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Vanilla raabii



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Keywords: *Vanilla*; Philippines; *Vanilla decesareae*; *Vanilla raabii*; *Vanilla philippinensis*; and *Vanilla platyphylla*.

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Leafy *Vanilla* species of the Philippines

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Abstract. A review of the leafy species of *Vanilla* present in the Philippines reveals that at least four species are present, two of which are here newly proposed (viz. *V. decesareae* and *V. raabii*), one is reinstated (*V. philippinensis* Rolfe), and one is a new record (*V. platyphylla* Schltr.). The name *V. ovalis* Blanco is found to be unidentifiable.

The genus *Vanilla* Miller comprises about 120 species distributed throughout the tropics and subtropics of the world. The genus is most diverse in the Americas with other smaller centres of speciation in Africa and Southeast Asia. The plants are easily recognised by their climbing habit, and showy but short-lived flowers. However traditionally preserved (pressed and dried) specimens of *Vanilla* are approached with reluctance by herbarium taxonomists because the flowers are often badly degraded or the segments are irreversibly stuck together. Thus the taxonomy of *Vanilla* has suffered, even though the genus has a few commercially important species and hybrids from which the flavouring aldehyde vanillin is obtained.

Recently the first author was asked by Mr. Raab Bustamante to identify a Philippine *Vanilla* he had photographed, since it seemed different from *V. ovalis* Blanco. The first question we asked here is “What is *V. ovalis* Blanco”? Analysis of the description of *V. ovalis* (and its synonym *V. majaijensis* Blanco) tells us of a plant that came from trees on the banks of a stream in the mountains of Majaijai (now Mount Banahaw), that it had oval leaves, and the pods were five to six inches long. Most of the description given by Blanco applies generally to most leafy species of

Asian *Vanilla*, there are no details provided on the processes of the labellum or even colour notes. Merrill's (1918) contention that the name *V. ovalis* could not be ignored is based on the erroneous predication that there was only one common lowland species of *Vanilla* on Luzon.

We treat here the four species of leafy Philippine *Vanilla* of which we have preserved material. Pieter Pelser has photographed, on the island of Panay, a probable fifth species, it seems much like *V. raabii* (processes or hairs on the lip are of even height throughout) but the processes on the lip are longest apically and decrease in height toward the column.

Key to leafy Philippine *Vanilla*.

- A. Leaves less than 15 cm long and 5 cm wide; lip midlobe lanceolate.....*V. decesareae*.
- AA. Leaves more than 15 cm long and 5 cm wide; lip midlobe ovate to subquadrate.....B
- B. Inflorescence lax at first, then subdensely flowered, lower floral bracts leaf-like; lip appearing to have a single long brush of fine subulate processes.....*V. raabii*.
- BB. Inflorescence subdensely flowered throughout, floral bracts not leaf-like; lip with two separate groups of processes (one opposite the column, the other on the midlobe and lower disc).....C
- C. Midlobe ovate-subquadrate to subquadrate; processes on disc subquadrate to linear, often toothed, complanate.....*V. philippinensis*.
- CC. Midlobe ovate; processes on disc subulate.....*V. platyphylla*.

Vanilla decesareae Ormerod & Cootes, *sp. nov.*

Type: Philippines, Mindanao, Cotabato Prov., Mt. Matutum, April 1932, *M. Ramos* &

