

PRECURSOR TO A REVISION OF THE GENERA ENTOMOPHOBIA (gen. nov.),
GEESINKORCHIS (gen. nov.), NABALUIA AND CHELONISTELE
(ORCHIDACEAE – COELOGYNINAE)

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SUMMARY

Pholidota kinabaluensis is transferred to the new monotypic genus *Entomophobia*. *Coelogyne phaiostele*, *C. ridleyana*, and *Pholidota triloba* are identical and transferred to the new genus *Geesinkorchis*, that also comprises the new species *G. alaticcallosa*. The monotypic genus *Sigmatochilus* is reduced to *Chelonistele*, in which *C. dentifera* and *C. lurida* var. *grandiflora* are described as new. *Chelonistele crassifolia* is regarded as a variety of *C. sulphurea*.

INTRODUCTION

After comparing all species of the *Pholidota*–*Chelonistele* complex and of related genera during revision work on the Coelogyninae, it appeared necessary to describe two new genera, *Entomophobia* and *Geesinkorchis*, to maintain *Pholidota*, *Chelonistele* and *Nabalua*, and to reduce *Sigmatochilus* to *Chelonistele*.

Unique characters, separating the genera here dealt with from the other Coelogyninae, are for

- *Entomophobia*: transverse high callus in the lip combined with adnation of the base of the lip with the column.
- *Geesinkorchis*: pollinarium with a real stipes; several imbricate bracts on top of the raceme, each of these dropping when the subtended flower opens; the numerous flowers produced in succession.
- *Nabalua*: long slender lateral lobes on the front part of the hypochilium; horse-shoe-shaped callus between these lobes.
- *Chelonistele*: lip more or less strongly sigmoid; lateral lobes either absent or developed in the front part of the hypochilium only, never continuing to its very back; keels 2, laterally slanting.

Acknowledgements: Thanks are due to the directors and curators of the following herbaria for the loan of types and other material for this study, and for the hospitality during visits by the author (these herbaria marked *): AMES, B, BM*, BO, BR, CGE*, E, G, K*, KLU, L*, M, NY, P, S, SAN, SING, W.

