. 1826.

Epiphytic or lithophytic herbs. Pseudobulbs crowded on stout rhizomes, obpyriform, compressed. Leaves solitary elliptic-oblong, mucronate at apex. Flowers solitary or 2-3, from the base of pseudobulbs, whitish with crimson dots. Lip lanceolate, auricled, crimson or purple.

Fls. & Frts.: Oct. Jan.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 2000-2500 m, on trees and rocks.

Bulbophyllum lobbii Lindl., Bot. Reg. 31: subt.29. 1847; Hook. f., Fl. Brit. India 5: 755. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 119, f. 62. 1998.

Epiphytic herbs with stout rhizomes. Pseudobulbs ovoid. Leaves linear-oblong. Flowers solitary, 6-10 cm diam, yellow with red nerves or yellow with pink dots and dashes. Lip broadly ovate, recurved.

Fls. & Frts.: July Sept.

Distrib.: Arunachal Pradesh; between 1000-1500 m, on moss covered tree trunks in dense forests.

Bulbophyllum macraei (Lindl.) Rchb.f. in Walp., Ann. 6: 263. 1861; S. N. Hegde & A. N. Rao in Ind. J. Forestry 10(3): 192. 1987; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 123, f. 63. 1998. *Cirrhopetalum macraei* Lindl., Gen. Sp. Orch. Pl. 59. 1830.

Epiphytic herbs. Pseudobulbs ovoid on creeping rhizomes. Leaves solitary, oblong, acute. Scape 1 or 2 arising from base of the pseudobulbs. Flowers in umbels, pale-yellow to pink.

Fls. & Frts.: Aug. Sept.

Distrib.: Kameng; between 200-1000 m, on large tree trunk in tropical, wet evergreen forests.

Bulbophyllum monanthum (Kuntze) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser.2, s. 8: 16. 1912. *Phyllorchis monantha* Kuntze, Revis. Gen. Pl. 2: 676. 1891. *B. devangiriense* N. P. Balakr. in J. Bombay Nat. Hist. Soc. 67: 66. 1970; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 104. 1998. *B. uniflorum auct. non* Hassk.: Griff., Notul. 3: 293. 1851 & Ic. 3, t. 295. 1851; Hook. f., Fl. Brit. India 5: 755. 1890. *B. tiagii* Chauhan in J. Econ. Tax. Bot. 5: 995. 1984.

Epiphytic herbs. Rhizomes stout, creeping. Pseudobulbs cylindrical. Leaves solitary, oblong. Flowers solitary, arising from rhizomes,

orange-yellow with purple spots. Lip 3-lobed, recurved, auricled, light yellow.

Fls. & Frts.: Aug. Oct.

Distrib.: Changlang, Tirap; between 1000-1500 m, in shaded forests.

Bulbophyllum muscicola Rchb.f. in Flora 55: 275. 1872. *B. hookeri* (Duthie) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, s. 8: 25. 1912; H.J. Chowdhery, Orch. Fl. Arunachal Pradesh 108, f.59. 1998. *Cirrhopetalum hookeri*. Duthie in J. Asiat. Soc. Bengal. 71: 38. 1902.

Caespitose, epiphytic herbs. Pseudobulbs crowded on rhizomes, ovoid. Leaves lanceolate or elliptic-oblong, shortly petiolate. Flowers in 3-10 flowered umbels, yellow. Lip oblong, deflexed, fleshy, yellow with purplish dots on raised margin base.

Fls. & Frts.: Sept. Dec.

Distrib.: Arunachal Pradesh; between 1200-1500 m on moss-covered trees in forests.

Bulbophyllum nodosum (Rolfe) J. J. Sm. In Bull. Jard. Bot. Buitenz. 2 s. 8: 23. 1912; A. N. Rao & Haridasan in J. Econ. Tax. Bot. 21(3): 718. 1997. *Cirrhopetalum nodosum* Rolfe in Kew Bull. 1895: 35. 1895.

Epiphytic herbs; rhizome creeping, distinctly swollen at nodes; raceme laxly flowered; flowers with papillose ovary; sepals & petals apiculate.

Fls. & Frts.: March May.

Distrib.: Kameng; at 200m., on trees in primary forests.

