

NOTES ON GOODYERINAE (ORCHIDACEAE) – I

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SUMMARY

Goodyera subregularis (Rchb. f.) Schltr. from New Caledonia and Vanuatu is transferred to *Anoectochilus*. A non-peloric *Anoectochilus*, possibly the normal form of *A. papuanus* (Schltr.) Kittr., is recorded from New Guinea for the first time. *Platylepis bombus* J.J. Sm. and *P. tidorensis* J.J. Sm. are transferred to *Moerenhoutia*. The genus *Tubilabium* J.J. Sm. is reduced to *Myrmechis* Blume and the two species of the former are transferred. *Cheirostylis quadrilobata* Schltr. and *C. chalmersii* (Schltr.) Schltr. are also transferred to *Myrmechis*. The genus *Myrmechis* was not previously recorded from Sulawesi and New Guinea. *Papuaea reticulata* Schltr. is newly recorded from Irian Jaya; this monotypic genus is here illustrated for the first time. *Odontochilus calcaratus* Hook. f. is reduced to *Pristiglottis uniflora* (Blume) Cretz. & J.J. Sm.

INTRODUCTION

The genera of the subtribe Orchidaceae–Goodyerinae are almost exclusively distinguished on the basis of floral details. The following characters are, among others, of potential diagnostic value: resupination of the flower; presence or absence of a spur; ornamentation of the lip (shape and location of papillae, warts, or glands); appendages and lamellae of the column; whether or not the stigma-lobes are separate or connate. These characters are not always easily observable; dried material in particular is often difficult to interpret. It is not surprising, therefore, that many misidentifications occur in herbaria.

Below I present some results of my investigations of material preserved at the Rijksherbarium at Leiden (unless indicated otherwise). Also included are the results of some observations made during a recent visit to Kew, which took place after the completion of a prior version of this article. Specimens cited are limited to those which had not been properly identified. The illustrations, drawn by the author, were prepared from rehydrated herbarium material; a certain degree of distortion should be taken into account.

NOTES ON SELECTED GENERA

ANOECTOCHILUS Blume

The genus *Eucosia* Blume was based on what appears to be an abnormal, autogamous form of *Goodyera viridiflora* (Blume) Blume, as noted by J.J. Smith (1905: 131). Schlechter initially agreed that *Eucosia* should be considered a synonym of *Goodyera*, and transferred the only species, *E. carnea* Blume, to *Goodyera* (creating an