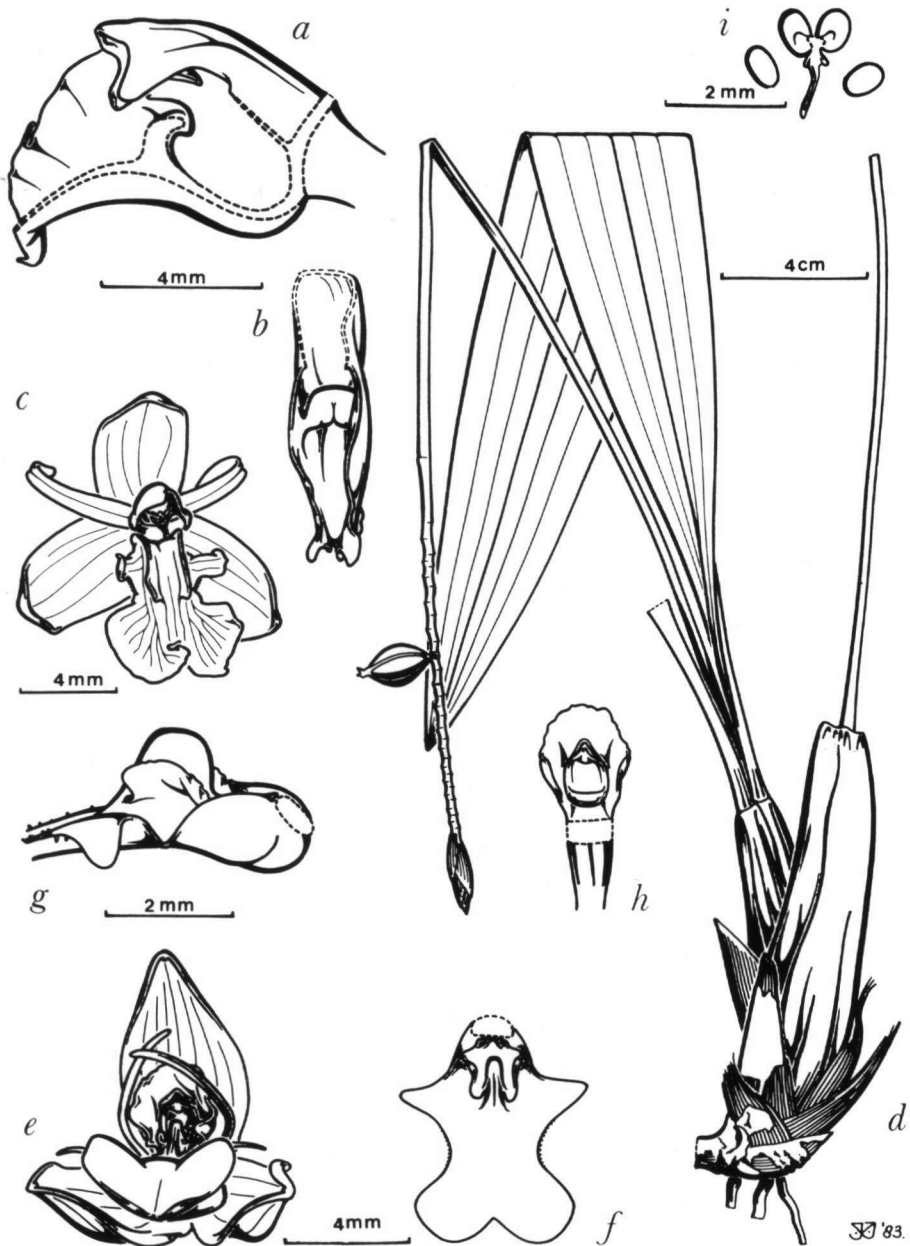


Plate 1. *Entomophobia kinabaluensis* (Ames) de Vogel. a. Column and lip from aside, opened; b. lip from above. — *Geesinkorchis phaiostele* (Ridley) de Vogel. c. Flower. — *G. alaticcalosa* de Vogel. d. Habit; e. flower; f. lip from above; g. lip base from aside; h. column; i. pollinarium with pollinia. — a, b Geesink 9039 (L); c LEI cult. 22090 (Burt & Woods B. 2667) (L); d–i Geesink 8965 (L).

The drawings are made by J.J. Vermeulen (L). Dr. J.F. Veldkamp (L) was so kind to translate the diagnoses into Latin, for which I am much obliged.

Specimens will be cited separately in (Flora Malesiana) 'Identification Lists of Malesian Specimens'.

ENTOMOPHOBIA de Vogel, *gen. nov.*

Floribus aliquantum clausis, labellae marginibus lateralibus columnae dimidio inferiore adnatis, labellae basi profunde saccata, a parte distali callo transversali alto parum flexo carnosio plusminusve cavitate stigmatis accommodato. — *Typus*: *E. kinabaluensis* (Ames) de Vogel.

Flower almost entirely closed. Lateral margins of the lip adnate to the basal half of the column. Base of the lip deeply saccate, separated from the front part by a transverse, high, slightly bent, fleshy callus which more or less fits into the stigmatic cavity.

Distribution. Endemic in Borneo, 1 species.

Ecology. Epiphytes or terrestrials (in litter) on limestone, sometimes in exposed places; at 900–2300 m altitude. Flowering and fruiting in Jan.–May, July, Sept.

Note. The name *Entomophobia* means: fear of insects. Some characters point to an aversion to insects: the closed flowers and the callus blocking the entrance of the stigma; the abundance of fruits suggests self-pollination.

Entomophobia kinabaluensis (Ames) de Vogel, *comb. nov.* — Plate 1a, b.

Pholidota kinabaluensis Ames, Orch. 6 (1920) 68; Carr, Gard. Bull. Str. Settl. 8 (1935) 221. — *Type*: *Clemens 279* (not seen).

GEESINKORCHIS de Vogel, *gen. nov.*

Racemis primo proteranthus multo post pseudobulbum foliosque evolutos elongatibus flores deinceps generantibus, apice aliquot bracteis imbricatis gerentibus, floribus multis uno vel duobus simultaniter florentibus, hypochilio saccato antice bilobato inter alas duas cum vel sine callo, epichilii ungue utraque margine vitta lacinularum pilorumve, pollinario e stipite minuto tenero paulo gracili constanti quattuor poliniis ferenti. — *Typus*: *G. alaticcallosa* de Vogel.

