

DESCRIPTIVE NOTES ON SOME NEW OR LITTLE KNOWN
ORCHIDS OF NICOBAR ISLANDS

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ABSTRACT

This paper describes with illustrations a new species *Anoectochilus nicobaricus* Balakr. & Chakrab. and records with descriptions and a few illustrations, of 9 species, which are additions to Flora of India, namely *Cymbidium pubescens* Lindl., *Dendrobium plicatile* Lindl., *Hetaeria oblongifolia* (Bl.) Bl., *Nervilia punctata* (Bl.) Makino, *Plocoglottis javanica* Bl., *Podochilus microphyllus* Lindl., *Pteroceras alatum* (Holt.) Holt., *Spathoglottis plicata* Bl. and *Vrydagzynea albidia* (Bl.) Bl. One species *Polystachya flavescens* (Bl.) J. J. Smith is the first record from Andaman and Nicobar Islands and its identity with reference to its distribution is discussed.

Intensive botanical survey of Nicobar Islands during the last 6 years yielded several interesting species of plants. While some of them are new species, many are additions to Indian flora or to the flora of Andaman and Nicobar Islands. This paper describes with some illustrations one new species and 10 species of orchids, of which 9 are additions to Flora of India and one for Andaman and Nicobar Islands. The species are arranged in alphabetical sequence. The herbarium specimens are deposited in the Regional Herbarium of Botanical Survey of India at Port Blair (PBL), with one set of duplicates in Central National Herbarium of Botanical Survey of India at Howrah (CAL).

1. *Anoectochilus nicobaricus* Balakr. & Chakrab. sp. nov.

Affinis *A. gemiculata* Ridl., a qua imprimis differt petiolis et vaginis brevioribus; foliis supra atropurpureis, rubro-aureonervibus, infra infuscatis; floribus 5-8; bracteis sepalis et petalis brevioribus; calcaribus

obtusis; unguibus labellorum 12-16 lobatis, non geniculatis, leviter curvatis; lobis apicalibus brevioribus, angustioribus.

Herba terrestris, erecta, 15-30 cm alta; caulis basi leviter decumbens, radicans ad nodos basales; pars florifera usque 2 cm longa; nodi basales foliarum vaginarum reliquis scariis obtecti. *Folia* 3-4, ovata vel elliptica, basi oblique rotundata vel acuta, apice acuta, 3-6 cm longa, 2-4 cm lata, supra atro-violacea, reticulis rubroauratis, subtus atro-fusca; petioli cum vaginae 1.0-1.5 cm longi; vaginae 5-8 cm longae, saccatae incohaerentes. *Inflorescentia* 4-8-flora, terminalis, solitaria; scapus 7-15 cm longus, puberulus; bracteae steriles 2-3, ovato-lanceolatae, acuminatae, 1.0-1.5 cm longae, basi vaginatae, scariosae; rhachis 4-6 cm longa; bracteae florales 8-12 mm longae, bracteis sterilibus similes. *Flores* 4-8 per rhachim, \pm 1.5 cm longi, albi, extra in sepalis rubropubescentia, maculis duobus roseis in labellis apicibus; ovarium cum pedicellus fusiformia, 1.2-1.5 cm longa, rubropubescentia. *Sepalum dorsale* ovatum, acuminatum, margine hyalinum, 8-9 mm longum, 4-5 mm latum, petalis adnatum et cucullum formans, externum pubescens glanduliferum. *Sepala lateralibus* lanceolata, basi oblique

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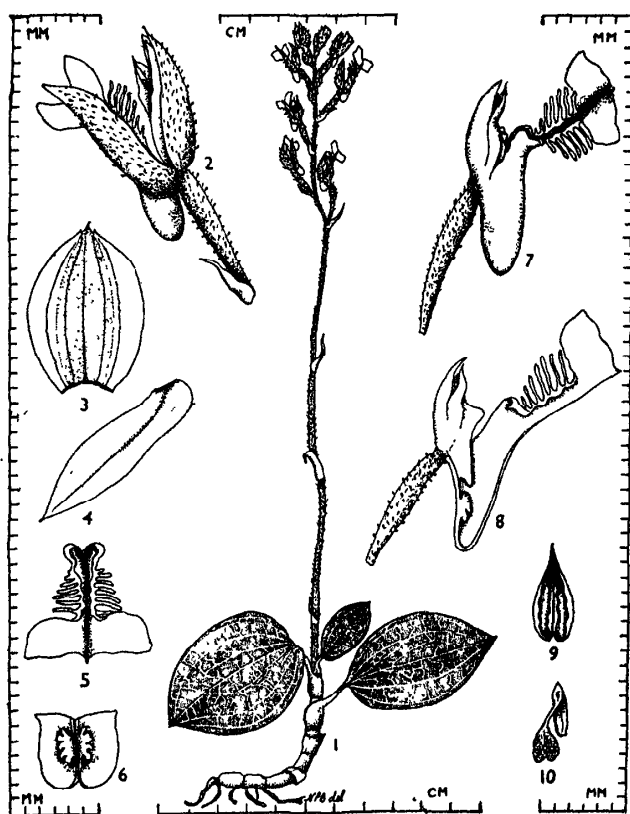
auriculata, 10-11 mm longa, 4-5 mm lata, 1-nervata, externa pubescentia glandulifera. *Labellum* ± 1.2 cm longum; calcar protrudens ultra sepala lateralalia, parallelum ad ovarium, lateraliter compressum, apice obtusum, instructum callis papillois, duobus on intra pariete dorsali; lamina canaliculata ad medio; lobi basales erecti, rotundati; unguis ± 3 mm longus, instructus; lobis pennatus 6-8 geminatis, gracilibus inaequalibus, on marginibus incurvatis; lobus apicalis bilobatus, instructus uno dente ad extremum inter lobos; lobi late divergentes, oblique oblongo-subquadrati, apice truncati obtusi, ± 4 mm longi, ± 2.5 mm lati. *Columna* oblonga, acuminata, ± 6 mm longa, erecta, lamellis duabus frontalis intrusis in calcar; rostellum bifidum stigmatibus duobus on utrinque lateribus; pollinia 2, clavata, multi-lobulata; caudicula longa, sursum versus, ad extremum disco lanceolato clypeato. [Typus: *Chakraborty* 3226 A (holo. in CAL); *Ibid.* 3226 B-C (iso. in PBL)]