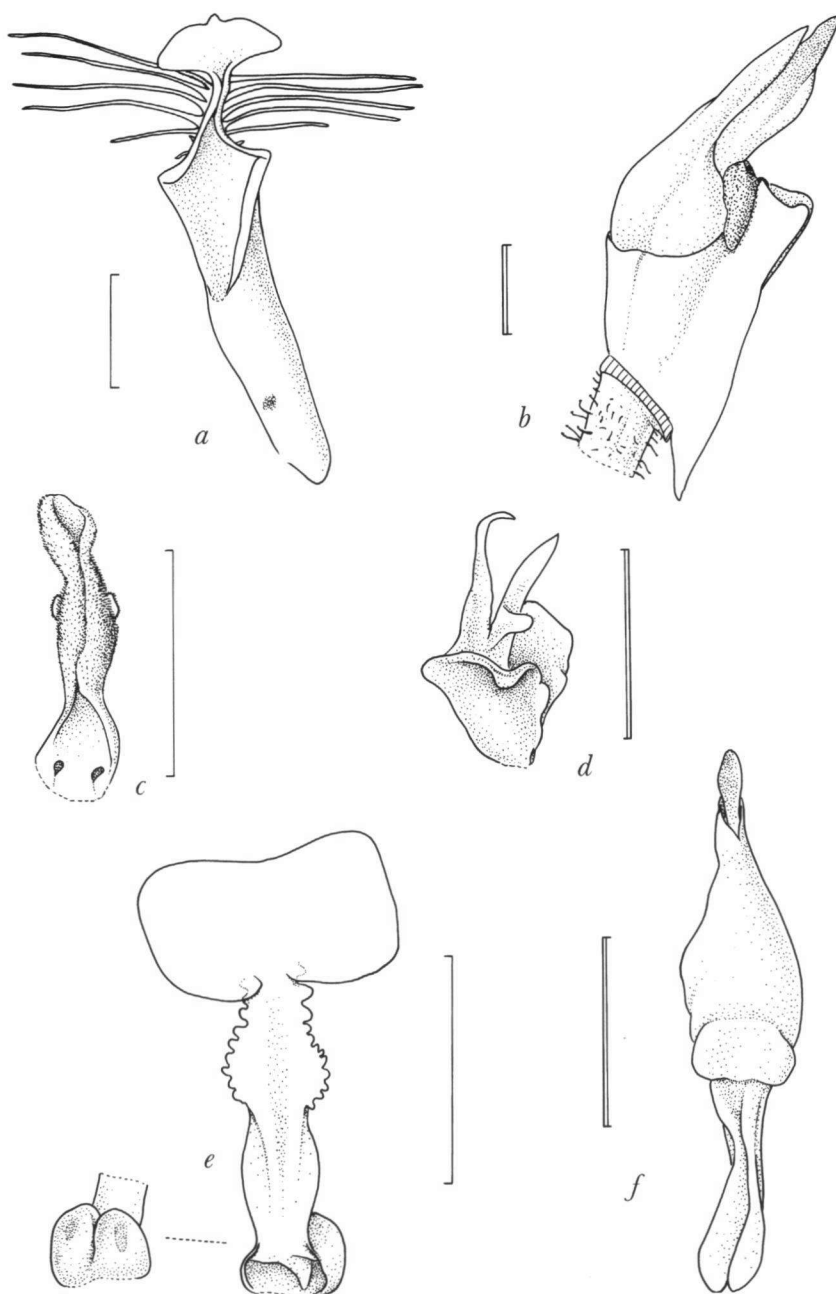


Fig. 1. *Anoectochilus ?papuanus* (Schltr.) Kittr. a. Lip, spread; b. column, lateral view. — *Myrmechis bilobulifera* (J.J. Sm.) Schuit. c. Lip, spread; d. column, lateral view. — *Pristiglottis uniflora* (Blume) Cretz. & J.J. Sm. e. Lip, spread; f. column, ventral view (a, b: van Royen & Sleumer 6253; c, d: Bünnemeijer 12279; e, f: de Wilde & de Wilde-Duyffes 13833). — Single scale bar = 5 mm; double scale bar = 2 mm.

illegitimate name). A few years later he changed his mind, and referred two orchids from New Guinea and New Caledonia to the genus *Eucosia* [*E. papuana* Schltr. and *E. subregularis* (Rchb. f.) Schltr. respectively].

Eucosia papuana and *E. subregularis* are undoubtedly peloric forms, having a petaloid lip. Unlike in *Eucosia carnea* the lip in these two species is glabrous and the column is normal. The broad leaves with reticulate metallic veins, the glabrous lip, as well as the column with anterior lamellae and separate stigma-lobes, indicate that these two species are not abnormal forms of *Goodyera*, but rather of *Anoectochilus*. This was recognized by Kirtledge in the case of *Eucosia papuana*, which he transferred to *Anoectochilus*.

In recent literature, *Eucosia subregularis* has been treated as a species of *Goodyera*, although it too is clearly an *Anoectochilus* with a petaloid lip. Schlechter himself (1906: 54) already suggested that *Goodyera subregularis* might be a peloric form of *Anoectochilus imitans* Schltr. Hallé (1977: 530) also comments upon the remarkable similarity between the two species.

There is an interesting problem associated with these peloric forms. The very term peloric form presupposes the existence of a normal form. Now, in New Guinea as well as in New Caledonia a 'normal' *Anoectochilus* does occur. In New Caledonia this was named *A. imitans*; the correct name for the New Guinea species has not yet been established with certainty. Each of these could be the normal form of the sympatric peloric form; the problem is, how can we tell? In habit they all appear to be indistinguishable. In *Anoectochilus* most of the diagnostic characters are found in the morphology of the lip, but these characters are not expressed in a peloric specimen. In fact, even though the normal forms from New Caledonia and New Guinea are clearly distinct species, the two peloric forms appear to be indistinguishable. Are we dealing with two, three, or four species? Morphology alone cannot help us here. It would seem that only a molecular analysis may bring clarity about the actual number of taxa involved.