Raceme at first proteranthous, continuing to produce flowers successively till long after the pseudobulb and the leaves are fully developed. Top of the rachis bearing several closely imbricate bracts. Flowers many, one or two open at the same time. Hypochilium saccate, in front two-lobed and there with two wings, with or without a callus. Epichilium at the base narrowed and there at either margin with a dense row of small hairs or finely lacinulate. Pollinarium with a tender, minute, rather slender stipes to which four pollinia are attached.

Distribution. Endemic in Borneo, 2 species. One specimen probably wrongly labelled 'Sumatra, Siberut'.

Ecology. Epiphytes, or terrestrials on podsolic soil or amongst tree roots; at 500–2000 m altitude.

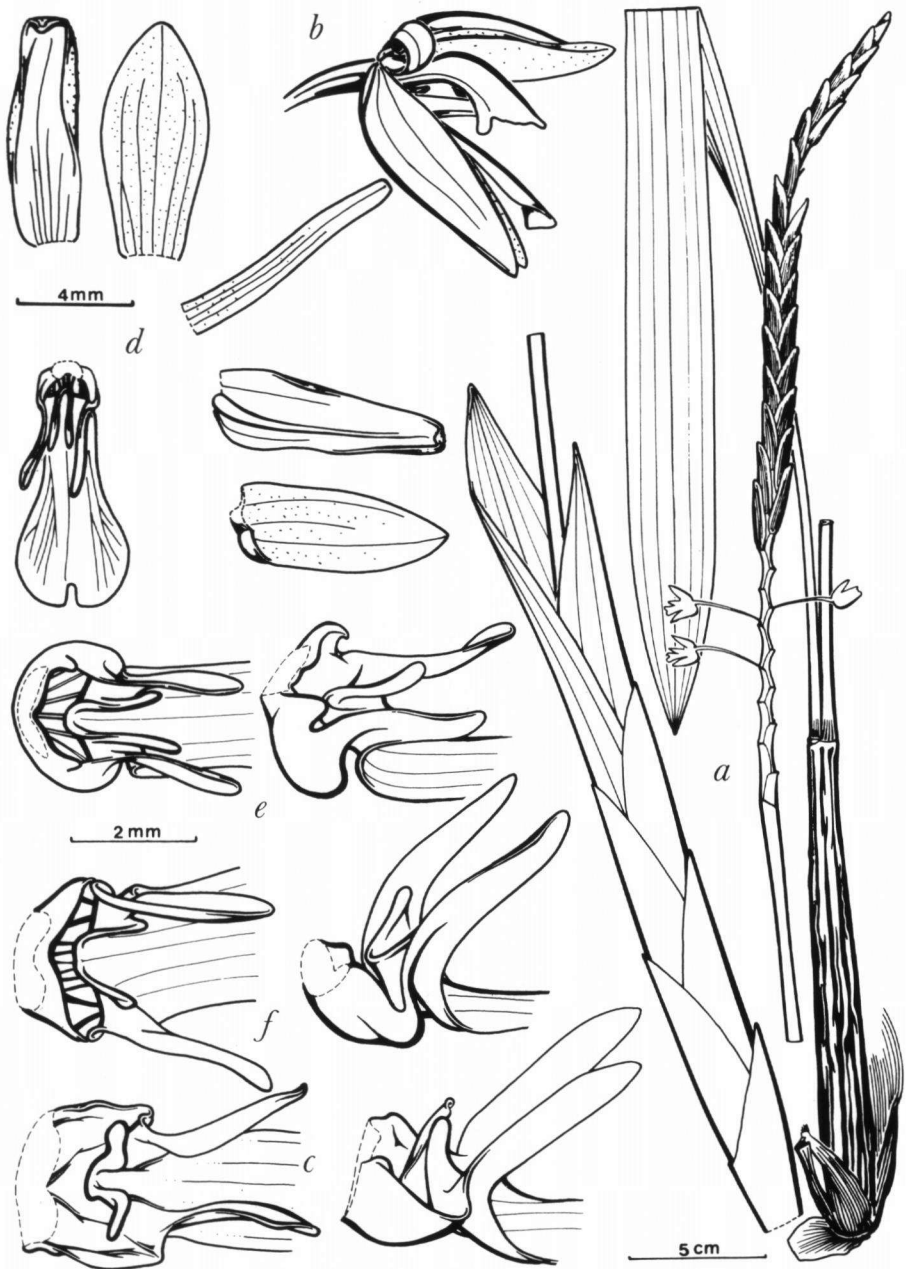


Plate 2. *Nabalua exaltata* de Vogel. a. Habit; b. flower; c. lip base. — *N. angustifolia* de Vogel. d. Flower analysis; e. lip base. — *N. clemensii* Ames. f. Lip base. — a–c Burt & Martin B. 5259 (E); d, e J. & M. S. Clemens 27159 (L); f Moulton 103 (E).

Note. This genus is named after Dr. R. Geesink (L), who made the first ample and adequate collection with flowers preserved in alcohol.

1. *Geesinkorchis phaiostele* (Ridley) de Vogel, *comb. nov.* – Plate 1c.

Coelogyne (sect. *Chelonistele*) *phaiostele* Ridl., J. Str. Br. Roy. As. Soc. 54 (1910) 51 ('*Chelonistele*'). – Syn types: *Lewis s.n.*, vi-1909 (lecto K, here chosen); *Haviland s.n.*, vi-1890 (K); *Hewitt s.n.* (not seen).

Coelogyne ridleyana Schltr, Fedde, Rep. 8 (1910) 561; Fedde, Rep. Beih. 74 (1934) t. 21, f. 84. – Syn types: *Brooks 14* (lecto BM, here chosen; K); *Hewitt s.n.* (not seen).

Pholidota triloba J.J.S., Brittonia 1 (1931) 105; Bull. Jard. Bot. Btzg III, Suppl. 3 (1949) t. 163. – Type: *J. & M.S. Clemens 20398* (holo L; NY).

2. *Geesinkorchis alaticallosa* de Vogel, *spec. nov.* – Plate 1d–i.