Bulbophyllum odoratissimum (Sm.) Lindl., Gen. Sp. Orch. Pl. 55. 1830; Hook. f., Fl. Brit. India 5: 758. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 79, t.109. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 123, f.65. 1998. *Stelis odoratissima* Sm. in Rees, Cyclop. 34: Stelis no. 12. 1819. *Bulbophyllum congestum* Rolfe in Kew Bull. 1912: 131. 1912.

Epiphytic herbs. Pseudobulbs at a distant on naked woody rhizomes, subcylindric, smooth. Leaves solitary, oblong-lanceolate, notched at apex. Scapes arising from the base of pseudobulbs. Flowers in compact umbels, white. Lip oblong-lanceolate, concave.

Fls. & Frts.: May Sept.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1000-2000 m, on trees in moist forests.

Bulbophyllum ornatissimum (Rchb.f.) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, s. 8 : 26. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 127, f.66. 1998. *Cirrhopetalum ornatissimum* Rchb.f. in Gard. Chron. 2: 424. 1882; Hook. f., Fl. Brit. India 5: 773. 1890*p.p.*; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 95, t.133. 1898.

Epiphytic herbs. Pseudobulbs at a distant on naked, creeping rhizomes, narrowly ellipsoid. Leaves solitary, sessile, oblong. Scapes arising from the base of pseudobulbs. Flowers solitary, 18-20 cm long, yellow-green with purple markings; sepals prolonged into long, drooping, filiform appendages. Lip oblong, dark, purple.

Fls. & Frts.: Oct. Jan.

Distrib.: Kameng, Siang, Subansiri; between 200-500 m, on branches of large trees in dense tropical forests.

Bulbophyllum parviflorum Parish & Rchb.f. in Trans. Linn. Soc. London 30: 152. 1874; S. N. Hegde & A. N. Rao in Ind. J. Forestry 10(3): 192. 1987; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 127, f. 67. 1998.

Epiphytic herbs. Pseudobulbs distant on creeping rhizomes, ovoid. Leaves oblong, shortly petioled. Flowers in lax, many flowered raceme, green; perianth ciliate at margin.

Fls. & Frts.: June Aug.

Distrib.: Kameng; between 1500-2000 m, on moss covered branches of small trees in wet evergreen subtropical forests.

Bulbophyllum penicillium Parish & Rchb.f. in Trans. Linn. Soc. London 30: 151. 1874; Hook.f., Fl. Brit. India 5: 764. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 79, t.108. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 127, f.68. 1998.

Epiphytic, rhizomatous herbs. Pseudobulbs ovoid. Leaves solitary, linear, petiolate. Scapes arising from the base of pseudobulb, pendent. Flowers in laxly flowered hairy raceme, yellow, striped with purple. Lip lanceolate, crenately hirsute.

Fls. & Frts.: May Oct.

Distrib.: Kameng; between 900-1000 m, on trees in primary forests.

Bulbophyllum piluliferum King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 76, t.104. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 127, f.69. 1998.

Epiphytic or lithophytic herbs. Pseudobulbs caespitose in a chain, globose, depressed. Leaves solitary, linear-oblong. Scapes shorter than leaves, arising between the pseudobulbs. Flowers in compact umbels, small, crimson. Lip elliptic, papillose.

Fls. & Frts.: April -July.

Distrib.: Kameng; between 200-500 m, on main trunks of large trees in wet evergreen forests, on rocky places.

Bulbophyllum polyrhizum Lindl., Gen. Sp. Orch. Pl. 53. 1830; Hook.f., Fl. Brit. India 5: 767. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 70, t.95. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 131, f.70. 1998.

Epiphytic herbs. Pseudobulbs at a distant on thread like naked rhizomes, ovoid. Leaves solitary, narrowly oblong, acute, deciduous. Scapes filiform, longer than leaves, arising from the base of pseudobulbs. Flowers in lax raceme, yellow. Lip stipitate, oblong, deflexed.

Fls. & Frts.: Dec. Feb.

Distrib.: Kameng; between 600-1100 m, on trees in moist tropical forests.

Bulbophyllum protractum Hook.f., Fl. Brit. India 5: 758. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 81, t. 111. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 131, f. 71. 1998.

Epiphytic herbs. Pseudobulbs suberect, at a distant on woody branched rhizomes. cylindric. Leaves solitary, notched at apex. Scapes filiform, arising from the rhizomes. Flowers orange-yellow. Lip lanceolate with parallel ridges, concave.