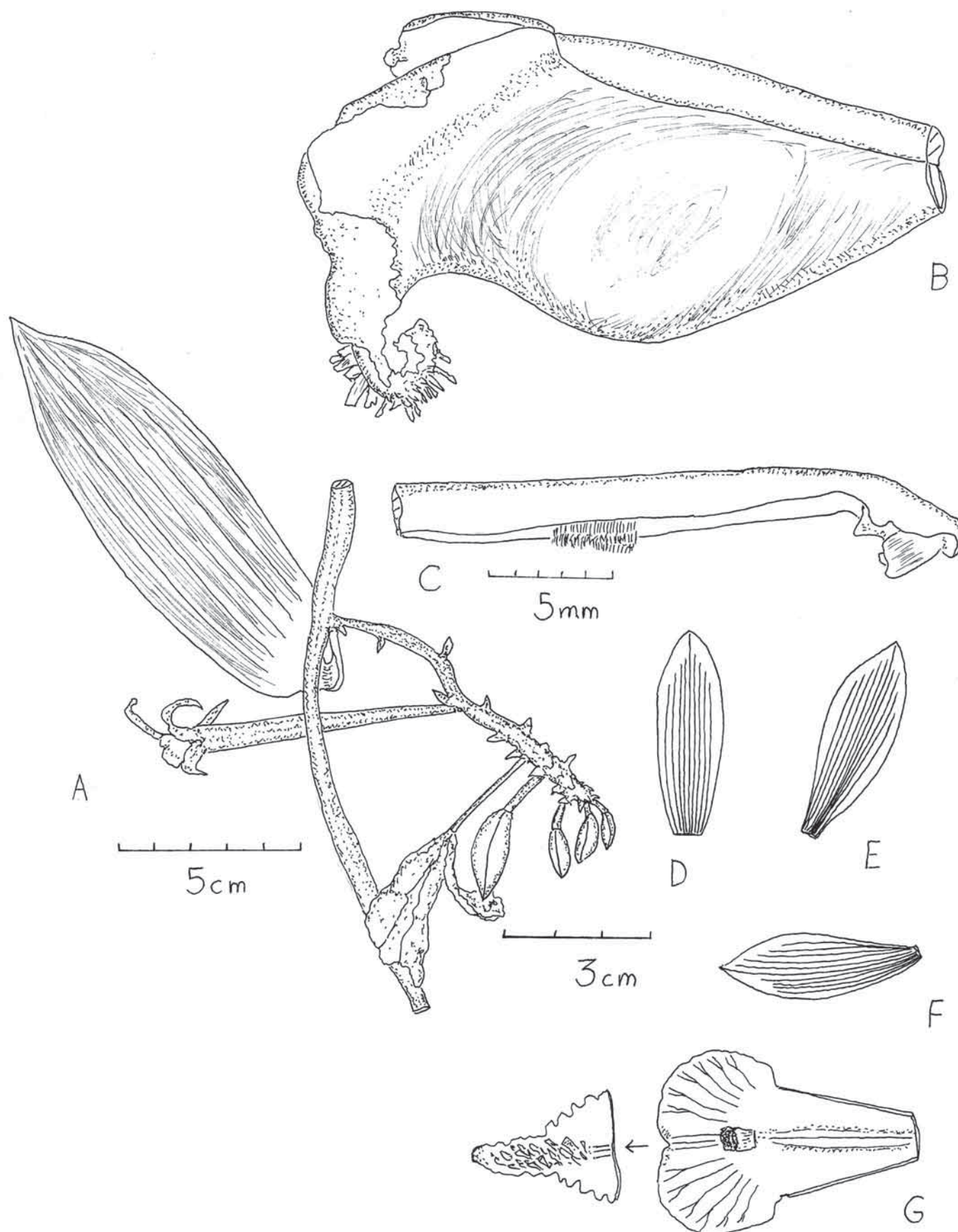


Fig. 1. *Vanilla decesareae* – A. leaf and inflorescence; B. column and lip; C. column; D. dorsal sepal; E. petal; F. lateral sepal; G. labellum (apex arrowed). A, BC & D-F to respective scales. G not to scale. Drawn from holotype.