From New Guinea I have so far seen only one collection of a 'normal' *Anoectochilus* (see below, under *A. papuanus*). Other collections are either sterile or represent the peloric form, which, remarkably, appears to be more common than the putative normal form. The two forms have not yet been found together.

***Anoectochilus papuanus* (Schltr.) Kirttr., Bot. Mus. Leaflet. 30, 2 (1985, '1984') 95**
— Fig. 1a, b

Eucosia papuana Schltr., Feddes Repert., Beih. 1 (1911) 76; *ibid.* 21 (1923) t. 31, f. 103; Howcroft, The Orchidaceae (in part), in Johns & Hay, A student's guide to the Monocotyledons of Papua New Guinea, Part 4 (1984) 62, f. 34.

Distribution — New Guinea (Papua New Guinea; Irian Jaya: ? *van Royen & Sleumer* 6253).

Note — The specimen cited and illustrated, which, unlike the type of *A. papuanus*, is clearly not a peloric form (hence the identification is uncertain), is florally similar to *A. setaceus* Blume and *A. longicalcaratus* J.J. Sm. From the first it differs in the longer spur and smaller epichile of the lip, from the second in the smaller epichile, the lobes of which taper instead of widen to the apex. The morphology of the inflo-

rescence and the vegetative parts, including the venation of the leaves, are indistinguishable from those of an isotype specimen of *Eucosia papuana* (Schlechter 17361). I consider it likely that this is the normal form of *A. papuanus*.

Anoectochilus subregularis (Rchb. f.) Schuit., *comb. nov.*

Georchis subregularis Rchb. f., Linnaea 41 (1877) 61. — *Orchiodes subregularis* (Rchb. f.) Kuntze, Rev. Gen. (1891) 675. — *Goodyera subregularis* (Rchb. f.) Schltr., Bot. Jahrb. Syst. 39 (1906) 58; Hallé, Fl. Nouv. Caléd. 8 (1977) 528, t. 208; Lewis & Cribb, Orch. Vanuatu (1989) 28. — *Epipactis subregularis* (Rchb. f.) A. Eaton, Proc. Biol. Soc. Washington 21 (1908) 66. — *Eucosia subregularis* (Rchb. f.) Schltr., Bot. Jahrb. Syst. 45 (1911) 394.

Distribution — Vanuatu, New Caledonia.

Note — If this species is found to be conspecific with *A. imitans*, the name *A. subregularis* will have priority.

MOERENHOUTIA Blume

All recent authors agree that the genus *Moerenhoutia* Blume, distributed from the Moluccas to Tahiti, is distinct from the genus *Platylepis* A. Rich., which occurs from tropical Africa and Madagascar to the Seychelles. The differences between the two genera (each with about ten species) are admittedly small; *Platylepis* lacks the lamellae present on the hypochile of the lip of *Moerenhoutia*, as well as the lateral wings found near the top of the column of the latter. However, in conjunction with the enormous distance between the respective areas these differences do in my opinion justify these genera to be kept apart. This necessitates the following transfers.

Moerenhoutia bombus (J.J. Sm.) Schuit., *comb. nov.*

Platylepis bombus J.J. Sm., Bull. Jard. Bot. Buitenzorg III, 10 (1928) 100; *ibid.* Suppl. 3 (1949) t. 153, f. I.

Distribution — Moluccas.

Moerenhoutia tidorensis (J.J. Sm.) Schuit., *comb. nov.*

Platylepis tidorensis J.J. Sm., Bull. Jard. Bot. Buitenzorg III, 11 (1930) 68; *ibid.* Suppl. 3 (1949) t. 153, f. II.

Distribution — Moluccas.

MYRMECHIS Blume

When describing *Tubilabium*, J.J. Smith (1928) noted the close habitual similarity between his new genus and *Myrmechis*. He considered the following characters to be diagnostic for *Tubilabium*:

- 1) Apical part of the lip tubular, papillose, not dilated into a midlobe.
- 2) Column recurved.

