

Some Notes on *Phreatia* Lindl. (Orchidaceae)

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ABSTRACT: Studies of principally Asiatic *Phreatia* specimens reveals the presence of four new taxa, viz. *P. albofarinosa*, *P. jayaweerae*, *P. millikenii* and *P. palmifrons*.

KEY WORDS: Orchidaceae, *Phreatia*, new species.

The genus *Phreatia* comprises about 200 accepted species distributed from Sri Lanka to Tahiti. New Guinea is the centre of speciation with about two-thirds (131) of the accepted taxa. The plants are predominantly epiphytes which may be pseudobulbous, stemless or caulescent with axillary inflorescences of many small, usually white flowers.

The external similarity of many species coupled with the small (less than 2 mm long) flowers and general lack of taxonomists has led to a lack of studies on the genus and the usual misidentifications in herbaria. The noteworthy exceptions are the regional treatments by Halle (1977, New Caledonia), Kores (1989, Fiji) and Lin (1987, Taiwan).

Recent comparative studies of dried *Phreatia* materials from Sri Lanka, India, Thailand and Indonesia revealed the presence of four undescribed taxa which are elucidated below. Further examination of Indonesian and Malaysian specimens will undoubtedly reveal several more novelties.

1. *Phreatia albofarinosa* Ormd., sp. nov.

Fig. 1

Type: Thailand - Doi Sutep, 1005 m, 12 August 1910, *Kerr 259* (holotype: K!).

Phreatia elegans auct. non Lindl.: Hook.f., Fl. Brit. Ind. 5: 810, 1890 pp.; Seidenf., Bot. Tidsskr. 66, 4: 344, f. 32A-E, 1971.

Phreatia formosana auct. non Rolfe: Seidenf., Op. Bot. 89: 149, f. 97 A-E, 1986.

Phreatia laxiflora auct. non (Blume) Lindl.: Deori, J. Orch. Soc. India 6, 1-2: 27, f. 2, 1992.

Affinis *P. laxiflora* (Blume) Lindl. sed bracteis floribus longioribus (3 – 4.5 vs. 2 mm) differt.

Stemless epiphytic herb. Roots fasciculate, terete, 1 mm thick. Leaves arranged in fans, 4-6, ligulate-oblongate, inequally obtusely bilobed, 7-10.2 cm long, 0.8-1.1 cm wide; sheaths finely striate, 1.5-2.5 cm long. Inflorescence axillary, 16-18 cm long; peduncle 8-10 cm long; sheathing bracts two or three, 0.55-1.1 cm long; rachis subdensely many-flowered, 6.2-8 cm long; floral bracts cymbiform, acute, 3-4.5 mm long, decreasing to 1.5 mm long near apex. Pedicellate ovary clavate, glabrous, 2-3 mm long. Flowers white, glabrous. Dorsal sepal broadly ovate-elliptic, acute, 1.5 mm long, 1mm wide. Lateral sepals broadly oblique ovate, acute, 1.5 mm long, 1.2 mm wide. Petals obliquely ovate, subacute, 1.2 mm long, 0.8 mm wide. Labellum with a semitubular claw, broadly ovate-deltate, obtuse, lower margins of lamina finely pubescent, upper surface with two patches of fine short pubescence, 1.5 mm long and wide. Column ca. 0.8 mm long; rostellum erect, uncinat; columnfoot free part ca. 0.5 mm long.