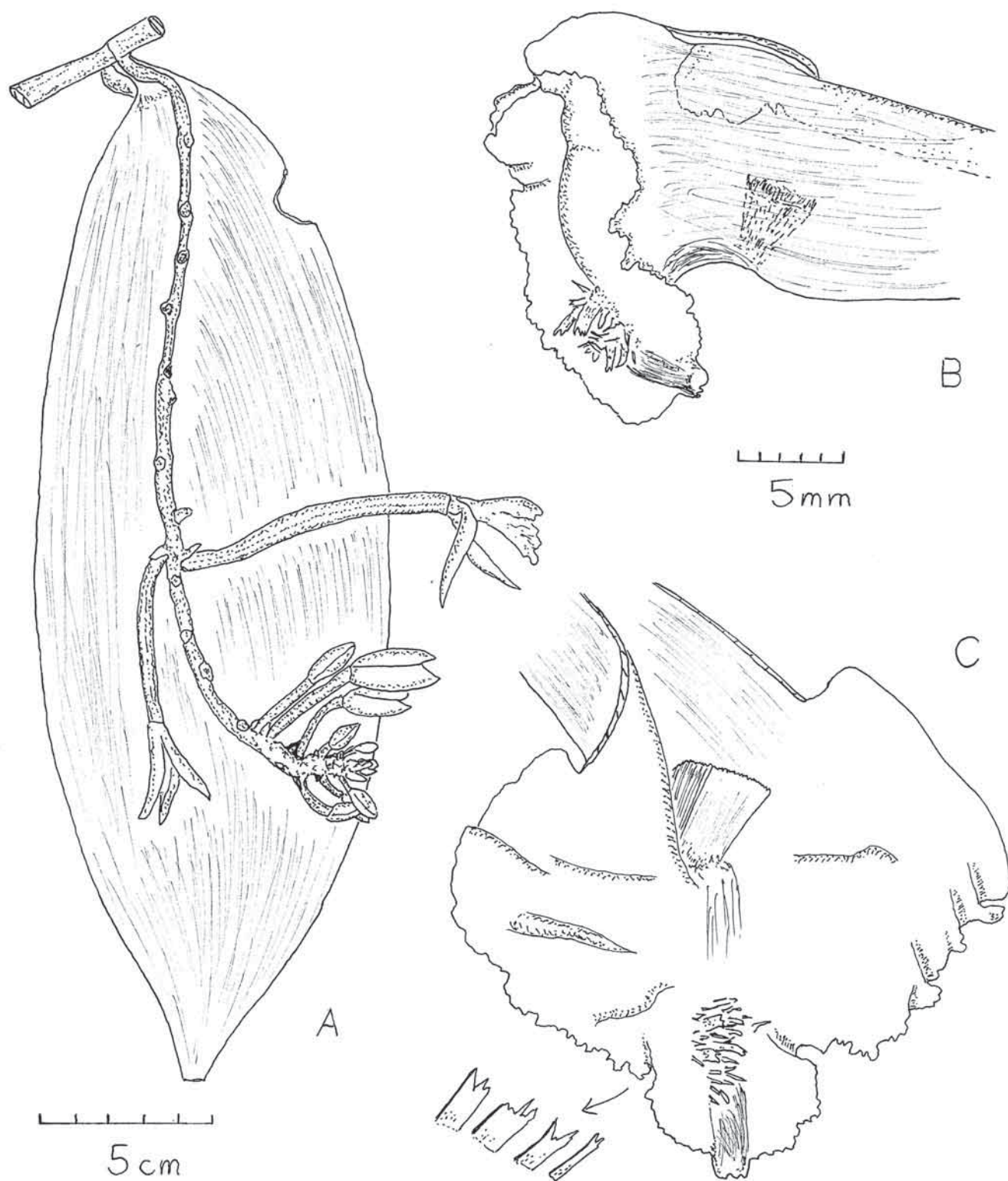


Fig. 2. *Vanilla philippinensis* – A. leaf and inflorescence; B. column and lip; C. labellum apex spread out (appendages arrowed). A and BC to respective scales. Drawn from *Sulit 41* (AMES).

