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RESEARCH ARTICLE

Studies of West Malesian *Agrostophyllum* Blume (Orchidaceae) 2.

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ABSTRACT: Continuing studies of West Malesian material of *Agrostophyllum* reveals nine new species and one new synonym. *Agrostophyllum tenue* J.J. Sm. is found to be a synonym of *A. javanicum* Blume. The new taxa proposed are *A. agusanense, A. bialatum, A. dewildeorum, A. edanoanum, A. emwoodiae, A. inflatum, A. loheri, A. urdanetae,* and *A. vulcanicum.*

KEY WORDS: *Agrostophyllum,* Indonesia, new species, Philippines.

INTRODUCTION

The genus *Agrostophyllum* Blume currently contains about 130 species (new taxa included) distributed from the Seychelles to Samoa. New Guinea is the centre of speciation for the genus, with 75 taxa now recorded from there (Ormerod, 2013). Previously (Ormerod, 2012) 32 taxa were noted to occur in West Malesia [Malaysia, Western Indonesia (Sumatra, Java, Kalimantan), Brunei, and the Philippines)] but further research has unearthed a further nine new species and identified one new synonym. Also Ong (2013) has recorded the southeast Asian mainland entity *A. planicaule* (Wall. ex Lindl.) Rchb.f. from Peninsular Malaysia. Thus West Malesia now has 41 described species.

Agrostophyllum species are primarily epiphytes, often forming dense clumps of stems, the stems are leafy, often flattened and covered by black-margined, usually compressed leaf sheaths, the inflorescence is terminal and is usually in the form of a head of numerous flowers, the flowers are small, often white or yellowish, sometimes with purple marks on the lip or column, the column bears eight pollinia, and the lip is usually divided medially by a fleshy to laminate callus into a hypochile and epichile.

All the species described here belong to a broadly defined *Agrostophyllum* section *Agrostophyllum.* Within section *Agrostophyllum* there are a further two broad groups (Ormerod, 2012). The first is related to the type species *A. javanicum* and has plants with flowers that essentially have a bisaccate labellum in which the top margin of the hypochile is uninterrupted and not demarcated from the epichile. Six of the new taxa belong to this group, namely *A. bialatum, A. dewildeorum, A. edanoanum, A. inflatum, A. urdanetae,* and *A. vulcanicum.*

The second group is related to *A. longifolium* (Blume) Rchb.f. and has flowers in which the top margin of the labellum hypochile is distinctly laterally demarcated from the spreading epichile. The three new taxa belonging to this group are *A. agusanense, A. emwoodiae,* and *A. loheri.*

TAXONOMIC TREATMENT

Agrostophyllum agusanense Ormerod, *sp. nov.*
Fig. 1.

Type: Philippines, Mindanao, Agusan Prov., Agusan River, near mouth of the Tipgon, 12 m, 11 July 1911, *C.M. Weber 161* (Holotype: AMES).

Affinis A. indifferens J.J. Sm. s*ed foliis latioribus (1.60–2.35 vs. 1.20–1.25 cm), petalis lanceolatis et uninervis (vs. ovato-lanceolatis et trinervis) et epichilo transverse ellipticis (vs. rhombicis) differt.*

Epiphytic herb. Rhizome and roots not seen. Stem subterete basally, compressed above, leafy in upper half, *c.* 60 cm long, *c.* 0.45 cm thick basally, 1.6–2.2 cm wide across leaf sheaths. Leaves narrowly ligulate, obtuse, apex shortly conduplicate, drying dark green, 13.3–18.2 cm long, 1.60–2.35 cm wide; leaf sheaths drying straw yellow, black-margined, exposed part of dorsal margin 2.8–5.2 cm long, 0.65–1.00 cm wide laterally; stipule deltate, acute, very short, rarely to 1 mm long. Inflorescence terminal, subglobose, composed of numerous bracts, sheaths and flowers, very densely many-flowered, *c.* 30 mm wide. Flowers white, lip white, tinged purple [in rehydrated flowers the column had purple upper margins and purple substigmatic ridge]. Pedicellate ovary narrowly winged, subclavate, 6.2 mm long. Dorsal sepal ovate-elliptic, acute, 1-veined, 2.9 mm long, and 1.5 mm wide. Lateral sepals obliquely ovate, acute, carinate in upper