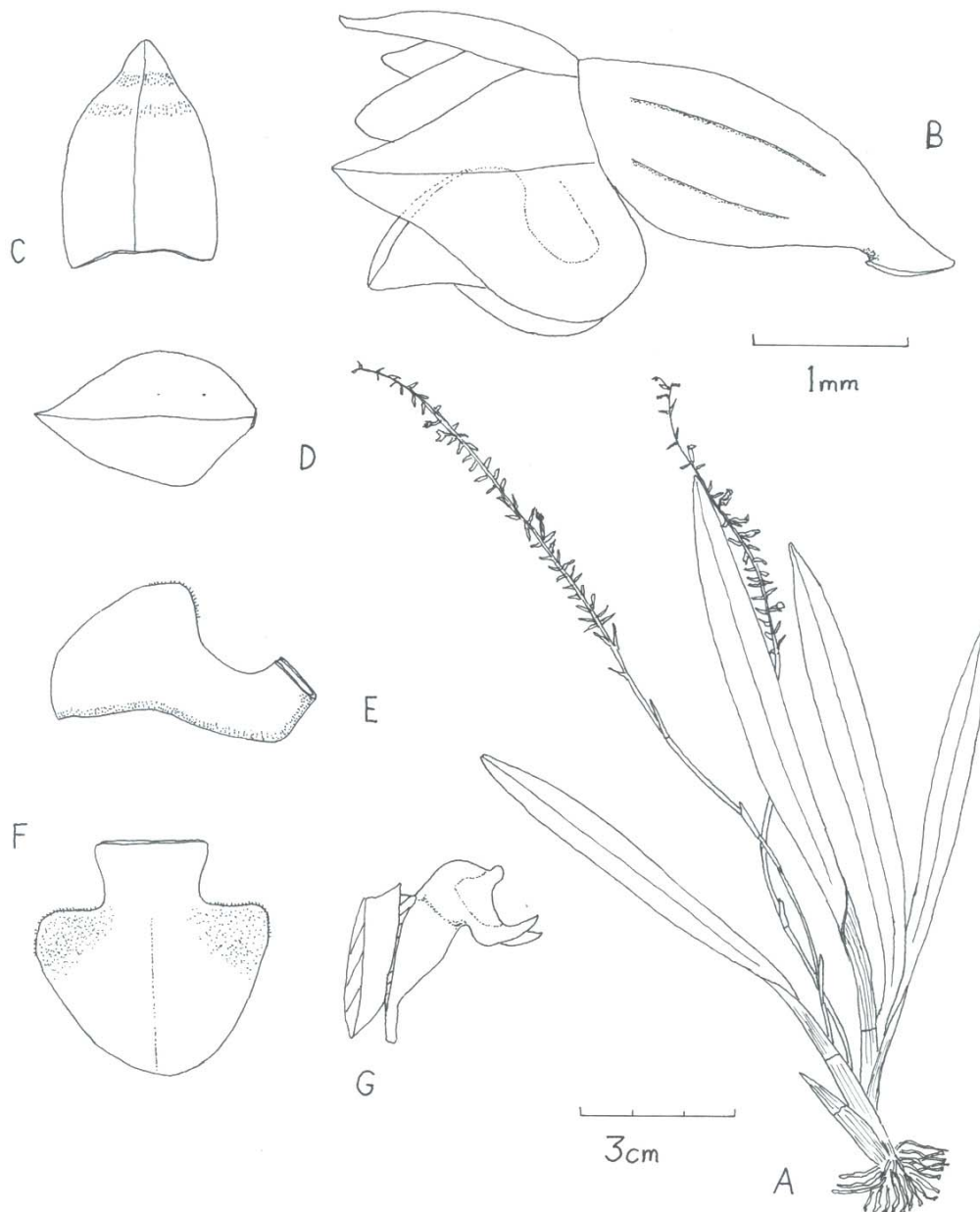


Fig. 1. *Phreatia albofarinosa*. A: Plant. B: Flower. C: Dorsal sepal. D: Petal. E: Labellum in profile. F: Labellum from above. G: Colume. A and B-G to respective scales. ACG drawn from *Hooker & Thomson 2329* (K) and BDEF from *Kerr 259* (K).

Distribution: India; Thailand.

Additional specimens examined: INDIA—Sikkim, Lakha, 1830m, August 1889, *Pantling 295* (AMES); Khasia Hills, Pomrang, 19 September 1850, *J.D. Hooker & T. Thomson 2329* (K).

Notes: This species is most closely related to *P. laxiflora* (Blume) Lindl. from which it differs by the aspect of the leaves which are more distinctly tapered toward the apex and it also has longer floral bracts. From the Taiwanese endemic *P. formosana* Rolfe [Type: *Henry 1349* (K!)] it is distinguished by the obliquely ovate (not evenly ovate-elliptic) petals, lip with two indistinct patches of farinose hairs (vs. two distinct patches of papillose pubescence) and the prominent uncinuate rostellum.

Phreatia albofarinosa along with *P. jayaweerae* and *P. palmifrons* belong to sect. *Plexaure* (Endl.) Benth. which is characterised by the stemless habit with the leaves arranged in a fan. The type of sect. *Plexaure* is *P. limenophylax* (Endl.) Benth. from Norfolk Island. The latter taxon has been regarded as a poorly known species but study of an isotype [*Bauer s. n.* (K!)] shows that *P. pachyphylla* Schltr. from New Caledonia and Fiji is a later synonym. Halle (1977) has excellently illustrated *P. limenophylax* under the later name *P. pachyphylla*.