Fls. & Frts.: June Aug.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 500-1500 m on tree trunks in dense forests.

Bulbophyllum pulchrum (N. E. Brown) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, 8: 27. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 131, f.72. 1998. *Cirrhopetalum pulchrum* N. E. Br. in Ill. Hort. 33: 139, t. 608. 1886.

Robust, creeping, epiphytic herbs. Pseudobulbs on thick rhizomes, ovoid, cylindric. Leaves oblong, obtuse. Scapes two, shorter than leaf with pseudobulbs. Flowers in umbels; dorsal sepal and petals long cillate at apex.

Fls. & Frts.: Oct. Dec.

Distrib.: Kameng; between 1500-2200 m, on moss covered main trunk of large trees.

Bulbophyllum repens Griff., Notul. 3: 293. 1851; Ic. Pl. Asiat. 3: t. 294. 1851; Hook.f., Fl. Brit. India 5: 765. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 131, f. 73. 1998.

Creeping, rhizomatous epiphytes, with stout rhizome; Leaves lanceolate, obtuse, with long petioles; inflorescence arise directly from the rhizome, shorter than the leaves; flowers purplish; lip fleshy, decurved.

Fls. & Frts.: Nov. Dec.

Distrib.: Kameng; between 800-1000 m, on trees in dense forests.

Bulbophyllum reptans (Lindl.) Lindl., Gen. Sp. Orch. Pl. 51. 1830; Hook.f., Fl. Brit. India 5 : 768. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 77, t. 106. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 136, f.74. 1998. *Tribrachia reptans* Lindl., Coll. Bot. t. 41a. 1826. *Bulbophyllum reptans* var. *subracemosum* Hook.f., Fl. Brit. India 5: 769.1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 136. 1998.

Epiphytic herbs. Rhizomes wiry. Pseudobulbs at long intervals, subcylindric. Leaves solitary, linear-oblong. Flowers in raceme, greenish-yellow with pink nerves. Lip curved, yellow.

Fls. & Frts.: Oct. Jan.

Distrib.: Kameng, Lohit; Siang, Subansiri, Tirap; between 1600-2000 m, on tree trunks of dense, moist temperate forests.

Bulbophyllum retusiusculum Rchb.f. in Gard. Chron. 1869: 1182. 1869; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 136, f. 75. 1998.

Epiphytic herbs. Pseudobulbs distant, on naked rhizomes, ovoid. Leaves solitary, narrowly oblong, obliquely notched at apex. Scapes arising from the base of pseudobulbs. Flowers in umbel, violet. Lip oblong, decurved.

Fls. & Frts.: July Sept.

Distrib.: Kameng; between 2000-3500 m, on tree trunks in forests.

Bulbophyllum rigidum King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 69, t.94. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 701. 1998.

Epiphytic, rhizomatous herbs; pseudobulbs absent; leaves solitary; raceme lax; flowers brownish-yellow with purple veins; lip with minute purple spots towards the base.

Fls. & Frts.: May July.

Distrib.: Arunachal Pradesh; up to 2000 m.

Bulbophyllum rolfei (Kuntze) Seidenf. in Dansk. Bot. Ark. 33: 149. 1979; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 140. 1998. *Phyllorchis rolfei* Kuntze, Rev. Gen. Pl. 2: 677. 1891. *Cirrhopetalum parvulum* Hook. f., Fl. Brit. India 5: 778. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 92, t.128. 1898.

Epiphytic herbs. Rhizomes slender, annulated. Pseudobulbs at intervals. Leaves solitary, narrowly elliptic, notched at apex. Flowers in short raceme or umbels, pendent. Lip oblong. Capsules fusiform or ellipsoid.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; on trees in shaded places.

Bulbophyllum roxburghii (Lindl.) Rchb.f. in Walp., Ann. 6: 263. 1861. *Cirrhopetalum roxburghii* Lindl., Gen. Sp. Orch. Pl. 58. 1830; Hook.f., Fl. Brit. India 5: 774. 1890. *Cirrhopetalum sikkimense* King & Pantl. Ann. Roy. Bot. Gard. (Calcutta) 8: 90, t.125. 1898. *Bulbophyllum sikkimense* (King & Pantl.) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser. 2, s. 8: 28. 1912; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 142, f.79. 1998.