The diagnostic value of the first is, in my opinion, invalidated by the existence of species of *Myrmechis* with a lip combining a tubular papillose mesochile and a clearly dilated epichile (see Fig. 2). In *Tubilabium* the epichile is poorly developed, but there is no essential difference in morphology (if a snail should eat the epichile of a flower of *Myrmechis chalmersii* it would almost turn it into a flower of *Tubilabium bilobuliferum*). The recurved column is a weaker character still; in this respect, too, *M. chalmersii* can be cited as a species bridging *Tubilabium* and *Myrmechis*. The two species of *Tubilabium* (transferred to *Myrmechis* below) are still known from the type collections only (both at L).

All species of *Myrmechis* occur as terrestrials in montane forest, sometimes also as epiphytes on mossy logs and tree trunks.

Myrmechis aurea* (J.J. Sm.) Schuit., *comb. nov.

Tubilabium aureum J.J. Sm., Bull. Jard. Bot. Buitenzorg III, 9 (1928) 446; *ibid.* Suppl. 3 (1941) t. 149, f. I.

Distribution — Moluccas.

***Myrmechis bilobulifera* (J.J. Sm.) Schuit., *comb. nov.* — Fig. 1c, d**

Tubilabium bilobuliferum J.J. Sm., Bull. Jard. Bot. Buitenzorg III, 10 (1928) 6; *ibid.* Suppl. 3 (1941) t. 148, f. III.

Distribution — Sulawesi.

Note — *Myrmechis* was not previously recorded from Sulawesi. See also *M. quadrilobata*.

Myrmechis chalmersii* (Schltr.) Schuit., *comb. nov.

Zeuxine chalmersii Schltr., Bull. Herb. Boiss. II, 6 (1906) 297. — *Cheirostylis chalmersii* (Schltr.) Schltr., Feddes Repert. 10 (1911) 11.

Distribution — New Guinea (no material seen).

Notes — 1. This is the first record of the genus *Myrmechis* from New Guinea.

2. Judging from Schlechter's description, this species is very similar to the species illustrated here as *M. aff. chalmersii* (see below).

3. See also the note under *M. quadrilobata*.

***Myrmechis aff. chalmersii* (Schltr.) Schuit. — Fig. 2**

Distribution — Moluccas (Bacan: *de Vogel* 3589, 3589B); Lesser Sunda Islands (Flores: *Kostermans & Wirawan* 670; *Schmutz* 5526B).

Notes — 1. The specimens cited agree fairly well with Schlechter's description of *M. chalmersii*, but due to the lack of material and illustrations of the latter a positive identification cannot yet be made.

2. The rostellum in the flowers I have examined is oddly asymmetric: the two acuminate arms are of unequal size; in addition, there is a ventral linear-oblong ligule at the base of the smaller of the two arms. This ligule, which is not found with the