2. *Phreatia jayaweerae* Ormd., sp. nov.

Fig. 2

Type: Sri Lanka - Rangala, Corbet's Gap, 6 September 1969, *Jayaweera 3070* (holotype: K!).

Species nova subsimilis P. limenophylax (Endl.) Benth. sed labello floribus unguiculatus differt.

Stemless epiphytic herb. Roots fasciculate, terete. Leaves arranged in a small fan, 4-6, fleshy, longitudinally folded, ligulate, apex inequally lobed, 6-28 mm long, 2-4 mm wide; sheaths striate, imbricate. Inflorescence axillary, slightly complanate-alate, 6-25 mm long; peduncle 4-11 mm long; rachis subaxly 3-10-flowered, 3-12 mm long; floral bracts erect, ovate-lanceolate, acute, to 2 mm long. Pedicellate ovary clavate, glabrous, 2 mm long. Flowers greenish-yellow, glabrous. Dorsal sepal broadly ovate-elliptic, subacute, 1.2 mm long, 1mm wide. Lateral sepals broadly and inequally ovate-elliptic, subacute, 1.2 mm long, 1.2 mm wide, forming with the columnfoot a mentum 0.5 mm long. Petals oblong-obovate, obtuse, lower margin with a subapical acute tooth, 1 mm long, 0.5 mm wide. Labellum with a fleshy obcuneate claw, lamina pentagonal-subquadrate, truncate, 1 mm long (including 0.3 mm long claw), 0.75 mm wide. Column 0.5 mm long; columnfoot 0.3 mm long.

Distribution: Sri Lanka.

Additional specimens examined: SRI LANKA—Raxawa Estate, near Doloshage, 30 August 1969, *Jayaweera 3060* (AMES); Kiriwanaeliya, near Norton Bridge, 7 August 1969, *Jayaweera 3043* (AMES).

Notes: This species is somewhat similar to *P. limenophylax* (Endl.) Benth. from Norfolk Island, New Caledonia and Fiji. However it differs from *P. limenophylax* in having a clawed (not sessile) labellum.

3. *Phreatia millikenii* Ormd., sp. nov.

Fig. 3

Type: Indonesia - Sulawesi, Dumoga Bone National Park, Distr. Bolaang-Mongondow, vicinity of Gunung Sinumbayuga, 1750 m, 29 September 1991, *Milliken 1125* (holotype: K!, isotype: K!).

Phreatia elongata auct. non Schltr.: Thomas & Schuiteman, Lindleyana 17, 1: 49, 2002.

Affinis P. schoenorchis J.J.Sm. sed labello floribus obtuso-shoveliformis (non subquadrato-emarginatis) differt.

Caespitose epiphytic herb. Stems terete, rooting from lower internodes and at base, covered in leaf sheaths, laxly 7-15-leaved, 17.5-31 cm long, 0.2-0.45 cm thick (including leaf sheaths). Leaves linear-ligulate, minutely, inequally and obtusely bilobed, 9.1-11.2 cm long, 0.9-1.2 cm wide; leaf sheaths tubular, finely striate and rugulose in dry state, 1.4-1.8 cm long. Inflorescences axillary, glabrous, 13.5-17.3 cm long; peduncle 7.5-8.5 cm long; sheathing bracts lax, 4-5, the lower 2-3 tubular, the upper two bracteiform, 0.45-1.05 cm long; rachis subaxly many-flowered, 6-8.8 cm long; floal bracts elliptic, acute, 3 mm long, 1mm wide. Pedicellate ovary clavate, glabrous, 3-3.5 mm long. Flowers white, glabrous. Dorsal sepal