Epiphytic herbs. Pseudobulbs distant, on naked creeping rhizomes, globose or ovoid. Leaves oblanceolate, obliquely notched. Scapes arising from the base of pseudobulbs. Flowers in umbels, greenish with reddish brown marks. Lip ovate.

Fls. & Frts.: May July.

Distrib.: Kameng; between 200-1000 m, on tree trunks in tropical forests.

Bulbophyllum sarcophyllum (King & Pantl.) J. J. Sm. in Bull. Jard. Bot. Buitenz. ser 2, s. 8: 27. 1912; Kataki, Jain & Sastry in Pl. Cons. Bull. 5: 6. 1984; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 140, f.76. 1998. *Cirrhopetalum sarcophyllum* King & Pantl. in J. Asiat. Soc. Bengal 64: 335. 1895 et in Ann. Roy. Bot. Gard. (Calcutta) 8: 91, t.128. 1898.

Epiphytic herbs. Pseudobulbs at a distant on smooth rhizomes, discoid. Leaves solitary, oblong, fleshy, pendent. Scapes arising from the base of pseudobulbs. Flowers in 3-7 flowered umbels, reddish-brown. Lip oblong, deeply grooved, purple with dark purple blotches.

Fls. & Frts.: June Oct.

Distrib.: Arunachal Pradesh; between 1000-1500 m, on trees in sub tropical primary forests.

Bulbophyllum sarcophylloides Garay, Hamer & Siegerist in Nordic J. Bot. 14(6): 620. 1994. *Cirrhopetalum sarcophyllum* var. *minor* King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 91. 1989; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 142. 1998.

Epiphytic herbs. Pseudobulbs discoid with vertical grooves. Leaves fleshy. Scapes shorter than leaves. Flowers white, tinged with purple.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng; between 200-1000 m; on tree trunks in tropical forests.

Bulbophyllum scabratum Rchb.f. in Walp., Ann. 6: 259. 1861; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 142, f.77. 1998. *Cirrhopetalum caespitosum* Wall. ex Lindl. in Edw., Bot. Reg. 24 : Misc.35. no.53. 1838; Hook.f., Fl. Brit. India 5: 775. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 92, t.127. 1898. *Bulbophyllum confertum* Hook.f., Fl. Brit. India 5: 757. 1890.

Epiphytic or lithophytic herbs. Pseudobulbs much crowded, ovoid. Leaves narrowly lanceolate. Scapes shorter than leaves. Flowers in umbels, yellow. Lip oblong.

Fls. & Frts.: July Sept.

Distrib.: Kameng, Tirap; between 500-1500 m, on tree trunks in forests.

Use : Rhizomatous bulbs are made in to paste and applied in the form of plaster in fracture of bones.

Bulbophyllum secundum Hook.f., Fl. Brit. India 5: 764. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 75, t.101. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 142, f.78. 1998.

Epiphytic herbs. Rhizomes slender. Pseudobulbs turbate. Leaves solitary, oblong. Flowers in laxly flowered scapes, purple. Lip

longer than petals, oblong, dark purple with faint lines. Capsules subcylindric, truncate.

Fls. & Frts.: June Sept.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; on wet moss covered tree trunks in dense forests.

Bulbophyllum spathulatum (Rolfe ex Cooper) Seidenf. in Bot. Tidsskr. 65: 347. 1970; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 146, f.80. 1998. *Cirrhopetalum spathulatum* Rolfe ex Cooper in Orchid. Rev. 37: 106. 1929. *Rhytionanthos spathulatum* (Rolfe ex Cooper) Garay *et al* in Nord. J. Bot. 14(6): 639. 1994; A. N. Rao & S. N. Hegde in Manilal & Sath. Kumar (eds.), Orch. Mem.: 131. 2004.

Epiphytic, pseudobulbous herbs. Leaves linear-oblong or lanceolate, bifid at apex. Flowers in few-flowered umbels, pink with purple dots. Lip shortly stipitate.

Fls. & Frts.: Sept. Nov.

Distrib.: Kameng; between 200-500 m, on tree trunks in tropical primary forests.