Labello pandurato, hypochilio basi concavo antice inter lobis lateralibus convexo ibidem inter alas paulo breves callosus erecto valido lateraliter compresso, columna absque lobis lateralibus. – Type: *Geesink 8965* (holo L; BO).

Lip pandurate. Hypochilium at the base saccate, in front between the lateral lobes convex, and similarly so between the two wing-like keels which are hardly shorter than the sturdy, erect, laterally compressed callus. Column without lateral lobes.

Distribution. Borneo: Kalimantan (Kalimantan Timur), Sarawak (4th Division), Sabah.

Collections seen. *Geesink 8965* (L, BO); *Burt B. 11648* (E), *A. Lamb 97/83* (SAN).

Ecology. Terrestrial; in kerangas vegetation on podsols and amongst tree roots in scrub vegetation on summit of ridge; at 500–900 m altitude. Flowering and fruiting July, Sept.; like the related *G. phaiostele* it produces flowers several months in succession.

Collector's notes. Sepals and petals yellowish brown. Lip whitish with a central brownish patch, callus whitish. Hood of the column very dark brown.

NABALUIA

Nabalua Ames, Orch. 6 (1920) 71, 250, pl. 87. – Type: *N. clemensii* Ames.

Distribution. Endemic in North Borneo, 3 species.

Ecology. Epiphytic or growing on (mossy) rock; at 1450–3150 m altitude.

Note. The species of this genus are closely related; the characters on which they can be distinguished are rather subtle. Since these, however, appear to be constant, even between the two sympatric taxa, I feel justified to keep the three taxa separate at species level.

1. *Nabalua angustifolia* de Vogel, *spec. nov.* – Plate 2d, e.

N. clemensii auct. non Ames: Ames, Orch. 6 (1920) 72 (pro spec. *Clemens* 268).

Foliis herbaceis interdum satis rigidis graciliter ad gracillissime linearibus, hypochilio antice vadose bisaccato utroque margine laterali in duobus lobis elongato, posteriore minuto triangulato, anteriore gracili lineari, calli brachiorum partibus liberis cuspidatis subulatis ad plusminusve compressis hypochilii lobis frontalibus parallelis. – T y p u s : *J. & M.S. Clemens* 27159 (holo AMES; BM, K, L).