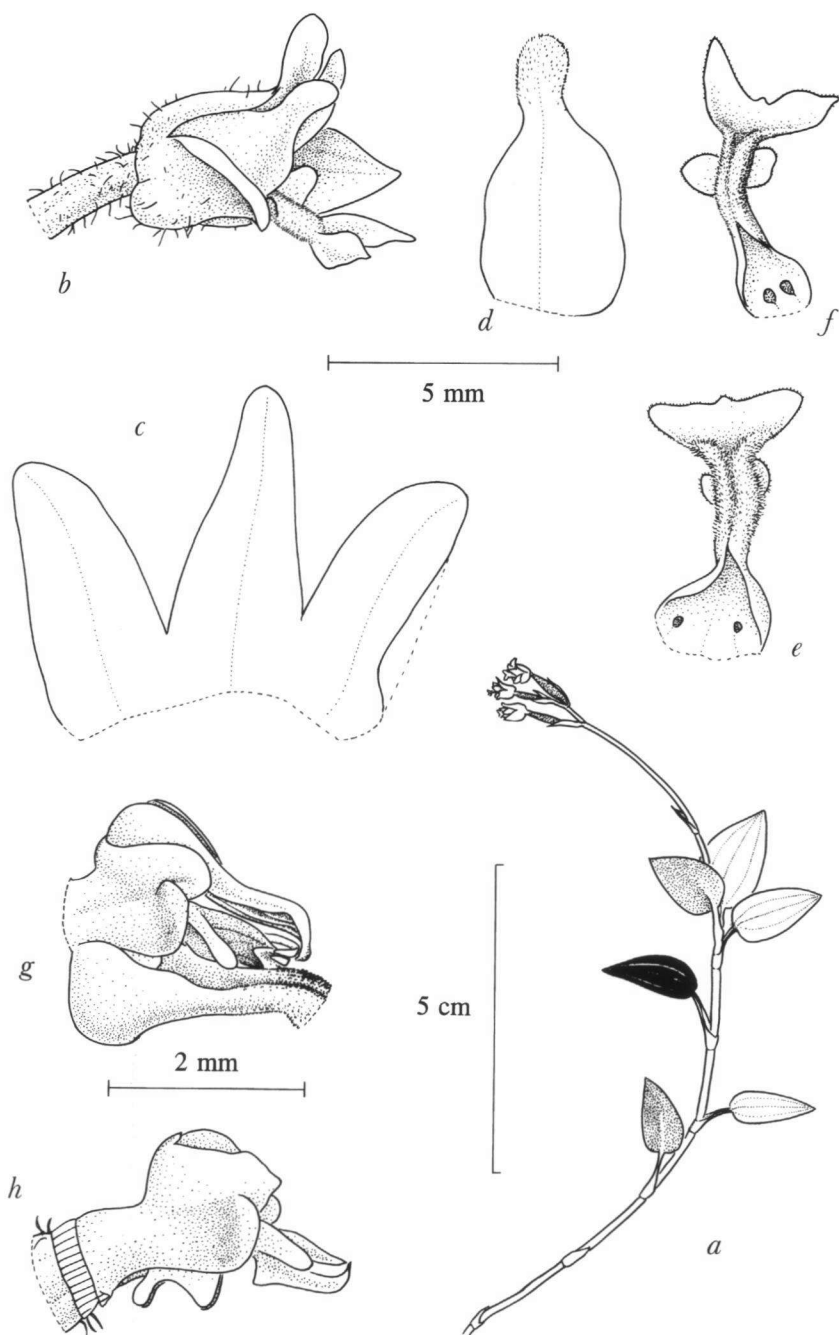


Fig. 2. *Myrmechis* aff. *chalmersii* (Schltr.) Schuit. a. Habit; b. flower; c. sepals; d. petal; e, f. lip, spread; g. column and base of lip; h. column (a, c–e: *de Vogel* 3589B; b, f–h: *Kostermans & Wirawan* 670).

second rostellar arm, is also observed in *M. bilobulifera* (see Fig. 1d). I believe it is present in the type (the only available material) of *M. seranica*, but due to the state of preservation of the latter I am not entirely certain. It has been a considerable source of frustration to me that almost no spirit material has been collected of these and related species. There is no other group of orchids in Malesia of which spirit material is as urgently needed as it is in the Goodyerinae.

Myrmechis quadrilobata* (Schltr.) Schuit., *comb. nov.

Cheirostylis quadrilobata Schltr., Feddes Repert. 10 (1911) 11; Feddes Repert. Beih. 74 (1934) t. 7, f. 27.

Distribution — Sulawesi (*Schlechter 20431*, isotypes at L [sterile] and K).

Note — Schlechter described this species and *M. chalmersii* in *Cheirostylis*, apparently on the strength of the sepals being connate at the base. However, in *Cheirostylis* the three sepals are mutually connate for about two-thirds of their length, forming a distinct tube. In *Myrmechis* the sepals, if not free, are only connate in the basal part, and the lateral sepals are almost free from each other. *Myrmechis seranica* J.J. Sm., for example, has connate sepals similar to *M. quadrilobata*. More important, in *Cheirostylis* the universal presence of two elongated blade-like appendages on the column (just below and parallel with the two arms of the rostellum) is probably a uniquely derived character state of the genus (although sometimes *one* appendage is present in *Myrmechis*). In addition, *Cheirostylis* nearly always has an abruptly swollen rhizome (which *Myrmechis* never has); obovoid ovaries (narrowly fusiform in *Myrmechis*); dentate to lacinate lobes of the epichile (entire lobes in *Myrmechis*); stigma-lobes which are turned to the dorsal side of the column (on lateral arms pointing to the distal part of the column). In all these respects, *M. chalmersii* and *M. quadrilobata* match *Myrmechis* rather than *Cheirostylis*. Additional differences between *Myrmechis* and *Cheirostylis* may be found in the morphology of the rostellum and the pollinarium; I would tentatively suggest that in *Cheirostylis* a true stipe occurs, whereas in *Myrmechis* the pollinia are attached to caudicles only.