Bulbophyllum stenobulbon Parish & Rchb.f. in Trans. Linn. Soc. London 30: 153. 1874. *Bulbophyllum clarkeanum* King & Pantl. in Jour. Asiat. Soc. Bengal 64: 333. 1895 *et* in Ann. Roy. Bot. Gard. (Calcutta) 8: 82, t.114. 1898; S. N. Hegde in J. Bombay Nat. Hist. Soc. 82(1): 117. 1985; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 99, f.46. 1998.

Epiphytic herbs. Pseudobulbs distant, on wiry naked rhizomes, cylindrical-ovoid. Leaves solitary, elliptic-oblong, notched at apex. Flowers in umbels, whitish. Lip ovate-oblong, recurved.

Fls. & Frts.: June Aug.

Distrib.: Kameng; between 500-1000 m, on trees in primary forests.

Bulbophyllum sterile (Lamarck) Suresh in Nicolson *et al* in Rheede, Hort. Malab.: 298. 1988. *Epidendrum sterile* Lamarck, Encycl. 1: 189. 1783. *Bulbophyllum caudatum* Lindl., Gen. Sp. Orch. Pl. 56. 1830; Hook.f., Fl. Brit. India 5: 759. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 95, f.44. 1998; *Cirrhopetalum caudatum auct. non* Wight, 1851: (Lindl.) King. & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 93, t.129. 1898.

Epiphytic herbs. Pseudobulbs at a distant on wiry rhizomes, ovoid, compressed, furrowed. Leaves solitary, ovate-lanceolate. Scape arising laterally at the base of pseudobulbs. Flowers dorsally depressed, umbellately capitate, white. Lip oblong, stipitate.

Fls. & Frts.: June Aug.

Distrib.: Kameng; between 1000-1500 m, on branches of large trees in subtropical, primary forests.

Bulbophyllum striatum (Griff.) Rchb.f. in Walp., Ann. 6: 257. 1861; Hook. f., Fl. Brit. India 5: 755. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 75, t.102. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 146. 1998. *Dendrobium striatum* Griff., Notul. 3: 318. 1851.

Epiphytic, rhizomatous herbs. Pseudobulbs distant, on creeping rhizomes, obpyriform. Leaves long petioled, elliptic, notched at apex. Scapes arising laterally from the base of pseudobulbs, purplish. Flowers in subumbellate racemes. Lip ovate-lanceolate with purple stripes.

Fls. & Frts.: Oct. Dec.

Distrib.: Kameng; between 1000-2000 m, on moss covered branches of trees in forests.

Bulbophyllum thomsoni Hook.f., Fl. Brit. India 5: 764. 1890 & in Ic. Pl. 21(2): t.2041. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 83, t.116. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 146, f.81. 1998.

Epiphytic herbs. Pseudobulbs distant, on naked, creeping rhizomes, depressed, turbinate. Leaves oblong, acute. Scapes erect, arising from the base of pseudobulbs. Flowers in raceme, yellow-white. Lip, oblong, clawed at base, thick.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 100-1000 m, on large tree trunks in primary tropical forests.

Bulbophyllum tortuosum (Blume) Lindl., Gen. & Sp. Orch. Pl. 50. 1830; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 149, f.82. 1998. *Diphyes tortuosa* Blume, Bijdr. 311. 1825. *Bulbophyllum listeri* King & Pantl. in J. Asiat. Soc. Bengal 64: 334. 1896 et in Ann. Roy. Bot. Gard. (Calcutta) 8: 66, t.90. 1898; Kataki, Jain & Sastry in Pl. Cons. Bull. 5: 5. 1984.

Tiny, epiphytic herbs. Pseudobulbs ovoid, compressed, subimbricately arranged. Leaves solitary, linear-oblong, fleshy. Flowers solitary, on short pedicels dull green. Lip oblong-lanceolate, decurved, ciliolate.

Fls. & Frts.: March May.

Distrib.: Kameng, Siang, Subansiri; between 200-500 m, on branches of large trees in dense, tropical primary forests.

Bulbophyllum trichocephalum (Schltr.) T. Tang & F. T. Wang in Act. Phytotax. Peking 1(1): 90. 1951; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 149, f.83. 1998. *Cirrhopetalum trichocephalum* Schltr. in Fedde, Repert. 4: 72, 255. 1919.

var. **trichocephalum**

Epiphytic herbs. Pseudobulbs subcylindric, on robust, creeping rhizomes. Leaves oblong, notched at apex. Scapes stout, lateral. Flowers in dense globose heads, white.