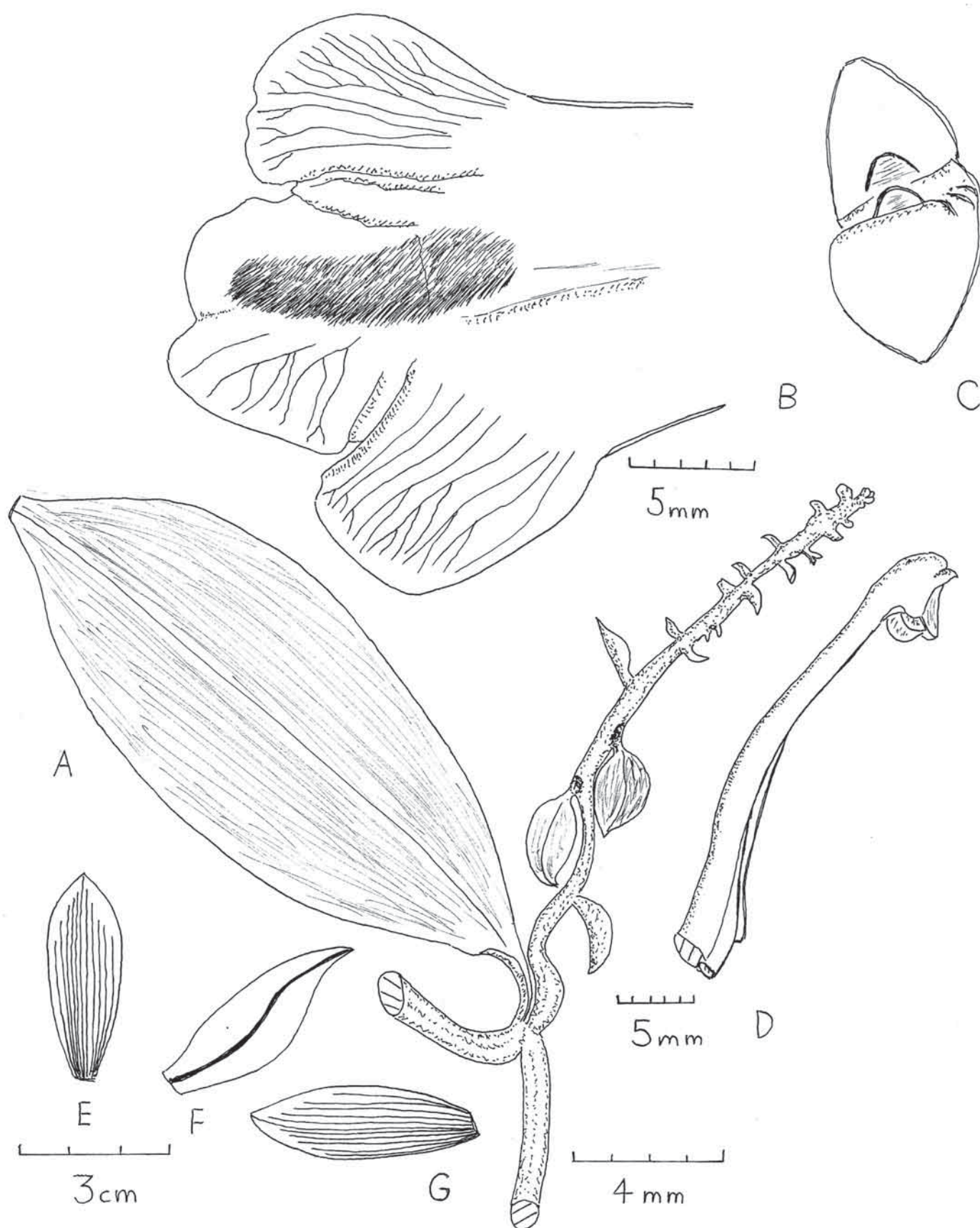


Fig. 3. *Vanilla raabii* – A. leaf and inflorescence; B. labellum apex spread out; C. base of labellum spread out; D. column; E. dorsal sepal; F. petal; G. lateral sepal. A, B, D, E-G to respective scales. C not to scale. Drawn from holotype.

G. Edano BS 85045 (Holotype: AMES).

Affinis V. philippinensis Rolfe *sed foliis parvioribus* (13 x 3.9 vs. 20-30 x 6.7-10.4 cm) *et epichilo labello lanceolatis* (vs. ovato-subquadratis ad subquadratis) *differt*.