PAPUAEA Schltr.

Possibly the most obscure orchid genus in Malesia, the monotypic *Papuaea*, was until now only known from Schlechter's original description. The type material, *Kempf s.n.* from the Waria River area in Papua New Guinea, is probably lost. The genus, here illustrated for the first time, is well characterized by the following set of characters: flowers glabrous, not resupinate; lip abaxially along the apical margins with a coarsely crenate crest (which is probably homologous with the lateral flange on the mesochile found in *Anoectochilus* and other genera), not spurred; stigma lobes connate, rostellum elongated. The leaves have whitish reticulate veins. *Papuaea* was overlooked by Howcroft (1984).

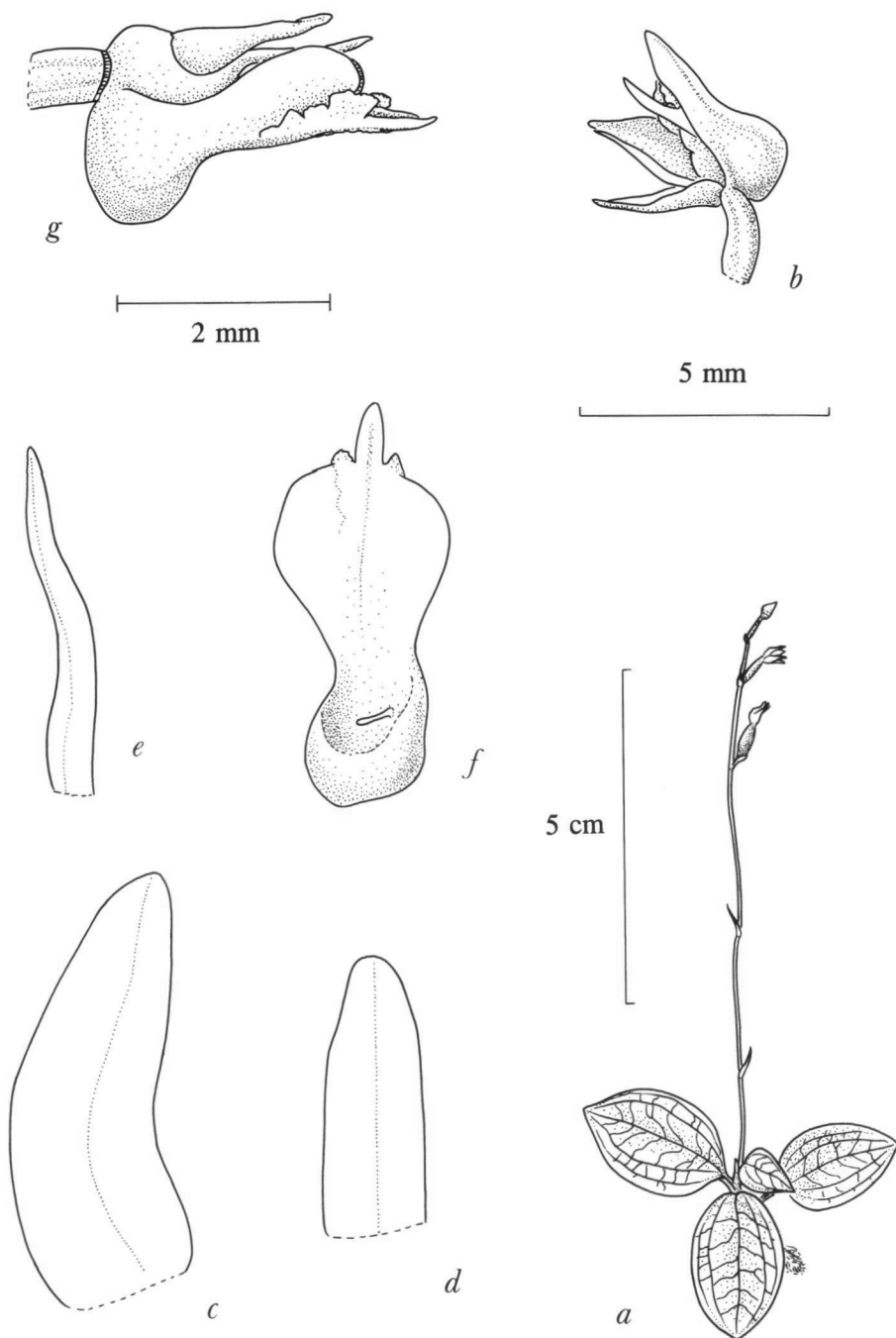


Fig. 3. *Papuaea reticulata* Schltr. a. Habit; b. flower; c. lateral sepal; d. dorsal sepal; e. petal; f. lip, spread; g. column and lip (all from Schram BW 9312).

Papuaea reticulata Schltr. — Fig. 3

Papuaea reticulata Schltr., Feddes Repert. 16 (1919) 105.

Distribution — New Guinea (Papua New Guinea: *Reeve 4290* [K]; Irian Jaya: *Schram BW 9312*).

Notes — 1. The single flower of *Schram BW 9312* examined by me was partly damaged; as a result the shape of the column as given in the drawing is only approximately accurate. The presence of only one, instead of two interior papillae on the lip is probably anomalous (Schlechter refers to a pair of sessile calli). I did not want to dissect more flowers of the sparse material at hand (which had been identified as *Macodes* sp.). There are a few minor differences between Schlechter's description and the specimen illustrated (e.g., the sepals are not ovate in the latter), but I do not think these are sufficiently large to doubt the identification of the species. Again, spirit material would be most welcome.