Fls. & Frts.: April June.

Distrib.: Changlang; between 500-900 m, on trees in tropical primary forests.

var. **wallongense** D. K. Agrawala, Sabapathy & H. J. Chowdhery in Indian J. Forestry 27 (3): 305. 2004.

Epiphytic herbs. Pseudobulbs on creeping rhizomes, subcylindric. Leaves oblong, notched at apex. Scapes stout, lateral. Flowers in dense globose heads, creamy with yellow tips; lip with glandular hairs.

Fls. & Frts.: March May.

Distrib.: Lohit; between 500-1000 m, on trees in tropical primary forests.

Bulbophyllum triste Rchb.f. in Walp., Ann. 6: 253. 1861; Hook. f., Fl. Brit. India 5: 768. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 73, t.98. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 149, f.84. 1998. *Bulbophyllum alopecurum* Rchb.f. in Gard. Cohron. 2: 70. 1880; Hook. f., Fl. Brit. India 5: 768. 1890. *B. micranthum* Hook.f., Fl. Brit. India 5: 768. 1890.

Epiphytic herbs with thick rhizomes. Pseudobulbs turbinate with umbonate apices, leafless at flowering time. Leaves in pair, narrowly oblong. Flowers in densely flowered lateral scapes, dull purple with foul smell. Lip stipitate, oblong-lanceolate, fleshy.

Fls. & Frts.: March June.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 500-1000 m, on tree trunks in dense primary forest.

Bulbophyllum umbellatum Lindl., Gen. Sp. Orch. Pl.: 56. 1830. *Cirrhopetalum bootanense* Griff., Notul. 3: 297. 1851; Hook. f., Fl. Brit. India 5: 775. 1890, *p.p.* *Bulbophyllum bootanense* (Griff.) Parish & Rchb.f. in Trans. Linn. Soc. London 30: 153. 1874; S. N. Hedge & A. N. Rao in J. Econ. Tax. Bot. 4(2): 384. 1983.

Epiphytic herbs. Pseudobulbs narrowly ovoid on creeping rhizomes. Leaves elliptic, acute. Scales as long as or shorter than pseudobulbs. Flowers rose-red with spots of darker tint.

Fls. & Frts.: July Feb.

Distrib.: Kameng, Tirap; between 200-500 m, on trees in tropical forests.

Bulbophyllum viridiflorum (Hook.f.) Schltr. in Orchis 4: 108. 1910; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh, 153. 1998. *Cirrhopetalum viridiflorum* Hook.f., Fl. Brit. India 5: 779. 1890.

Crowded epiphytes with ovoid pseudobulbs; leaves in pairs, oblong-lanceolate, acute; raceme pendent, many flowered; flowers purplish-yellow; lip fleshy, entire, oblong.

Fls. & Frts.: Oct. Nov.

Distrib.: Changlang; between 1500-2500 m, on large tree trunks and branches in primary forests.

Bulbophyllum wallichii (Lindl.) Rchb.f. in Walp., Ann. 6: 259. 1861; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 153, f.85. 1998. *Cirrhopetalum wallichii auct. non* Lindl. 1830: Lindl. in Bot. Reg. 25: misc.72, no.119. 1839. *Cirrhopetalum refractum auct. non* Zollinger 1847: Hook.f., Fl. Brit. Ind. 5: 779. 1890*p.p.*; King & Pantl. In Ann. Roy. Bot. Gard. (Calcutta) 8: 87, t.119. 1898 *p.p.*

Epiphytic herbs. Pseudobulbs in clusters, conical. Leaves in pair deciduous at flowering time. Flowers in drooping raceme, brown to yellowish-brown with purple spots. Lip oblong, concave, fleshy.

Fls. & Frts.: Oct. Dec.

Distrib.: Kameng; between 1200-2000 m, on tree trunks in moist forests.

Bulbophyllum xylophyllum Parish & Rchb.f. in Trans. Linn. Soc. 30: 151. 1874; Hook.f., Fl. Brit. India 5: 766. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 153. 1998.