Presumably epiphytic, climbing herb. Roots terete, 2.0-2.5 mm thick. Stem terete; internodes 12-13 cm long, 0.4-0.5 cm thick. Leaves oblong, acute, acute, alternate, thinly fleshy, 13 cm long, 3.8-4.0 cm wide. Inflorescence axillary, sessile, successively 1-2 flowered, 8.0-8.5 cm long, 0.3-0.4 cm thick; floral bracts ovate-elliptic, acute, 4-5 mm long, 4 mm wide. Flower colour unknown. Pedicellate ovary subcylindric, 31 mm long; perianth persistent on young capsule. Dorsal sepal broadly oblong-lanceolate, subacute, 9 veined, 42 mm long, 13 mm wide. Lateral sepals obliquely oblong-lanceolate, subacute, 9 veined, 38-40 mm long, 11-12 mm wide. Petals broadly oblong-lanceolate, acute, 40-43 mm long, 10-15 mm wide. Labellum ventricose, united to column for *c.* 19 mm, up to *c.* 10 mm wide laterally where joined to column, free part *c.* 13 mm long, 26-28 mm wide, widely obovate with a recurved, lanceolate 'midlobe'; 'midlobe' *c.* 9 mm long, covered with lanceolate to rectangular, irregular processes; inside lip with a second brush of thin subquadrate scale-like appendages that are nearly opposite apex of the column. Column slender, semiterete, with a patch of short subulate processes just below the ventral lower half, *c.* 24 mm long.

Distribution: Philippines (Mindanao).

Etymology: Named after Lisa de Cesare of the Botany Libraries, Harvard University.

This species is easily recognised among Philippine *Vanilla* by its relatively small leaves, and flowers with a lanceolate midlobe.

Vanilla ovalis Blanco, Fl. Filip. ed. 2: 448, 1845.

Type: Philippines, Luzon, mountains of Majaijai, (now Mount Banahaw), *I.G. Azaola* s.n. (Holotype destroyed).

Vanilla majaijensis Blanco, Fl. Filip. ed. 2: 593, 1845.

Type: Philippines, Luzon, mountains of Majaijai (now Mount Banahaw), *I.G. Azaola* s.n. (Holotype destroyed).

Epidendrum vanilla auct. non L.: Blanco, Fl. Filip.: 643, 1837.

Distribution: Philippines.

As noted above this species cannot be identified from the description. I believe Merrill (1918) is correct when he supposes that the description of *V. majaijensis* was probably based on Blanco's manuscript notes and inserted into the second edition of the Flora Filipinas after his death (in 1845). In all likelihood Blanco originally called the plant *V. majaijensis* but chose the epithet '*ovalis*', though this was not realised by his successors. No type material is known to exist of any of Blanco's plants since all original collections were long ago destroyed by a fire at the monastery of Notre Dame de Guadeloupe in Manila.

Vanilla philippinensis Rolfe, J. Linn. Soc. 32: 459, 1896.

Type: Philippines, without locality, *H. Cuming* 2132 (Holotype: K; Isotype: BM [photo. AMES]).

Climbing, epiphytic herb, to 15 m high. Roots terete, 1.5-4.0 mm thick. Stem terete; internodes 5.0-7.0 cm long, 0.7-0.9 cm thick. Leaves oblong to oblong-elliptic, acute to subacuminate, thinly fleshy, alternate, 21.3-29.5 cm long, 6.7-10.4 cm wide.

Vanilla philippinensis RS flower



Vanilla philippinensis RS inflorescence habit





Vanilla philippinensis RS lip detail

Inflorescence axillary, 5.5-22.0 cm long, 0.2-0.6 cm thick; peduncle up to 5 cm long; rachis successively (up to 2-3 flowers at a time) many flowered, 5-17 cm long; floral bracts ovate-elliptic, acute, 3.0-7.5 mm long, 3-6 mm wide. Flowers with mustard yellow to greenish yellow sepals and petals, lip white with purple processes on the disc, slightly fragrant. Pedicellate ovary terete, 31-43 mm long; capsule subcylindric-fusiform, floral segments persistent, to 11 cm long, 2 cm thick. Dorsal sepal oblong-ob lanceolate, acute, 11-13 veined, 40-45 mm long, 7.6-13.0 mm wide. Lateral sepals obliquely oblanceolate, acute, 11-13 veined, 39-44 mm long, 7-13 mm wide. Petals oblong-ob lanceolate, acute, 11-13 veined, outside with a thick midrib, 38-44 mm long, 8-12 mm wide. Labellum shallowly ventricose, *c.* 35 mm long, joined to column for 20-22 mm, to 10 mm wide laterally where joined to column; free part broadly obovate, margins entire but upper half irregularly erose, with an ovate-subquadrate to subquadrate midlobe, *c.* 13-15 mm long, *c.* 18-23 mm wide; midlobe *c.* 5 mm long, 7 mm wide, disc laxly to densely covered with 3-5 rows of purple, complanate, linear to rectangular, acute to lacerate processes; inside lip with a second brush of subquadrate, apically erose scales, these 4 mm tall and 5 mm wide. Column semiterete, basal half with a ventral patch of 3 lines of low dentations, 25-26 mm long.