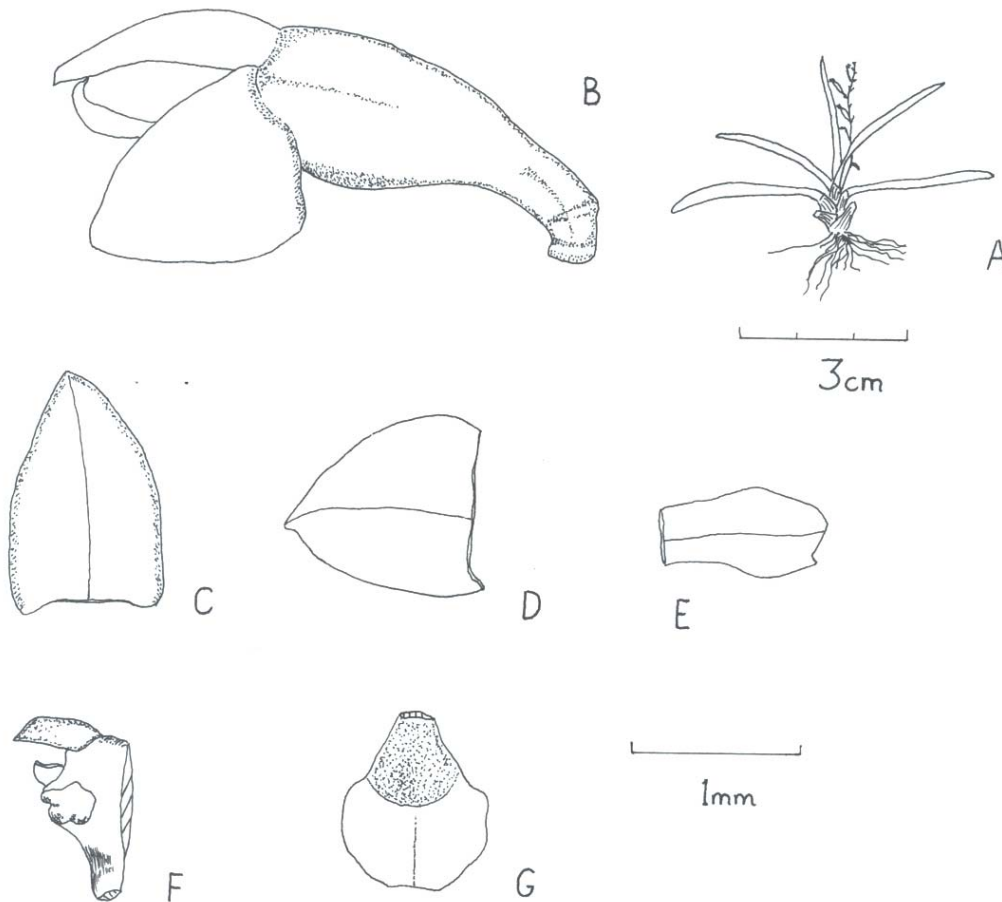


Fig. 2. *Phreatia jayaweerae*. A: Plant. B: Flower. C: Dorsal sepal. D: Sepal. E: Petal. F: Collum. G: Labellum. A and B-G to respective scales. Drawn from holotype.

ovate, acute, 2.5 mm long, 1.3-1.4 mm wide. Lateral sepals broadly ovate-deltate, acute, 2.5 mm long, 1.9-2 mm wide, forming with the columnfoot a mentum 1 mm long. Petals elliptic, acute, 2 mm long, 1.1 mm wide. Labellum shoveliform, rounded, triveined; claw canaliculate, 0.7 mm long, 0.5 mm wide unspread; lamina softly white furfuraceous above, 1.3 mm long, 2 mm wide. Column 1 mm long to tip of rostellum, 1.2 mm long to tip of anther cap; columnfoot 1 mm long.

Distribution: Indonesia (Sulawesi). Habitat: Montane forest on the ridge crest below the summit of the mountain.

Notes: This species belongs to sect. *Caulophreatia* Schltr. and is the first endemic taxon of this group to be described from Sulawesi. It is closely related to *P. schoenorchis* J.J.Sm. from the Moluccan island of Buru but it differs from that species in having a rounded shoveliform (not subquadrate, shallowly emarginate) labellum and column with a prominently protruding (vs. not protruding) stigmatic structure.

4. *Phreatia palmifrons* Ormd., sp. nov.

Fig. 4

Type: Thailand - Kao Kio Range, Satut, 700 m, 13 March 1928, *Kerr 0534* (holotype: K!, isotype: K!).

Affinis *P. densiflora* (Blume) Lindl. *sed foliis latioribus (ad 2.05 vs. 1.6 cm) differt.*