2. *Schram BW 9312* was collected c. 200 km west of Jayapura in primary forest on sandy clay at 380 m altitude. The flowers were yellow. *Reeve 4290* originates from Erave, Southern Highlands Province, at 1200 m. The flower colour was not recorded.

PRISTIGLOTTIS Cretz. & J.J. Sm.**Pristiglottis uniflora** (Blume) Cretz. & J.J. Sm. — Fig. 1e, f

Pristiglottis uniflora (Blume) Cretz. & J.J. Sm., Acta Faun. Fl. Univ. Bucuresti II, Bot. 1, 14 (1934) 6. — *Cystopus uniflorus* Blume, Fl. Javae n.s. (1858) 69, t. 21, f. 1; t. 23G. — *Anoectochilus uniflorus* (Blume) Miq., Fl. Ind. Bat. 3 (1859) 733. — *Odontochilus calcaratus* Hook. f., Fl. Brit. India 6 (1890) 99; Ic. Pl. (1894) t. 2162, syn. nov. — *Cystopus calcaratus* (Hook. f.) Kuntze, Rev. Gen. 2 (1891) 658. — *Anoectochilus calcaratus* (Hook. f.) Ridley, Mat. Fl. Malay Penins. 1 (1907) 214; Seidenf., Dansk Bot. Ark. 32, 2 (1978) 46, f. 21; Seidenf. & J.J. Wood, Orchids Penins. Malaysia and Singapore (1992) 75, f. 26 h–j.

Distribution — Thailand, Peninsular Malaysia, Sumatra (*de Wilde & de Wilde-Duyffes 13833*).

Note — Until now *Pristiglottis uniflora* was only known from the meagre type specimen, *Korthals s.n.*, collected more than a century ago in Sumatra. It is a highly characteristic, tiny species, with erect stems carrying distant, very small leaves (5–9 mm long). At first sight it strongly resembles *Myrmechis gracilis* (Blume) Blume. The inflorescence, commonly 1-flowered, may be up to 3-flowered. The bilobed recurved sac at the base of the lip is unique in the genus (and has caused some confusion among botanists). In other respects this is a typical species of *Pristiglottis*, as Blume, who was keenly interested in this group of orchids, already established (using the name *Cystopus*). Blume's, Hooker's, and Seidenfaden's illustrations agree quite well, differing slightly in the proportions of the epichile, and I have no doubt that *Odontochilus calcaratus* should be reduced to synonymy.

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