Distribution: Philippines.

Specimens examined: Philippines, Luzon, Laguna Prov., Los Banos, 21 April 1912, *R.M. Holman s.n.* (AMES); Laguna Prov., Makiling National Botanic Garden, 600 m, June 1921, *M.D. Sulit 41 (=FB 28614)* (AMES x2); Rizal Prov., *A. Loher 15038* (AMES); Quezon (Tayabas) Prov., Lucban, 750 m, May 1907, *A.D.E. Elmer 9259*

(AMES x2). Biliran Island, 300 m, 30 May 1914, *R.C. McGregor 4510 (=BS 18952)*
(AMES x3). Mindanao, Lanao Prov., Lake Lanao, Camp Keithley, July 1907, *M.S. Clemens s.n.* (AMES).

We have only cited collections that have flowers and therefore could be positively identified, though there are several more sterile collections in AMES matching the leaf shape of this species. A plant from Mindoro was misidentified as *V. platyphylla* in Cootes (2011), an understandable error because there are no published illustrations of *V. philippinensis* and its critical characters have until now not been recognised.

Vanilla philippinensis may be identified by its oblong-elliptic leaves with rounded bases, its inflorescence bearing rather uniform floral bracts, with the flowers borne at regular, close intervals throughout, and the white lip with a patch of flattened, linear to rectangular, apically toothed processes on the disc.

The most similar species in the Philippines is *V. platyphylla* which has slightly larger (*c.* 5 cm longer) leaves, and a patch of subulate processes further toward the apex of the lip.

Vanilla platyphylla Schltr., Rep. Sp. Nov. Regni Veg. 10: 7, 1911.

Type: Indonesia, Sulawesi, Minahassa Peninsula, Mt. Klabat, 400 m, December 1909, *R. Schlechter 20556* (Holotype: B, destroyed).

Distribution: Indonesia (Sulawesi); Philippines (Mindanao).

Specimen examined: Philippines, Mindanao, Davao Prov., Coronon Valley, near Santa Cruz, 365 m, April 1964, *ANU 1720 (A)*.

Vernacular name: Yoko-yoko (Cebuano Language).

The specimen from Mindanao was described as having yellow sepals and petals, and a white lip with a red-flecked interior. The single leaf that was preserved is about 34.5 cm long, 10.5 cm wide; the inflorescence with a 2 cm long peduncle that has two boat-shaped, bract-like sheaths to 8 mm long; and floral bracts to 7 mm long. A large bud (sepals 34 mm long) was studied and this showed the critical characters of the lip described by Schlechter (1911), and illustrated in Mansfeld (1934).

As mentioned above this species is very similar to *V. philippinensis* but the lip has an ovate midlobe densely covered with fleshy, subulate processes.

Vanilla raabii Ormerod & Cootes, *sp. nov.*

Type: Philippines, Luzon, Isabela Prov., San Mariano, Sierra Madre Mountains, Bo. Disulap, 150 m, 26 April 1961, *H.G. Gutierrez 61-110 (=PNH 78082)* (Holotype: A).

A species philippinensium peniculus labello singularis (non bipulvinatis vel separatis) differt.