Terrestrial erect herbs, 15-30 cm high; stem slightly decumbent at base, rooting at lower nodes; leafy part up to 2 cm long; lower nodes covered with scarious remnants of leaf-sheaths. *Leaves* 3-4, ovate, elliptic, obliquely rounded or acute at base, acute at apex, 3-6 cm long, 2-4 cm wide, dark purplish with golden reddish reticulate venation above, dark brownish beneath; petioles with sheaths 1.0-1.5 cm long; sheaths 5-8 mm long, saccate, loose-fitting. *Inflorescence* 4-8-flowered, solitary, terminal; scape slender, 7-15 cm long, puberulous; sterile bracts 2-3, ovate-lanceolate, acuminate, 1.0-1.5 cm long, scarious, sheathing at base; rachis 4-6 cm long; bracts similar to sterile bracts, 8-12 mm long. *Flowers* 4-6 per rachis, ± 1.5 cm long, white, reddish hairy outside on sepals, with two pink spots at apex of lip; ovary with pedicel fusiform, 1.2-1.5 cm long, reddish pubescent. *Dorsal sepal* ovate, acuminate, hyaline at margins, 8-9 mm long, 4-5 mm wide, adnate to petals forming a hood, glandular hairy outside. *Lateral*

sepals lanceolate, obliquely auricled at base, 10-11 mm long, 4-5 mm wide, 1-nerved, glandular hairy outside. *Lip* ± 1.2 cm long; spur protruding beyond lateral sepals, parallel to ovary, laterally compressed, obtuse with 2 papillose calli on back wall inside; blade channelled in middle, basal lobes rounded, erect; claw ± 3 mm long, with 6-8 slender unequal lobes on either side along incurved margin; apical lobe bilobed with a minute tooth at apex in between lobes; lobes widely diverging, obliquely oblong-subquadrate, truncate-obtuse at apex, ± 4 mm long, ± 2.5 mm wide. *Column* oblong, acuminate, ± 6 mm long, erect, with 2 lamellae in front intruding into spur; rostellum 2-fid, with 2 stigma on either side; pollinia 2, clavate, divided into numerous lobules; caudicle long, turned upwards with a shield-like lanceolate disc at tip. (Plate I & Figs. 1-10).



Plate 1 *Anoctochilus nicobarnus* Balakr. & Chakrab.



Anoectochilus nicobaricus Balakr. & Chakrab.

Figs. 1-10: 1. Habit. 2. Flower. 3. Dorsal sepal with adnate petals forming 'hood'. 4. Lateral sepal. 5. Lip. 6. Spur, split open showing calli. 7. Flower, sepals and petals removed. 8. The same with l. s. of lip, showing columnar lamella. 9. Operculum. 10. Pollinia with stipe and disc.

Specimens: GREAT NICOBAR ISLAND. 6 km on East-West Road, shaded places in inland forests, 1 Dec. 1975, in flower, *P. Chakraborty* 3226 A (holotype in CAL); *Ibid.* 3226 B-C (isotypes in PBL).

Distribution: Endemic to Great Nicobar Island.

Notes: This species differs from the nearest allied *A. geniculatus* Ridl. mainly in the petioles and sheaths being shorter; leaves dark purplish with golden red veins above, light brownish beneath; flowers 5-8; bracts and sepals shorter; spur obtuse; claw of lip with 12-16 lobes; lip not geniculate, only slightly curved; apical lobes shorter and narrower. It is also allied to *A. albolineatus* Par. & Reichb. f. but differs in having more (4-8) flowers per inflorescence; base of lip shorter than claw; appendages on claw of lip shorter, fewer and spur obtuse, not

cleft at apex, also not keeled inside on front wall.

2. ***Cymbidium pubescens*** Lindl. in Edw. Bot. Reg. 26, Misc. 75, p. 27, t. 38. 1840; Seidenf. & Smitin. Orch. Thailand 507, f. 373 (546). 1961; Holtt. Rev. Fl. Mal. Orch. ed. 3: 522. 1964; Backer & Bakh. f. Fl. Java 3: 395. 1968.

Epiphytes; pseudobulbs covered by sheathing leaf-bases. *Leaves* 6-9, narrow-lanceolate, lorate, obliquely bilobed at apex, 20-35 cm long, 1.5-2.0 cm broad, thickly coriaceous, stiff; sheaths strongly longitudinally ribbed, articulate to leaf-blade, 2-7 cm long. *Inflorescence* racemose, arising from base of pseudobulb, drooping, 15-25 cm long; flowers 8-12, 3.0-3.5 cm across; bracts ovate, 2-3 mm long, 1.0-1.5 mm broad, glabrous; ovary with pedicel 1.4-1.8 cm long. *Sepals* and *petals* greenish yellow at margin with a broad purplish-brown band in the middle; sepals elliptic-lanceolate, obtusely cuspidate, 1.8-2.0 cm long, 4-6 mm broad; petals elliptic-lanceolate, subacute, 1.6-1.8 mm long, 4-6 mm broad. *Lip* shortly sacate at base, ovate, papillosely short hairy inside, 1.4-1.7 cm long, \pm 1 cm broad, 3-lobed; lateral lobes obliquely ovate, triangular, 3-5 mm long, 2-3 mm broad, shorter than column, pale yellow, dark brownish-red punctate; midlobe broadly oblong-ovate, acute and reflexed at apex, slightly undulate at margins, 6-7 mm long, 5-6 mm broad, purplish-brown speckled on yellow base; keels on disc 2, discontinuous and interrupted in middle forming 4 keels which are apically thickened and yellow in colour. Column slender, curved, 1.3-1.5 cm long, 3-4 mm broad, brownish purple at the back, yellowish purple at the front; pollinia, 2, furrowed, \pm 1.5 mm long.