Leaves herbaceous, sometimes rather stiff, narrowly to very narrowly linear. Hypochilium in front shallowly bisaccate, laterally on either side drawn out into two lobes; lobes at the back small, triangular, front lobes narrowly linear; the slender subulate to somewhat flattened arms of the callus are parallel to the front lobes of the hypochilium.

Distribution. Borneo: Sabah (West Coast Residency, Interior Residency), 10 collections seen from AMES, BM, K, L.

Ecology. Once recorded as an epiphyte on big branches; at 1450–3000 m altitude. Flowering March, Aug., Nov. (5 ×), Dec.

Collector's notes. Sepals and petals pale greenish cream, lemon green to greenish yellow. Lip pink or partly pink, sometimes with a brown spot, white and brown, or brown with a yellow spot. Column brownish (once recorded). Arms of the horse-shoe-shaped callus once recorded to be yellow.

Note. *Clemens* 268 was identified by Ames as *Nabalua clemensii* Ames, notwithstanding that 'Vegetatively the plants are quite unlike the type' and ' . . . although the free ends of the callus are elongated'. This collection was not included by Ames in the type description of that species; it belongs to *N. angustifolia*.

2. *Nabalua exaltata* de Vogel, *spec. nov.* – Plate 2a–c.

Foliis coriaceis satis gracilibus, hypochilio antice non bisaccato, hypochilii utroque margine laterali antice in lobo gracili lineari elongato, calli brachiorum partibus liberis plusminusve erectis compressis quadrangularibus ad circa ligulatis hypochilii lobis frontalibus non parallelis. – T y p u s : *Burt & Martin* 5259 (holo E).

Leaves coriaceous, rather slender. Hypochilium in front not bisaccate, each lateral margin in front drawn out into a long, slender lateral lobe; arms of the callus partly free, more or less erect, flattened, quadrangular to about ligulate, not parallel to the front lobes of the hypochilium.

Distribution. Borneo: Sarawak (5th Division).

Collections seen. *Burt & Martin* 5259, 5260 (E), S 26466 (*Ilias Paie*) (K).

Ecology. Growing on boulders (once recorded), at 2000–2350 m altitude. Flowering Oct., Nov.

Collector's notes. Leaves very brittle. Sepals and petals yellow or pale green. Lip white, with or without a brown centre.

CHELONISTELE

Chelonistele Pfitzer in Pfitzer & Kraenzl., Pfl. R. Heft 32 (1907) 136; Ridley, Fl. Mal. Pen. 4 (1924) 138; Carr, Gard. Bull. Str. Settl. 8 (1935) 215; Holttum, Orch. Malaya ed. 3 (1964) 236. — *Chelonanthera* sect. 1 (p.p.), Bl., Bijdr. (1925) 382; Lindl., Gen. & Sp. Orch. (1933) 178; Miq., Fl. Ind. Bat. 3 (1859) 673. — *Coelogyne* (p.p.), Reichb. f., Bonplandia 5 (1857) 43; Hook. f., Fl. Brit. India 5 (1890) 833; J.J.S., Orch. Java (1905) 146; Schltr in E. & P., Nat. Pfl. Fam. I, Nachtr. 4 (1914) 52; Ames, Orch. 6 (1920) 43; Backer & Bakh. f., Fl. Java 3 (1968) 279. — *Coelogyne* sect. *Chelonistele* (nom. nud.) J.J.S., Bull. Jard. Bot. Btzg III, 11 (1931) 97; Fedde, Rep. 32 (1933) 169. — Type: *C. sulphurea* (Bl.) Pfitzer (lecto, here chosen).

Sigmatochilus Rolfe in Gibbs, J. Linn. Soc. (Bot.) 42 (1914) 155. — Type: *S. kinabaluensis* Rolfe.

Distribution. West Malesia: Malay Peninsula, Sumatra, Java, Borneo. One species present over the entire area, the other 10 species restricted to Borneo.

Ecology. Epiphytes, sometimes on trunks or chief branches or in shrubs or moss-covered roots, once recorded on sandy soil; in heath forest or elfin forest, also in mixed dipterocarp forest; at 550–3500 m altitude.