Climbing, epiphytic herb. Roots terete, to 4 mm thick. Stem terete; internodes 7-13 cm long, 0.3-0.9 cm thick. Leaves obovate, elliptic, to ovate-elliptic with an attenuate base, acute to subacuminate, alternate, thinly fleshy, 19-33 cm long (including a subpetiolate base 1.0-2.5 cm long), 5.65-10.60 cm wide. Inflorescence axillary, lower part laxly flowered for 5.5-10.5 cm with 3 or 4 flowers, afterwards subdensely successively flowered, 17 cm long or more; lower subfoliose floral bracts ovate-elliptic, acute, fleshy, 2.8-5.0 cm long, 1.3-3.0 cm wide; upper floral bracts ovate-

elliptic, acute, to 20 mm long, 6 mm wide but usually about 9 mm long, 3-4 mm wide. Flowers with greenish, yellowish-green or green sepals and petals, lip white with purple lines, reddish, with a pink throat, or whitish externally with dull purplish streaks inside, odourless to fragrant. Pedicellate ovary terete, 52 mm long; capsule subcylindric, floral segments persistent, to 9 cm long, 1.5 cm thick. Dorsal sepal obovate-oblongate, subacute, 13 veined, 43 mm long, 17 mm wide. Lateral sepals oblong-oblongate, subacute, 50 mm long, 16 mm wide. Petals oblong-subrhombic, acute, outside with a thickly carinate midvein, 45 mm long, 13 mm wide. Labellum ventricose, at base inside with 2 semicircular, discoid calli (or glands?), c. 35.5 mm long, joined to column for c.19.5 mm, 11-12 mm wide laterally where joined to column; free part broadly obovate, trilobed, margins entire, 16 mm long, 29 mm wide; midlobe subquadrate, emarginate, 8-9 mm long, 12 mm wide; processes on free part of lip arranged into a single dense elongate brush of fine subulate hairs. Column semiterete, suberect, 28 mm long.

Distribution: Philippines.

Specimens examined: Philippines, Bulacan Prov., Angat, December 1914, *E.D. Merrill*: *Species Blancoanae* 665 (AMES, sterile); Cagayan Prov., Pinagsongyan River, 365 m, 23 November 1929, *G.E. Edano* 2584 (=PNH 78674) (AMES x2); Laguna Prov., September 1912, *J.S. Serrato* s.n. (AMES, GH sterile); Quezon (Tayabas) Prov., Casiguran, low altitude, May to June 1925, *M. Ramos & G.E. Edano* BS 45338 (AMES). Sibuyan Island, Capiz Prov., Magallanes (Mt. Giting-Giting), May 1910, *A.D.E. Elmer* 12534 (AMES). Samar, Wright, Loquilicon, Sitio Tinane, 45 m, 17 April 1948, *M.D. Sulit & E. Conese* 2664 (=PNH 5533) (AMES).

Vanilla raabii flower





Vanilla raabii lip detail



Vanilla raabii inflorescence habit

Mindanao, Misamis Prov., Mt. Malindang, 610 m, 20 May 1906, *Major E.A. Mearns & W.J. Hutchinson* FB 4585 (AMES).

Vernacular names: Palpalmito (Ilocano Language, *PNH 78674*); Pilako (Bisayan Language, *PNH 5533*).

This species is easily distinguished from the other leafy Philippine *Vanilla* taxa by the lip appearing to have only a single brush (rather than two separate groups of processes, one on the disc and one about opposite the column). Another unique character is that the inflorescence laxly bears three to four flowers at first before becoming subdensely flowered. These initial flowers are also subtended by leaf-like floral bracts. Similar features are also found in *V. griffithii* Rchb.f. but that species has more open flowers due to the lip being only half joined to the column, and the posterior brush on the lip is shaped like a woolly ball and is quite different to the anterior brush of thicker hairs that abut it in a transverse band.

Another species with somewhat similar characters is *V. diabolica* O'Byrne from Buton Island, Sulawesi. It differs from *V. raabii* in having narrower leaves (to 4 cm wide), a lax inflorescence that doesn't become subdensely flowered, the floral bracts are leaf-like but oblong-lanceolate, the lip has a much shorter midlobe, a thick keel behind the brush and two globose (not discoid) basal calli.

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literature and research. Andre Schuiteman (K) kindly checked the type of *V. philippinensis* and confirmed the nature of the appendages on the lip.

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