Specimens: GREAT NICOBAR: Campbell Bay Forests, sea level, 18 August 1975, in flower, *Balakrishnan* 2799.

Distribution: So far known from Thailand, Malaysia, Sumatra, Java and Borneo.

3. ***Dendrobium plicatile*** Lindl. Bot. Reg. Misc. 10. 1840; Seidenf. & Smitin. Orch. Thailand 186, f. 151, t. VI, 575. 1959; Holtt. Rev. Fl. Malaya, Orch. ed. 3: 267. 1964. *D. flabellatum* Reichb. f. Bonpl. 5: 56. 1857; Holtt. Rev. Fl. Malaya, Orch. ed. 1: 264. 1958.

Epiphytes; stems much branched, polynodal, creeping, ascending, 4-6 mm thick, rooting at nodes; pseudobulb terminal, stout, slightly flattened, 5.0-7.5 cm long, 0.8-1.5 cm thick, yellow-green. *Leaves* solitary on pseudobulb, broadly oblong-lanceolate to oblong-ovate, 9-18 cm long, 2.0-4.5 cm broad, thinly coriaceous. *Flowers* solitary in the leaf axil at apex of pseudobulb, \pm 2.2 cm long, \pm 3 cm across, white to light creamy yellow; bracts 5-6, surrounding the pedicel, oblong, obtusely acuminate, \pm 1 cm long, \pm 4 mm wide; pedicels with ovary 1.0-1.5 cm long. *Dorsal sepal* free, oblong-lanceolate, acute, 1.5-2.0 cm long, 4-5 mm wide; lateral sepals obliquely oblong-lanceolate, acute, decurrent along foot forming a narrow conical mentum, \pm 2 cm long, \pm 5 mm wide. *Petals* narrow-lanceolate, 1.3-1.6 cm long, 3-4 mm wide, light cream-coloured. *Lip* 3-lobed, 2.0-2.4 cm long, creamy white with brownish red spots on short triangular side lobes; midlobe broadly obovate, plicate with much folded sides, widened gradually from base to broad apex, 2-fid at apex, 1.0-1.5 cm across; keels on the lip 3; lateral keels thick, undulate, wavy; median keel short straight. *Column* 0.8-1.0 cm long, 3-4 mm broad, 3-lobed at apex; foot \pm 6 mm long, \pm 2 mm wide, longitudinally grooved; operculum \pm 1.5 mm across; pollinia 4, \pm 1 mm long (Plate II).

Specimens: N. ANDAMANS: Lamia Bay to Kalipur, sea level, 30 March 1977, in flower, Balakrishnan 5372; KATCHAL ISLAND: East Bay, 4 May 1975, in flower, Chakraborty 2517. GREAT NICOBAR ISLAND: Koppenheat, sea level, 21 July 1976, in flower and fruit, Balakrishnan 3904.

Distribution: So far known to occur only

in Thailand, Malaysia, Borneo, Celebes and Java.

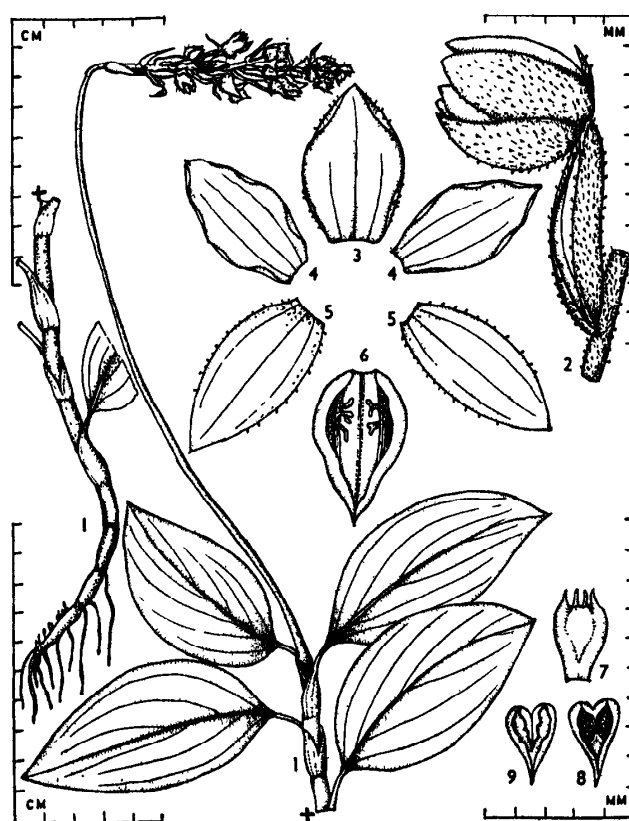


Plate II *Dendrobium plicatile* Lawl.

4. ***Hetaeria oblongifolia*** (Bl.) Bl. Coll. Orch. t. 32. 1858; Backer & Bakh. f. Fl. Java 3: 271. 1968; Seidenf. in Dansk Bot. Ark. 32: 96, f. 60. 1978. *Etaeria oblongifolia* Bl. Bijdr. 410, t. 14. 1825. *H. helferi* Hook. f. Fl. Brit. Ind. 6: 115. 1890.