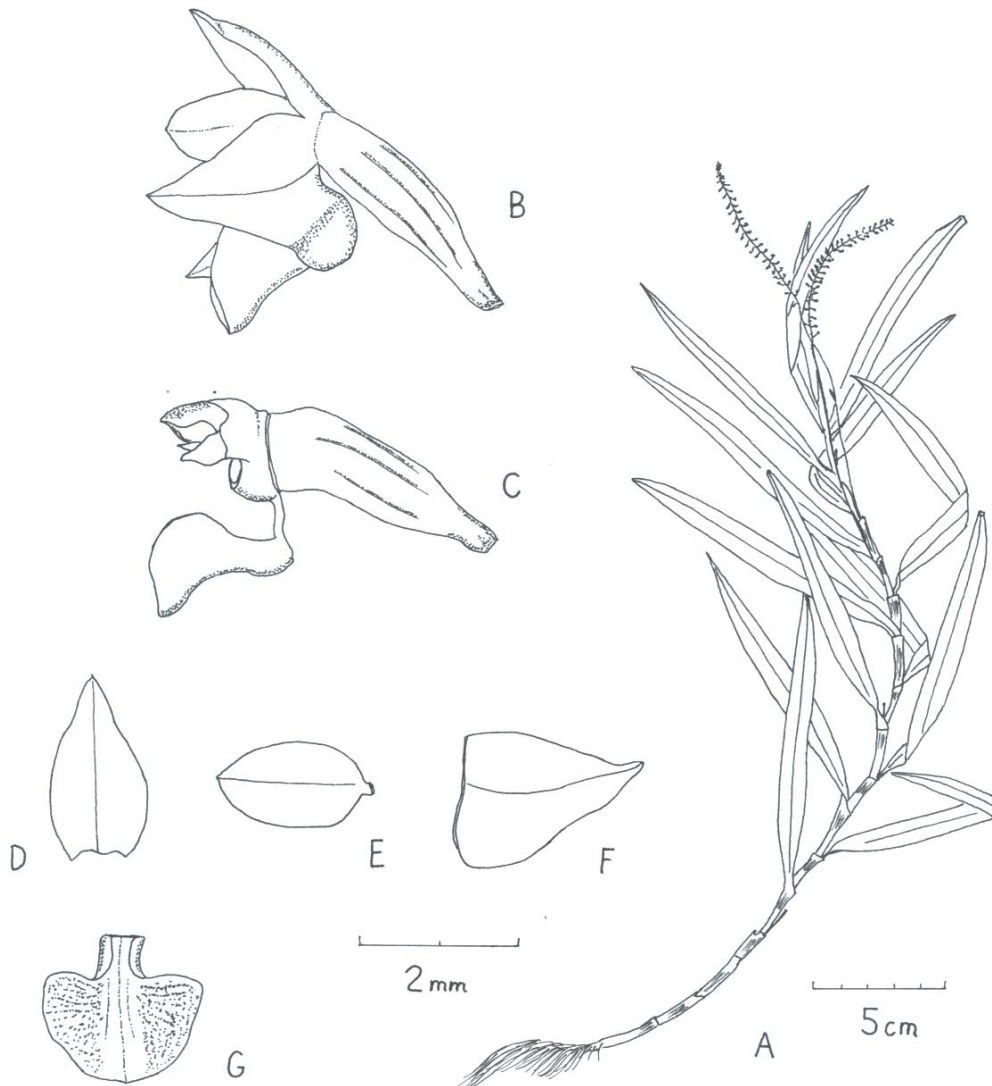


Fig. 3. *Phreatia millikenii*. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum. A and B-G to respective scales, Drawn from holotype.

Stemless epiphytic herb. Roots fasciculate, terete, 1-2 mm thick. Leaves arranged in a fan, up to nine, ligulate, inequally obtusely bilobed, 16.8-18.4 cm long, 1.6-2.05 cm wide; sheaths 2.5-4 cm long. Inflorescence axillary, 19.3-28 cm long; peduncle 12-20.2 cm long; sheathing bracts four, lax, 0.4-1.8 cm long; rachis densely manyflowered, 6.2-7.3 cm long; floral bracts ovate-deltate, acute, 2.5-3.5 mm long. Pedicellate ovary clavate, glabrous, 2-2.5 mm long. Flowers glabrous, probably white. Dorsal sepal broadly ovate, subacute, 1.2 mm long, 1 mm wide. Lateral sepals obliquely ovate, subacute, 1.2 mm long, 1 mm wide. Petals obliquely ovate, obtuse, 1 mm long, 0.7 mm wide. Labellum broadly clawed, lamina trapeziform, obtuse, trinerved, with two circular subapical spots, 1.2 mm long and wide. Column short, slightly arcuate, ca. 0.5 mm long; columnfoot freepart ca. 0.5 mm long.

Distribution: Thailand.

Notes: This species is related to *P. densiflora* (Blume) Lindl. but it is a more robust plant with somewhat more coriaceous, broader leaves and has flowers with a distinctly clawed lip lamina. In *P. densiflora* the lip appears to be more or less peltate without a distinct claw.