Epiphytic herbs with creeping rhizomes; leaves solitary, petiolate, obtusely emarginated at apex; scape slender, arise from the leaf-base or from anywhere in the rhizome; inflorescence capitate; flowers dull purple; lip papillose.

Fls. & Frts.: Sept. Nov.

Distrib.: Changlang; between 500-800 m, on branches of trees in primary forests.

Bulleyia yunnanensis Schltr. in Notes Roy. Bot. Gard. Edinburgh 5: 108, t.82. 1912; Deb in Ind. For. 91(3): 193. 1965; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 156, f.86. 1998.

Lithophytic herbs. Pseudobulbs in clusters, ovate. Leaves solitary, oblong-lanceolate. Flowers in racem, white, showy.

Fls. & Frts.: April June.

Distrib.: Subansiri; between 1600-2000 m, on moss covered rocks along slopes.

Calanthe alismifolia Lindl., Fol. Orchid. Calanthe 8. 1854; Hook.f., Fl. Brit. India 5: 849.1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 170, t.230. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 158, f.87. 1998.

Terrestrial herbs. Pseudobulbs compact, cylindrical with annular ring. Leaves broadly elliptic. Flowers in corymbose racemes white. Lip 3-lobed, spurred; terminal-lobe with yellow callus at base. Capsules narrowly elliptic.

Fls. & Frts.: May July.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1000-1200 m, in dense forests.

Calanthe alpina Hook.f. ex Lindl., Fol. Orchid. Calanthe 4. 1854; Hook.f., Fl. Brit. India 5: 850. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 170, t.229. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 158, f.88. 1998.

Terrestrial herbs, up to 40 cm high. Pseudobulbs in rows, subcylindric, tapering at apex, annulate. Leaves unequal, elliptic-lanceolate. Inflorescence a 4-6 flowered raceme. Flowers yellowish-green. Lip pinkish with red veins, suborbicular with deeply inciso-fimbriate upper margin. Spur cylindrical, incurved.

Fls. & Frts.: July-Sept.

Distrib.: Kameng, Lohit, Siang; between 1000-3000 m, on moist soil in open and dense forests.

Calanthe biloba Lindl., Fol. Orchid. Calanthe 3. 1854; Hook.f., Fl. Brit. India 5: 848. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 169, t.228. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 162, f.90. 1998.

Terrestrial herbs. Pseudobulbs stem like up to 25 cm long. Leaves unequal, broadly elliptic. Raceme arising from leaf-axils, upto 1 m long, pubescent. Flowers 3.5-4.5 cm across, yellow with purplish tinge. Lip 3-lobed with conical spur; terminal lobe with three ridges at base.

Fls. & Frts.: Sept. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1200-2000 m, along edge of oak forests at the top of clearings.

Calanthe brevicornu Lindl., Gen. Sp. Orch. Pl. 251. 1833; Hook.f., Fl. Brit. India 5: 848. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 168, t.227. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 162, f.91. 1998. *Calanthe brevicornu* var. *wattii* Hook.f., Fl. Brit. India 5: 848. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 165. 1998.

Terrestrial herbs. Pseudobulbs ovoid. Stems up to 10 cm high with wide sheaths. Leaves oblong-elliptic. Raceme up to 40 cm long, pubescent. Flowers about 3.5 cm across, dark purple or brick-red. Lip 3-lobed, spurred with yellow streaks; lamellae tubercled. Capsules ellipsoid.

Fls. & Frts.: May July.

Distrib.: Kameng, Subansiri; between 2000-3000 m, on forests floor.

Calanthe chloroleuca Lindl., Fol. Orchid. Calanthe 10. 1854; Hook.f., Fl. Brit. India 5: 852. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 171, t.231. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 165, f.92. 1998.

Terrestrial herbs. Pseudobulbs ovoid. Leaves in pair, elliptic-lanceolate. Flowers in raceme, yellowish-green, fragrant. Lip 3-lobed; basal lobe oblong, divergent; spur with 2-callii.

Fls. & Frts.: April June.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 2000-3000 m, on grassy hill slopes.

Calanthe densiflora Lindl., Gen. Sp. Orch. Pl. 250. 1833; Hook.f., Fl. Brit. India 5: 855. 1890; King & Pantl. in Ann. Roy. Bot. Gard.

(Calcutta) 8: 174, t.236. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 165, f.93. 1998.