Terrestrial herbs, 30-50 cm high; stem dark reddish-green, succulent, prostrate at base, ascending-erect above, 4-5 mm thick; internodes 2-3 cm long. *Leaves* spirally arranged, 7-9, patent, obliquely ovate-elliptic to ovate-lanceolate, obliquely acute at base, acute to short acuminate at apex, 6-10 cm long, 2.5-4.5 cm wide, shining, reddish-green, many-nerved; petiole sheathing at base, slender above, 2.5-3.0 cm long; sheathing base 1.2-1.5 cm long, reddish green, distinctly hyaline at oblique margins; slender upper portions 1.3-1.5 cm long. *Inflorescence* terminal, 20-30 cm long; scape 15-20 cm long; sterile bracts 3-4 on scape, linear-lanceolate, sheathing at base, acuminate at apex, 1.8-2.5 cm long, scarious; rachis 5-10 cm long, beset with more or less dense gland-tipped patent hairs; floral bracts linear-lanceolate, long-acuminate, ± 1 cm long, ± 2 mm wide, 1-nerved, sparsely glandular hairy outside, curved at base, erect above, reflexed at middle in old ones, persistent. *Flowers* many, omnilaterally arranged, opening acropetally, ± 5 mm long, ± 5 mm across, not opening fully, not resupinate; ovary with pedicel linear-ellipsoid, ± 7 mm long, ± 1.5 mm thick, erect, faintly grooved, beset with many patent gland-tipped hairs. *Sepals* greenish-yellow outside, pale yellow inside; dorsal sepal elliptic-obovate, subacute, 3-nerved, ± 5 mm long, ± 3.5 mm wide, sparsely gland-tipped hairy outside; lateral sepals obliquely elliptic sub-acute, 3-nerved, ± 6 mm long, ± 3 mm wide, beset with gland-tipped hairs outside. *Petals* elliptic-obovate, obtuse, narrow at base, wavy at margin, ± 5 mm long, ± 3 mm wide, 3-nerved, whitish-yellow. *Lip* boat-shaped, shallowly saccate with incurved margins, with a longitudinal furrow at basal portion outside, narrowed to a subulate flat cusp at apex, ± 5 mm long, ± 3 mm wide in natural position, ± 5 mm wide when flattened out, inside with a prominent median ridge and 2 very narrow slender lateral ridges on either side, each lateral ridge at base with

2 or 3 fleshy slender terete simple or bifid soft appendages. *Column* ± 3 mm long, ± 2 mm wide, in front with 2 parallel obtusely protruding keels, in back with a pair of slender subulate processes; operculum double boat-shaped, broad and obtuse at base, narrow and blunt at apex, ± 2 mm long, ± 1.5 mm wide; pollinia 2, clavate, 2-fid, ± 1 mm long, divided into numerous lobules on a short narrow stipe ending in a small viscidium. *Fruit* ovoid-ellipsoid, ± 1 cm long, ± 7 mm thick (Figs. 1-9).



Hetaeria oblongifolia (Bl.) Bl.

Figs. 1-9: 1. Habit, basal and upper portions. 2. Flower, in natural posture. 3. Dorsal sepal. 4. Petals. 5. Lateral sepals. 6. Lip, showing calli. 7. Column. 8. Anther. 9. Operculum.

Specimens: KATCHAL ISLAND: Mildera, 30 April 1977, in flower, *Chakraborty* 5572.

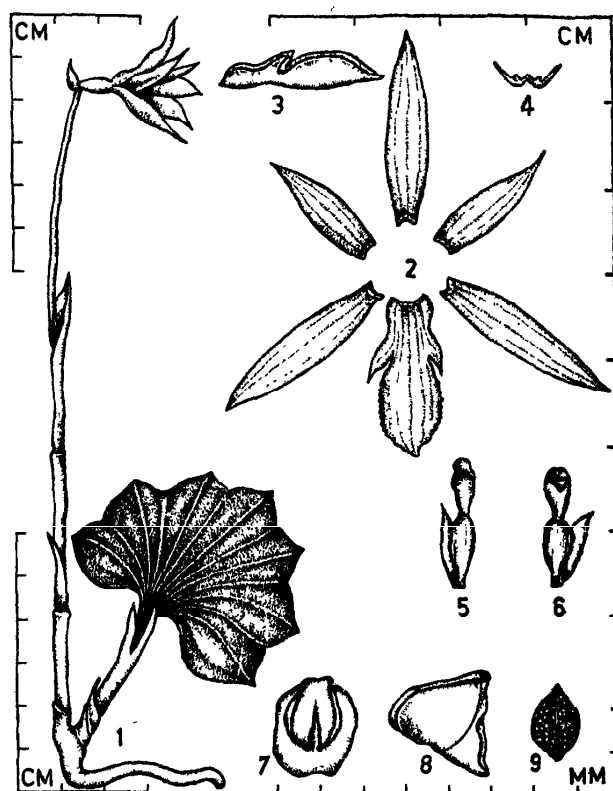
Distribution: So far known to occur in Thailand, Malaya, Java, Celebes, Philippines, New Guinea and Australia.

5. *Nervilia punctata* (Bl.) Makino in Bot. Mag. Tokyo 16: 199. 1902, *nom. tantum*; Schltr. in Engl. Bot. Jahrb. 45: 402. 1911;

Seidenf. & Smitin. Orch. Thailand 67. 1959; Holtt. Rev. Fl. Malaya, Orch. ed. 3: 106. 1964; Backer & Bakh. f. Fl. Java. 3: 261. 1968; Seidenf. in Dansk. Bot. Ark. 32: 151, f. 93. 1978. *Pogonia punctata* Bl. Mus. Bot. Lugd.-Bat. 1: 32. 1849 et Coll. Orch. Arch. Ind. 150, t. 48, 54. 1858. *Aplostellis punctata* (Bl.) Ridl. Fl. Mal. Pen. 4: 204. 1924.

Terrestrial tuberous herbs, leaves and flowers rarely together, usually hysteranthous. *Leaves* young, just appearing, arising from 2 sheaths, solitary, suborbicular, cordate at base, 7-plicate, 7-angled at nerve-endings, 4-5 cm long, 5-6 cm wide, 7-nerved, glabrous, green; lower sheath ovate, lanceolate, ± 1.5 cm long; upper sheath lanceolate, bilobed at apex with acuminate lobes, ± 3.5 cm long, light brown; petiole 2-3 cm long, terete, grooved on one side towards apex. *Inflorescence* 15-18 cm long, 1-flowered; peduncle slender, translucent whitish, 2-noded; sheath on lower node ovate-oblong, acuminate, ± 1 cm long; sheath on upper node larger, linear-lanceolate, acuminate, 3-4 cm long, 5-nerved. *Flowers* terminal, solitary, subtended by a bract, pointing at about right angles to the scape or nodding when old; bracts oblong, acute, 6-8 mm long, 2-3 mm wide; pedicel ± 1 mm long; ovary oblong-ovoid, 5-6 mm long, 2-3 mm thick, dull yellow. *Sepals* and *petals* spreading, slightly concave, pale yellowish green with a few scattered purplish spots inside, 3-nerved; sepals lanceolate, acuminate, ± 2 cm long, ± 4 mm wide; petals lanceolate, caudate acuminate at apex, ± 1.5 cm long, ± 4 mm wide. *Lip* horizontal, 3-lobed, embracing the column at base, the side lobes covering the sides of operculum, longitudinally keeled inside and on either side with 2 long minutely hairy ridges, 1.6-1.8 cm long, 6-7 mm wide at midlobe; lateral lobes ovate, acute, ± 2 mm long, ± 1.5 mm wide at base, slightly incurved and pointing towards tip of lip; midlobe horizontal, slightly curved at tip, oblong, subobtuse at apex,