1. *Chelonistele dentifera* de Vogel, *spec. nov.* — Plate 3a–d.

Sepala ovato-oblonga, medium 11.5–14 mm longum 4–6 mm latum, lateralia ovato-oblonga 10.5–14 mm longa 3.5–5.5 mm lata. Petala linearia 11–14 mm longa 1–1.5 mm lata. Labellum 11–16 mm longum, lobis lateralibus latis 2.5–4.7 mm longis 3–4.5 mm latis apicibus rotundatis, epichilio late spathulato 4.5–9 mm longo 5–9 mm lato. Columna infra apicem utroque in lobum triangulare in frontem exsertum extensa. — Typus: *S 21954* (*Sibat ak Luang*) (holo L; K; SAR & SING not seen).

Sepals ovate-oblong, median one 11.5–14 by 4–6 mm, lateral ones ovate-oblong, 10.5–14 by 3.5–5.5 mm. Petals linear, 11–14 by 1–1.5 mm. Lip 11–16 mm long, lateral lobes broad, 2.5–4.7 by 3–4.5 mm, with rounded top. Epichilium broadly spathulate, 4.5–9 by 5–9 mm. Column below the top on either side drawn out into a triangular lobe which is turned to the front.

Distribution. Borneo: Sarawak (3rd and 4th Division), 6 collections seen from E, K, and L.

Ecology. Epiphytes, sometimes low growing, in mixed dipterocarp forest or lower montane forest; at 550–1100 m altitude. Flowering Aug., Sept. (2 ×), Oct.

Collector's notes. Flowers cream-coloured to pale green with a rich yellow or brown and yellow mark in the middle or near the tip of the lip.

Vernacular name. Bunga bakong (Kayang lang.), bunga melakian (Iban lang.).

2. *Chelonistele kinabaluensis* (Rolfe) de Vogel, *comb. nov.*

Sigmatochilus kinabaluensis Rolfe in Gibbs, J. Linn. Soc. (Bot.) 42 (1914) 155, 39, pl. 3; Ames & Schweinf., Orch. 6 (1920) 43; Carr, Gard. Bull. Str. Settl. 8 (1935) 220. — *Pholidota sigmatochilus* (Rolfe) J.J.S., Blumea 5 (1943) 299. — Type: *Gibbs 4260* (BM).