Terrestrial herbs. Stems stout, sheathed at base. Leaves narrow elliptic. Flowers in raceme, pale-yellow. Lip 3-lobed, apical lobe orbicular; spur inflated at apex.

Fls. & Frts.: Sept. Feb.

Distrib.: Siang; between 1200-1800 m, on humus rich soil in forests.

Calanthe gracilis Lindl., Gen. Sp. Orch. Pl. 251. 1833; Hook.f., Fl. Brit. India 5: 855. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 165, t.222. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 165. 1998.

Terrestrial herbs. Stems cylindrical, swollen and annular at base. Leaves elliptic, caudate-acuminate. Raceme upto 20 cm long, arising from the nodes, hairy. Flowers white. Lip 3-lobed without spur; apical lobe erose at margin with yellow band.

Fls. & Frts.: Sept. Oct.

Distrib.: Subansiri; between 1500-2000 m, underneath open pine forests.

Calanthe griffithii Lindl., in Paxton, Fl. Gard. 3: 37. 1852-1853; Hook.f., Fl. Brit. India 5: 852. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 167. 1998.

Terrestrial herbs. Stems upto 20 cm long. Leaves oblong, small during flowering. Flowers in long raceme, greenish-brown. Lip 3-lobed, spurred, brownish.

Fls. & Frts.: Aug. Oct.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 800-1600 m, in primary forests on thick humus.

Calanthe herbacea Lindl., Fol. Orchid. Calanthe 10. 1854; Hook.f., Fl. Brit. India 5: 852. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 172, t.233. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 67, f.94. 1998.

Terrestrial herbs. Pseudobulbs fusiform, broadly annular. Leaves elliptic, caudate-acuminate at apex. Flowers in laxly flowered raceme, greenish-white. Lip 3-lobed, spurred, white; terminal lobe triangular; spur as long as the ovary.

Fls. & Frts.: June Aug.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 1000-2500 m, on thick humus in moist shaded places.

Calanthe mannii Hook.f., Fl. Brit. India 5: 850. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 167, t.225. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 167, f.95. 1998.

Terrestrial herbs. pseudobulbs small. Pseudostems upto 8 cm long. Leaves 2-3, oblanceolate-oblong. Flowers in 10-12 flowered raceme, chocolate-brown. Lip 3-lobed, yellow with a red blotch at base; lateral lobes attached to whole length of the column; spur very short.

Fls. & Frts.: April June.

Distrib.: Kameng, between 500-1000 m, on humus rich soil in dense forests.

Calanthe odora Griff., Notul. 3: 365. 1851; Hook.f., Fl. Brit. India 5: 853. 1890. *C. angusta* Lindl., Fol. Orchid. Calanthe 7. 1854; Hook.f., Fl. Brit. India 5: 849. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 171. t.232. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 158, f.89. 1998.

Terrestrial herbs. Pseudobulbs conical. Leaves narrowly elliptic. Raceme upto 70 cm long, many flowered, pubescent. Flowers about 3 cm across, white, fragrant. Lip 3-lobed with spur terminal, lobe subreniform with two yellow callii. Capsules ellipsoid.

Fls. & Frts.: April June.

Distrib.: Kameng, Siang; between 200-500 m, in dense tropical forests, on thick humus soil.

Calanthe plantaginea Lindl., Gen. Sp. Orch. Pl. 250. 1833, Hook.f., Fl. Brit. India 5: 853. 1890; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 171, f.97. 1998.

Terrestrial herbs upto 30 cm high. Leaves elliptic-lanceolate. Rachis pubescent. Flowers in raceme, white. Lip obovate, 3-lobed.

Fls. & Frts.: July Sept.

Distrib.: Kameng, Lohit, Siang, Subansiri, Tirap; between 800-1500 m, on grassy hill slopes.

Calathe puberula Lindl., Gen. Sp. Orch. Pl. 252. 1833; Hook.f., Fl. Brit. India 5: 848. 1890; King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 166, t.224. 1898; H. J. Chowdhery, Orch. Fl. Arunachal Pradesh 171, f.98. 1998.

Terrestrial herbs. Pseudobulbs broadly ovoid. Leaves unequal, elliptic-oblong. Rachis pubescent. Flowers in raceme, about 1.2