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half, 1-veined, *c.* 3 mm long, 1.9 mm wide. Petals lanceolate, subacute, 1-veined, 2.8 mm long, and 0.75 mm wide. Labellum trilobed, 2.9 mm long; hypochile saccate-subglobose, sidelobes low rounded, 1.2 mm long, 1.2 mm wide dorsally, 1 mm wide laterally; ligula subquadrate, shallowly emarginate, flush against the column base and thus sealing off access to the hypochile; epichile transversely elliptic, apex shortly acute, above with 2 low circular convexities, *c.* 1.7 mm long, 2.5 mm wide. Column obliquely erect, slightly arched, 1.9–2.0 mm long (minus anther cap); substigmatic appendage a low, transverse, broadly V-shaped ridge.

Distribution: Philippines.

Habitat: Epiphytic in high tree, swampy area, 12 m.

Etymology: Named after the Agusan River near the type locality.

This species is closely related to *A. indifferens* J.J. Sm. [Isosyntype: *Amdjah s.n., cult. Hort. Bogor. 160* (AMES)] from Kalimantan, Indonesia. Both taxa have small flowers (sepals *c.* 3 mm long) with similarly shaped segments, and a column with a low ridge-like substigmatic appendage. However *A. agusanense* may recognised by its broader leaves, one-veined (vs. three-veined) petals and dorsal sepal, lanceolate (vs. ovate-lanceolate) petals, low rounded (vs. more lobulate, *c.* 1.6 mm wide laterally) sidelobes, transversely elliptic (vs. rhombic) epichile, and column that is concavely (vs. narrowly) channelled ventrally.

Externally both *A. agusanense* and *A. indifferens* may be mistaken for *A. longifolium* (Blume) Rchb.f. (Sumatra, Java, Malaysia?), *A. majus* Hook.f. (Malaysia, Thailand, Sumatra?) and *A. longivaginatum* Ames (Philippines). The latter three taxa are closely related and distinguished primarily by flower size. They all share one common feature, namely that the substigmatic appendage is subquadrate and projects perpendicularly from the column.

Agrostophyllum bialatum Ormerod, *sp. nov.*

Fig. 2.

Type: Malaysia, Sabah, Mt. Kinabalu, near Bundu Tahan, 1220 m, 31 May 1933, *C.E. Carr SFN 27439* (Holotype: AMES).

Affinis A. javanicum Blume *sed ovariis bialatis (vs. anguste carinatis), hypochilo labello in visu lateralis subcircularis (vs. subquadratis) et epichilo concavo-saccatis (vs. retrorso-saccatis) differt.*

Presumably epiphytic herb. Stems approximate (to 7 mm apart), subterete, sublaxly leafy for two thirds of length, 45.0–45.3 cm long, 0.1–0.2 cm thick basally, to 0.25 cm wide across leaf sheaths. Leaves linear, apex inequally, minutely, obtusely bilobed, 8.8–14.9 cm