± 1 cm long, 6-7 mm wide, somewhat wavy at margin, white with light pink tinge and purple spots inside. *Column* clavate, thickened to top, ± 6 mm long, obtuse; pollinia 2, furrowed, granulate, powdery, ecaudiculate (Figs. 1-9).



Nervilia punctata (Bl.) Makino.

Figs. 1-9: 1. Habit. 2. Perigone. 3. Lip, side view. 4. T. S. of lip at middle. 5. & 6. Column with ovary and bracts, two views. 7. Operculum, front view. 8. Operculum, side view. 9. Pollinia.

Specimens: KATCHAL ISLAND: Mildera, 4 May 1977, in flower, Chakraborty 5601.

Distribution: So far known to occur in Thailand, Malaysia, Borneo, Sumatra and Java.

6. *Plocoglottis javanica* Bl. Bijdr. 380. 1825 et Tab. Javan. Orch. t. 21, 1825; Seidenf. & Smitin. Orch. Thailand 348. 1961; Holtt. Rev. Fl. Malaya, Orch. ed. 3: 159, f. 269. 1964; Backer & Bakh. f. Fl. Java 3: 325. 1968.

Terrestrial herbs; stems pseudobulbous at base, 2-5 cm long, narrowed towards apex.

Leaves solitary on the pseudobulb, broadly elliptic, decurrent at base, shortly acuminate at apex, 17-30 cm long, 5-9 cm broad, glabrous; main nerves 5-7; petiole 7-17 cm long, 2-4 mm thick. *Inflorescence* arising from the base of pseudobulbs; peduncle 40-70 cm long, puberulous, reddish green; sheaths tubular at base, oblique at mouth, 2-3 cm long; bracts ovate-acuminate, 6-8 mm long, 4-6 mm broad, pubescent on both surfaces; ovary with pedicel 8-11 mm long, 1-2 mm thick, ridged, pubescent. *Sepals* pale yellow with purplish pink spots and blotches; dorsal sepal elongate-ovate, 10-13 mm long, 4-5 mm broad, pubescent outside; lateral sepals obliquely ovate, 11-12 mm long, 4-6 mm broad, pubescent outside. *Petals* falcately linear-lanceolate, incurved, 10-12 mm long, 2-3 mm broad, glabrous, pale yellow with purplish-pink blotches. *Lip* jointed to the short column-foot forming a short spur, 6-8 mm long, 6-7 mm wide with 2 short side lobes at base completely united to the midlobe, acuminate, recurved at tip. *Column* 4-6 mm long, 3.0-3.5 mm broad; foot ± 2 mm long; operculum ± 2 mm across; pollinia 4, subglobose to subreniform, ± 1 mm thick; caudicle ± 2 mm long; turned towards tip of anther (Plate III).

Specimens: GREAT NICOBAR ISLAND: 35 km on East-West Road, ± 100 m, 23 July 1976, in flower, Balakrishnan 3989.

Distribution: So far known to occur in Thailand, Malaysia, Sumatra and Java. The genus itself is new to India.

Notes: The present collections are almost intermediate between *P. javanica* and *P. lowii* Reichb. f. an endemic species from Malaysia, differing from the former in shorter petioles and puberulous-subpubescent inflorescences, from the latter in sepals and petals being prominently spotted and blotched purplish-pink, instead of uniformly yellow in *P. lowii*. Probably both these belong to one species, but more material from different areas are needed to be studied in detail before arriving at any conclusion.



Plate III. *Plocoglottis javanica* Bl.

7. ***Podochilus microphyllus*** Lindl. Gen. Sp. Orch. 234. 1835; Hook. f. Fl. Brit. Ind. 6: 81. 1890; Grant, Orch. Burma 320. 1895; Ridl. Fl. Mal. Pen. 4: 193. 1943; Seidenf. & Smitin. Orch. Thailand 322, f. 244. 1960; Holtt. Rev. Fl. Mal. Orch. ed. 3: 500, f. 143. 1964.

Epiphytic, sometimes petrophilous; stems many, closely crowded together, often creeping, simple or often branched, slender, flexuous, wiry, 12-22 cm long, ± 1 mm thick. *Leaves* 2-ranked, closely arranged, spreading, duplicative, narrowly elliptic, jointed and twisted at base, awned at apex, 7-9 mm long, ± 2 mm wide. *Inflorescence* terminal or rarely lateral, few-flowered, up to 1.8 cm long; bracts ovate, 1-2 mm long. *Flowers* resupinate, slightly opened, never fully opening, 3-4 mm long, white with median purple lines one on each sepal and purple patch on centre of petals and sometimes on each side

of lip. *Dorsal sepal* broadly ovate, hooded, ± 1.6 mm long, 1-nerved. *Lateral sepals* decurrent along column-foot, forming a saccate mentum, obliquely ovate, acute, ± 2.4 mm long, 3-nerved. *Petals* oblong, sub-acute, ± 1.6 mm long, ± 8 mm wide, 1-nerved. *Lip* oblong-ovate, curved at middle, cordate at base, 3-nerved, attached to the tip of column-foot, divided at base into 2 lobes, one on each side of the narrow claw, widened upwards, bluntly pointed at apex, curved at middle, on the inner side at base with two erect linear appendages, ± 2 mm long, ± 0.8 mm wide. *Column* erect, with 2 arms, ± 0.5 mm long; foot ± 1.2 mm long; rostellum triangular-lanceolate, shortly bifid. *Anther* lanceolate, acute, erect; pollinia 4, elongate-pyriform; stipe slender; disc ovate, red. *Capsule* ellipsoid, ± 3 mm long.