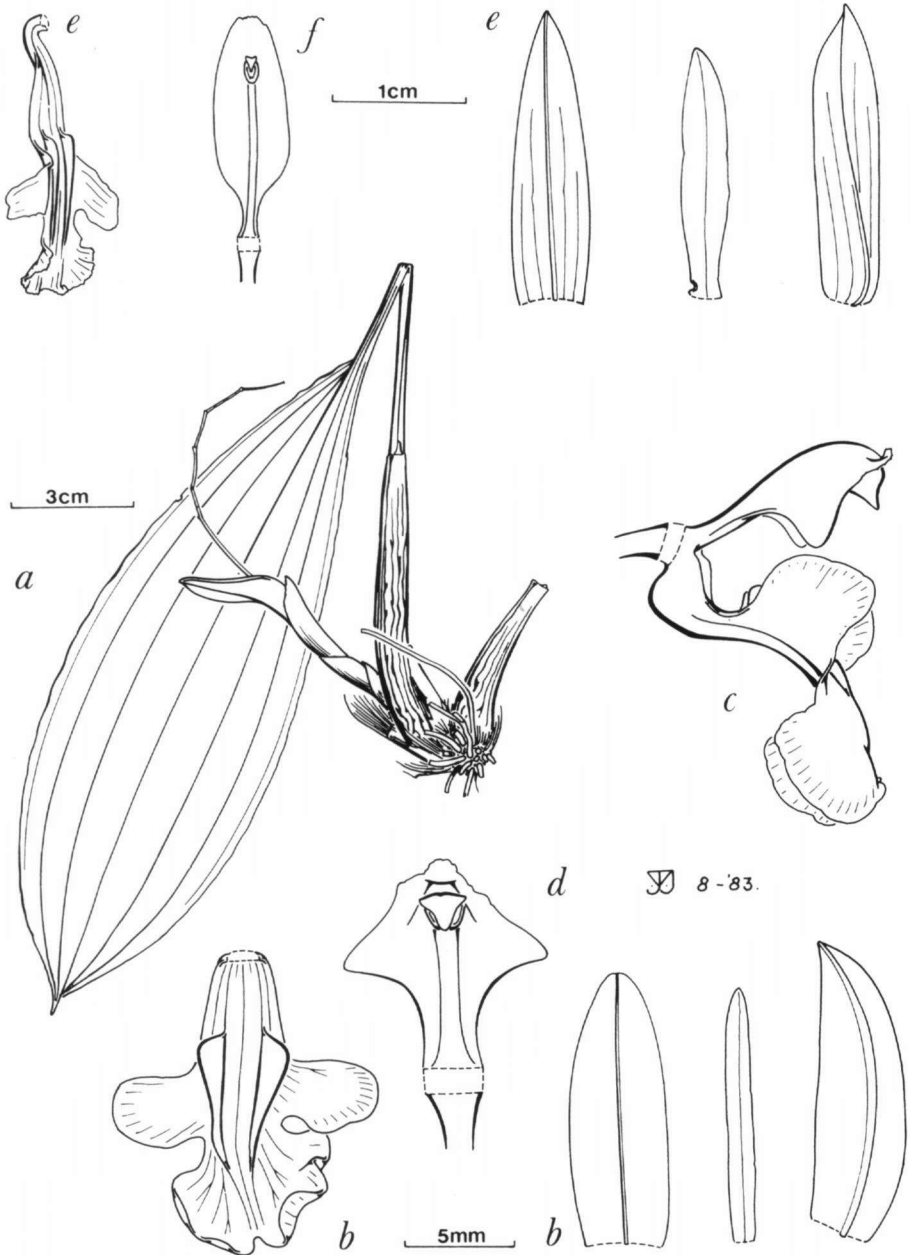


Plate 3. *Chelonistele dentifera* de Vogel. a. Habit; b. flower analysis; c. lip and column; d. column in front. — *C. lurida* (L. Lind. & Cogn.) Pfitzer var. *grandiflora* de Vogel. e. Flower analysis; f. column. — a, c, d S 21954 (Sibat ak Luang) (L); b Burtt B. 11375 (E); e, f Burtt & Woods B. 2169 (E).

3. *Chelonistele lurida* (L. Lind. & Cogn.) Pfitzer

var. *grandiflora* de Vogel, var. nov. — Plate 3e, f.

Sepalum medium ovato-oblongum c. 21 mm longum 7.8–8 mm latum. Sepala lateralia ovato-lanceolata 22–23.5 mm longa 4.2–8 mm lata. Petala lanceolata ad linearia 20–21 mm longa 3.8–6 mm lata. Labellum 21–22.5 mm longum. Hypochilium 14–15 mm longum carinis 9–10 mm super labelli basin ortis. — T y p u s : *G.P. Lewis 336 (K)*.

Median sepal ovate-oblong, c. 21 by 7.8–8 mm. Lateral sepals ovate-lanceolate, 22–23.5 by 4.2–8 mm. Petals lanceolate to linear, 20–21 by 3.8–6 mm. Lip 21–22.5 mm long. Hypochilium 14–15 mm long, keels starting 9–10 mm from the base of the lip.

Distribution. Borneo: Sarawak (4th Division).

Collections seen. Burt & Woods B. 2169 (E), Jermy 13225 (K), Lewis 336 (K).

Ecology. Montane and elfin forest, epiphytic on trunks and chief branches, in moss, rather exposed; at 1500–2000 m altitude. Flowering June, Oct. (2 ×).

Collector's notes. Sepals and petals white, sometimes tinged pink. Lip with a yellow patch on the base of the epichilium and a faint yellow or pale brown spot on each lateral lobe. Column with two faint yellow streaks on the back.

4. *Chelonistele sulphurea* (Bl.) Pfitzer

var. *crassifolia* (Carr) de Vogel, comb. nov.

C. crassifolia Carr, Gard. Bull. Str. Settl. 8 (1935) 218. — *Coelogyne crassifolia* (Carr) Masamune, Enum. Phan. Born. (1942) 140. — T y p e : *Carr 3565*, same as *SF 28027* (not seen).