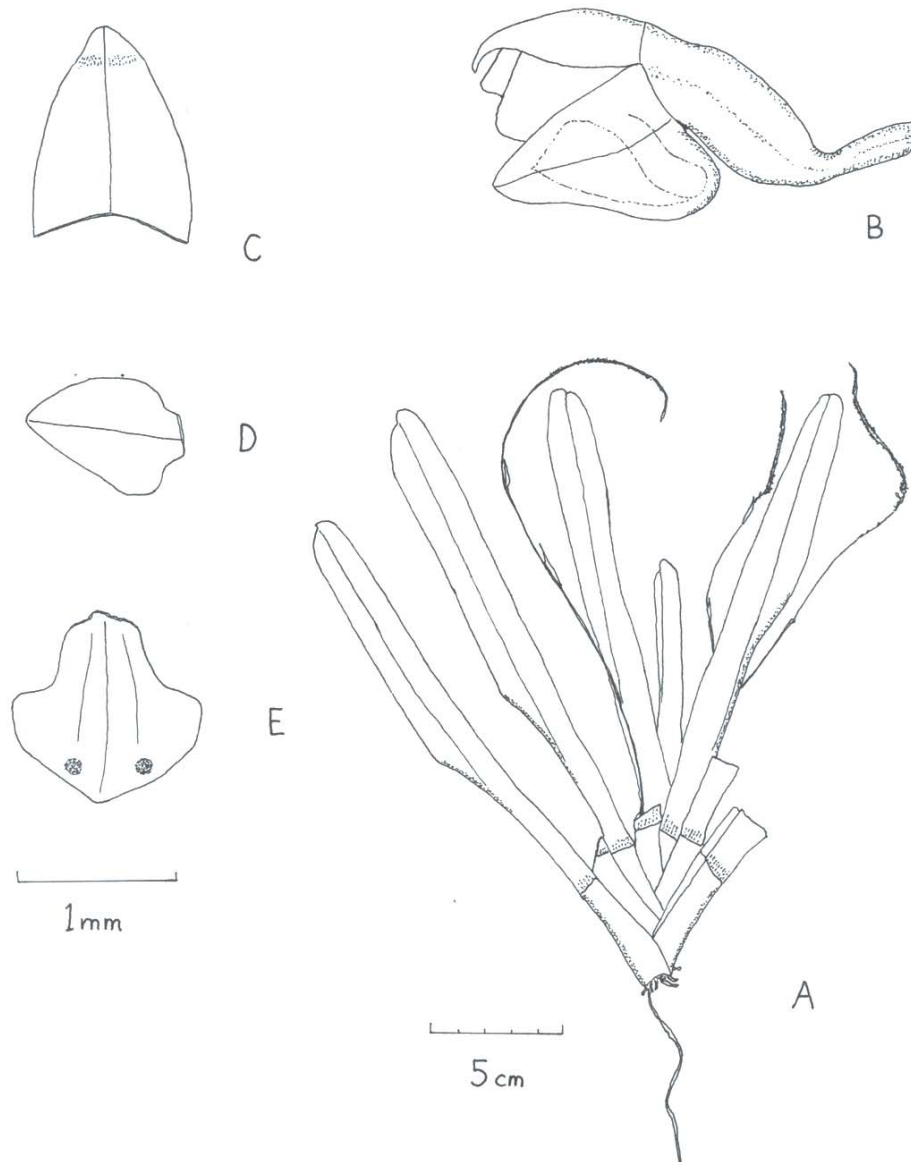


Fig. 4. *Phreatia palmifrons*. A: Plant. B: Flower. C: Dorsal sepal. D: Petal. E: Labellum. A and B-E to respective scales. Drawn from holotype.

It is likely the plant recorded from Peninsula Thailand by Seidenfaden (1986) as *P. densiflora* is referable to *P. palmifrons*. Seidenfaden's figure differs from mine of *P. palmifrons* in showing that the lip is broadly rhombic but I suspect that this is an artifact arising from the difficulty in drawing the tiny floral parts. Records of *P. densiflora* from Peninsula Malaysia (eg. Ridley, 1907) need to be re-evaluated since the material seen is more robust than the Javanese plant and it has a somewhat broadly clawed late rhombic - obtuse lip.

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芙樂蘭（蘭科）註記

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摘 要

在檢視亞洲芙樂蘭的標本中，發現了四種新種，即：*P. albofarinosa*, *P. jayaweerae*, *P. millikenii* 與 *P. palmifrons*。

關鍵詞：蘭科、芙樂蘭屬、新種。

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