Specimens: GREAT NICOBAR ISLAND: 35 km on East-West Road, dense inland forests, ± 200 m, 20 July 1976, in flower and fruit, Balakrishnan 3892.

Distribution: Burma, Thailand, Malaya, Borneo and Sumatra.

8. ***Polystachya flavescens*** (Bl.) J. J. Smith, Fl. Buitenz. 6: 284, f. 218. 1905; Seidenf. & Smitin. Orch. Thailand 326, f. 248. 1960; Holtt. Rev. Fl. Malaya, Orch. ed. 3: 546, f. 161. 1964; Santapau & Kapadia, Orch. Bombay 186, f. 44. 1966. *Onychium flavescens* Bl. Bijdr. 325. 1825. *P. wightii* Reichb. f. in Walp. Ann. 6: 640. 1861; Hook. f. Fl. Brit. Ind. 6: 21. 1890; Fischer, Fl. Pres. Madras 1437. 1928. *P. luteola* (non Hook. 1824) Wt. Ic. 5: t. 1678. 1851.

Pseudobulbs tufted, short, flattened, 3-5 cm long, ± 1.5 cm thick, 2-3 noded. *Leaves* 4-6 in 2 rows, narrowly oblong-lanceolate, acute or bluntly unequal sided at apex, 7-15 cm long, 2-3 cm across, sheathing at base; sheaths keeled on the back, articulate with blade. *Inflorescence* terminal, raceme or a panicle of racemes, erect, 15-28 cm long,

pubescent; peduncle 8-12 cm long; sheaths on peduncle 2-3, oblong, obtuse, flattened, sharply 2-angled, yellowish-green. *Flowers* 15-25 per raceme, ± 8 mm across; bracts broadly sheathing at base, strongly apiculate at apex, 2-3 mm long; pedicel with ovary ± 4 mm long, ± 1 mm thick, ribbed, pale greenish yellow. *Sepals* entire, pale greenish yellow; dorsal sepal ovate, acute at apex, erect, ± 4 mm long, ± 3 mm across, faintly 5-nerved; lateral sepals broadly triangular, acute at apex, 3-nerved, decurrent and forming a wide obtuse mentum along with foot. *Petals* linear-oblong, apiculate, entire, 1-nerved, ± 2.5 mm long, ± 1 mm across, incurved. *Lip* pale yellowish, 3-lobed, ± 4 mm long, ± 3 mm across; side lobes falcate-triangular, acute, erect; midlobe broadly oblong, down-turned, rounded and shortly crenulate and notched at apex, white mealy on upper surface. *Column* ± 2 mm long, ± 1 mm across; foot ± 2 mm long, stout. *Fruit* fusiform, 9-11 mm long, 3-4 mm thick.

Specimens: KATCHAL ISLAND: Kapanga, 14 August 1974, in flower. P. Chakraborty 2093.

Distribution: So far known to occur in Ceylon, W. Ghats of Peninsular India, Thailand, Malaysia, Sumatra, Java and Philippines.

Notes: Santapau & Kapadia (l.c.) included *P. luteola* Hook. (1824) as a synonym of this species, in which case the binomial *P. luteola* has precedence over *Onychium flavescens* Bl. (1825). However *P. luteola* Hook., the type species of *Polystachya* is a West Indian plant and synonymous to *P. minuta* (Aubl.) Britt. Further Santapau & Kapadia (l.c.) are the first to treat the peninsular Indian species *P. wightii* as synonymous to *P. flavescens*. However, Holttum (l.c.) and Seidenfaden & Smitinand (l.c.) do not include the Indian plant in their accounts of *P. flavescens*, which they consider as exclusively Malesian. We do not find any significant differences between the Malesian and Indian plants. However, more material

from different areas need to be studied before a final decision.

9. **Pteroceras alatum** (Holt.) Holt. in Kew Bull. 14 (2): 269. 1960; Seidenf. & Smitin. Orch. Thailand 532, f. 392. 1963. *Sarcochilus alatum* Holt. in Gard. Bull. Sing. 14: 5. 1953 et Rev. Fl. Malaya, Orch. ed. 3: 684, f. 208a. 1964.

Epiphytes; stems erect, ± 40 cm long, ± 6 mm thick; internodes ± 1 cm long. *Leaves* fleshy, articulate to the leaf-sheath, unequally bilobed with acute convergent points at apex, 16-25 cm long, 2-3 cm wide; midrib slightly raised beneath. *Inflorescence* pendulous, 25-33 cm long; peduncle 15-18 cm long, bearing scattered bracts at nodes; rachis 10-15 cm long, smooth, glabrous, bearing 20-25 flowers, grooved at insertion of each flower; bracts triangular, acute, obliquely sheathing, attached by a broad base, 2-3 mm long. *Flowers* laxly and omnilaterally arranged, ± 2.5 cm long, ± 2 cm across, fragrant, pedicel with ovary 2-3 cm long. *Sepals* greenish outside, white tinged with yellow inside bearing a few crimson spots; dorsal sepal ovate to obovate, concave at base, obtuse with thickened tip at apex, 14-18 mm long, 8-10 mm wide; lateral sepals attached to column foot, ovate, obtuse, 15-18 mm long, 8-11 mm wide, 6-nerved. *Petals* greenish outside, white tinged with yellow inside bearing a few crimson spots near the base inside, obliquely oblong, rounded at apex, 15-17 mm long, 6-8 mm wide, 5-nerved. *Lip* white with cream-coloured spur and purple marks on mid-lobe and crimson spots on spur outside, trilobed, spurred, hinged to column-foot, 16-18 mm long; midlobe subulate, acute, laterally flattened, 4-5 mm long; side lobes falcate, ± 4 mm long, ± 1.5 mm wide, each with a small tooth facing the midlobe; spur cylindrical, obtuse, curved forwards, 7-8 mm long with an adherent callus inside on distal wall; claw of lip ± 6 mm long, deeply grooved above, crimson red. *Column* ± 4

mm long, pale greenish; foot ± 6 mm long, operculum ± 2 mm across; rostellum with a slender ± 4 mm long beak; pollinia 2; caudicle narrow, widened at tip, attached to subquadrate or ovate disc. *Fruit* obovoid, with 9 acute ridges and furrows, ± 1.5 cm long, ± 8 mm thick; pedicel ± 1.5 cm long.

Specimens: KATCHAL ISLAND: Nirman Nagar, 19 May 1975, in flower, Chakraborty 2527.

Distribution: So far known to occur in Thailand and Malaysia only.

10. **Spathoglottis plicata** Bl. Bijdr. 401, t. 76. 1825; De Vriese, Illus. Orch. t. 4. 1854; Hook. f. Fl. Brit. Ind. 5: 813. 1890; Seidenf. & Smitin. Orch. Thailand 341. 1961; Holt. Rev. Fl. Mal., Orch. ed. 3: 166, ff. 2 & 5. 1964; Backer & Bakh. f. Fl. Java 3: 332. 1968.

Terrestrial perennial herbs, ± 1 m tall; pseudobulbs underground or partially underground, 3-6 cm long, 1-3 cm thick. *Leaves* 5-7, narrowly lanceolate, acuminate at apex, narrowed to base, 25-80 cm long, 3-4 cm wide, glabrous, plaited; petiole ± 10 cm long; sheath ± 10 cm long. *Inflorescence* lateral, arising from base of pseudobulb, erect; scape 50-90 cm long, 3-4 mm thick, often longer than leaves, sterile bracts several, closely arranged at base, placed between 6-20 cm apart above, oblong-lanceolate, 2.5-4.0 cm long, 1.0-1.8 cm wide, ensheathing the scape; racemes 5-10 cm long, dense-flowered; floral bracts ovate, acute, 2.0-2.5 cm long, 1.0-1.3 cm wide, concealing flower buds, later deflexed, persistent. *Flowers* omnilateral, ± 3 cm long, ± 3 cm across, light velvety purple or reddish purple, widely expanding; pedicel with ovary ± 3 cm long, ± 2 mm thick, puberulous. *Sepals* oblong-ovate, obtusely acuminate, at apex, ± 1.5 cm long, ± 8 mm wide, minutely puberulous outside. *Petals* ovate, obtusely acuminate, ± 1.8 cm long, ± 1 cm wide. *Lip* trilobed, ± 1.2 cm long, ± 1.6 cm across,

light purple; lateral lobes falcately wedge-shaped, erect, incurved, ± 6 mm long, ± 3 mm wide; midlobe reniform, widened and often notched or apiculate at apex, narrowed to a claw at base, ± 4 mm long, ± 7 mm wide; claw narrow, ± 6 mm long, ± 1 mm wide with two lateral reniform oblong apical lobes; calli on claw 2, medianly placed, erect, close together, ovoid-obtuse, fleshy, ± 2 mm long, ± 1 mm thick, with 2 triangular obtuse teeth one on each side below the calli, pointing downwards; calli above and space between the calli and teeth beset with long white hairs. *Column* curved, narrow at base, broader with incurved margins towards apex, ± 1.5 cm long, ± 2 mm thick; anther proclined, ovate, narrowed to apex; operculum ± 2.5 mm long, ± 2 mm across; pollinia 8, obovoid, oblanccolate, attached in fours to caudicles pointing to the apex of anther. *Fruit* cylindrical, 3-4 cm long, ± 1 cm thick, puberulous.

Specimens: CAR NICOBAR ISLAND: Passa, 23 Feb. 1976, in flower and fruit, N. G. Nair 3515. KATCHAL ISLAND: Kapanga to Milderia, 21 Oct. 1975, in flower and fruit, Chakraborty 3101. GREAT NICOBAR ISLAND: 12 km on East-West Road, 29 Nov. 1975, in flower and fruit, Chakraborty 3214; 36 km on East-West Road, 23 July 1976, in flower, Balakrishnan 3957; 32 km on East-West Road, 14 June 1977, in flower, Balakrishnan 5741.

Distribution: So far known to occur only in Thailand, Cambodia, Vietnam, Malaysia, Sumatra, Java and Philippines.

Notes: A beautiful hardy orchid which can be easily cultivated in gardens. This is usually found growing in disturbed areas, especially along roadsides on rocky slopes with red soil and other sunny forest edges.

11. *Vrydagzynea albida* (Bl.) Bl. Coll. Arch. Ind. 75, t. 19, ff. 2, 1-7. 1858 at Fl. Jav. n.s. 61, t. 20, f. 3. 1858; Hook. f. Fl. Brit. Ind. 6: 97. 1890; Ridl. Fl. Mal. Pen. 4: 211. 1924; Holtt. Rev. Fl. Mal.

Orch. ed. 3: 138. 1964; Backer & Bakh. f. Fl. Java 3: 266. 1968; Seidenf. in Dansk. Bot. Ark. 32: 34, f. 16. 1978. *V. viridiflora* Hook. f. Fl. Brit. Ind. 6: 96. 1890. *Etaeria albida* Bl. Bijdr. 410. 1825

Terrestrial herb, 20-30 cm tall; stem ascending from a creeping base; internodes 6-20 mm long. *Leaves* 6-8, obliquely oblong, acute at base, subacuminate at apex, 5-6 cm long, 2.0-2.5 cm wide, green, glabrous; petioles with sheaths 1.5-2.0 cm long; sheaths cup-shaped, loose fitting, 5-10 mm long; petioles slender, 5-10 mm long. *Flowers* white, in terminal erect densely many flowered heads or slightly elongated capitate spikes, ± 2.5 cm long, ± 2 cm wide, much elongated in fruits up to 10 cm; peduncle slender, 3-6 cm long; sterile bracts 1-2 on peduncle, lanceolate, acuminate, scarious, 9-12 mm long, 3-4 mm wide; floral bracts dense, prominent, longer than ovary, ± 1 cm long, ± 3 mm wide; rachis hairy; ovary with pedicel ± 7 mm long, twisted; sepals and petals not spreading. *Dorsal sepal* ovate-lanceolate, blunt and thickened at apex, ± 5 mm long, ± 2 mm wide, 1-nerved, adnate with lateral petals forming a hood. *Lateral sepals* falcate-lanceolate, acuminate, blunt and thickened at apex, auricled at base, ± 6 mm long, ± 2 mm wide, 3-nerved. *Petals* obliquely falcate-elliptic, subacute to blunt at apex, ± 4 mm long, ± 1.5 mm wide, 1-nerved. *Lip* spurred, ± 8 mm long; spur parallel to ovary, projecting between lateral sepals, ± 6 mm long, ± 2 mm wide, laterally flattened, with 2 stalked pendulous club-shaped glands on back wall inside at about $1/3$ way down from mouth; blade of lip entire, concave, boat-shaped, shortly contracted at tip, incurved at margins, white with light green papillose longitudinally keeled band at the centre, ± 3 mm long, ± 2 mm wide in natural posture. *Column* short, ovate, acuminate; arms short, erect; pollinia 2, irregularly many-lobed, attached to a short caudicle and ovate disc; rostellum projecting above the column; stigmatic

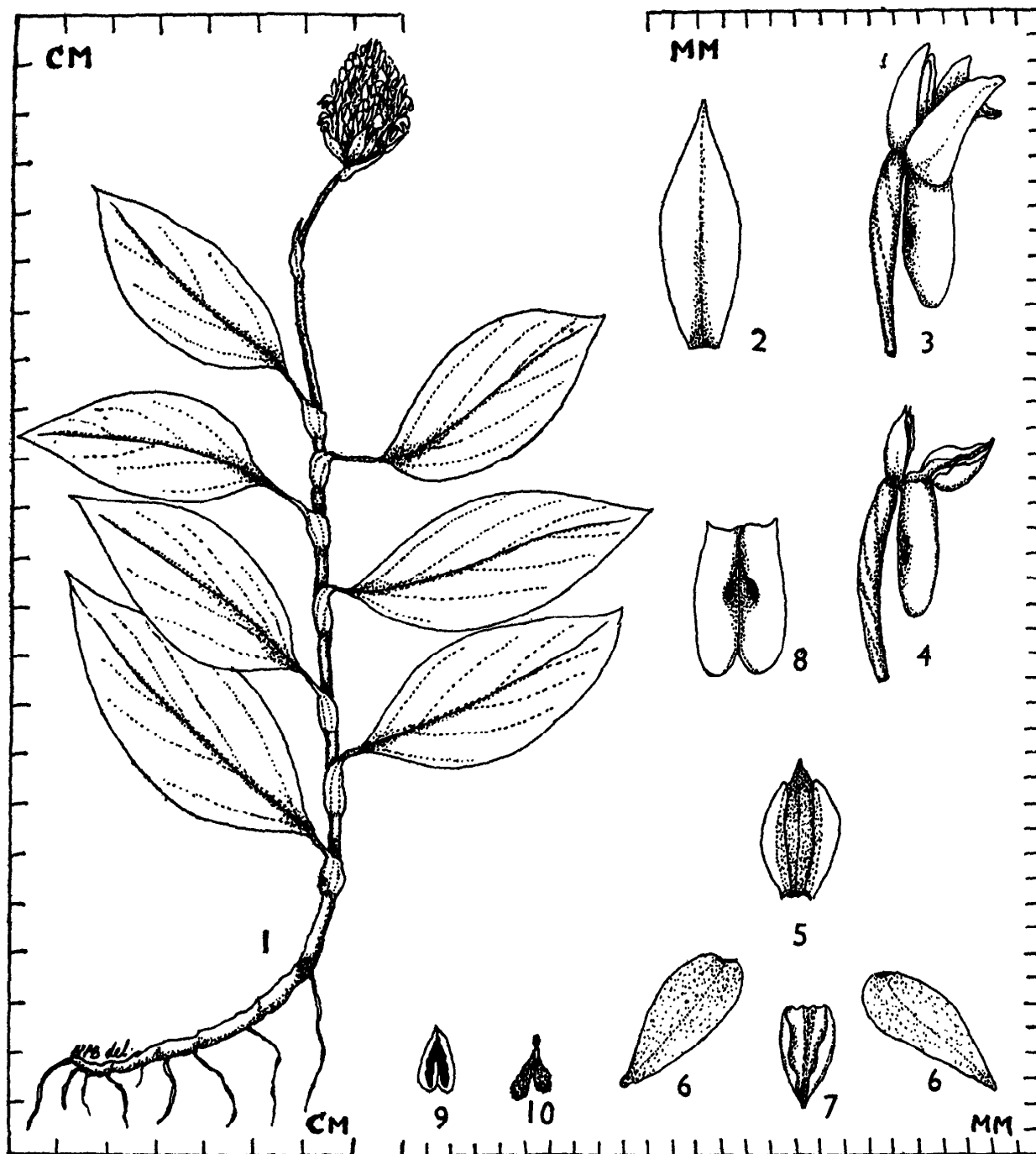
lobes 2, on either sides of rostellum (Figs. 1-10).

Specimens: GREAT NICOBAR ISLAND: 37 km on East-West Road, on path to Shomp-en houses, dense inland forests at shaded stream-sides, ± 75 m, 23 July 1976, in flower, Balakrishnan 3979/1.

Distribution: So far known from Bangla

Desh, Thailand, Vietnam, Malaysia, Borneo, Sumatra and Java.

Notes: The densely crowded subcapitate inflorescence with prominent bracts and the presence of the peculiar stalked club-shaped glands within the spur which are rudiments of two lower stigmata are distinctive features of this genus.



Vrydagzynea albida (Bl.) Bl.

Figs. 1-10: 1. Habit. 2. Bract. 3. Flower. 4. Flower, sepals and petals removed. 5. Dorsal sepal with adnate petals forming 'hood'. 6. Lateral sepals. 7. Lip. 8. Spur, split open showing stalked glands. 9. Operculum. 10. Pollinia.