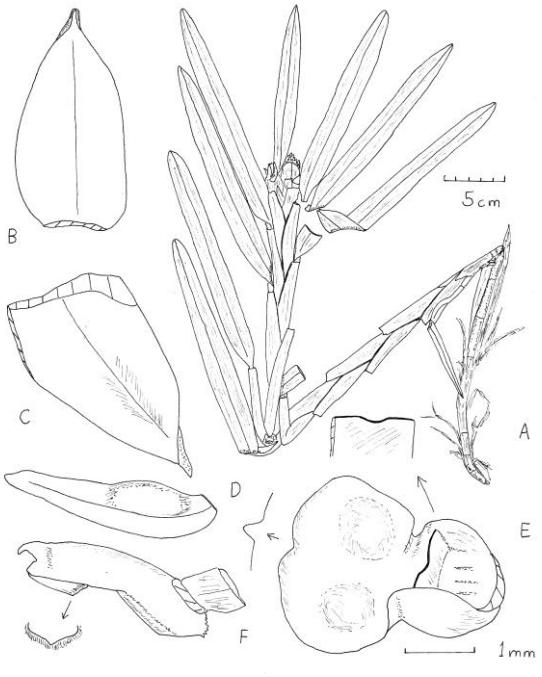


Fig. 1. ***Agrostophyllum agusanense*** **Ormerod. A, plant; B, dorsal sepal; C, lateral sepal; D, petal; E, labellum apex and ligula arrowed); F, column (substigmatic ridge arrowed). Drawn from holotype.**

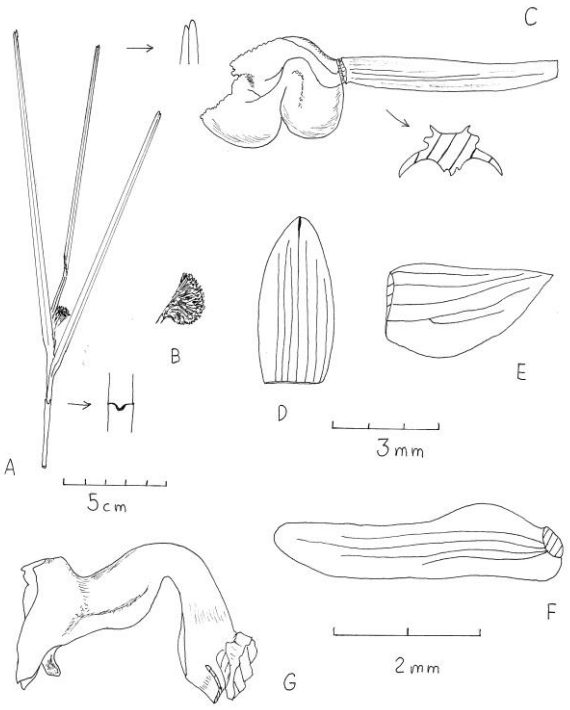


Fig. 2. ***Agrostophyllum bialatum*** **Ormerod. A, stem apex (leaf apex and leaf sheath arrowed); B, inflorescence; C, flower minus tepals (ovary section arrowed); D, dorsal sepal; E, lateral sepal; F, petal; G, column (from large bud). Drawn from holotype.**

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long, 0.30–0.45 cm wide; leaf sheaths tubular, smooth, drying straw yellow, black-margined, apex barely split open, estipulate, exposed part 1.2–2.9 cm long.Inflorescence terminal, seminutant, subglobose, composed of numerous bracts, sheaths and flowers, *c.* 15 mm long, 20 mm wide. Flower colour not known. Pedicellate ovary narrowly clavate, bialate, 6.5–6.9 mm long. Dorsal sepal oblong-elliptic, acute, 7 veined, 4 mm long, 1.75–1.95 mm wide. Lateral sepals obliquely ovate, acute, low carinate in upper half, 4–5 veined, 4.3 mm long, 2.2 mm wide. Petals obliquely ligulate-lanceolate, obtuse, 3 veined, 3.50–3.75 mm long, 0.80–0.95 mm wide. Labellum bisaccate in lateral view, *c.* 3.75 mm long, 2.5 mm wide laterally; hypochile subglobose, *c.* 1.5 mm long; ligula subquadrate, truncate; epichile trilobulate, concave-subglobose, margins irregularly dentate, 2.25 mm long, 2.5 mm wide laterally (i.e. *c.* 5 mm wide spread). Column angulate-arched, semiterete-subclavate, 2.9–3.0 mm long.

Distribution: Malaysia (Sabah).

Habitat: Not recorded.

Etymology: From the Latin prefix *bi*, meaning two, and *alatus*, meaning winged, in reference to the two-winged ovary.

This species was recently recorded from Mt. Kinabalu by Wood et al. (2011) as *A. tenue* J.J. Sm. (= *A. javanicum* Blume). It differs from *A. javanicum* in having two broad wings (vs. narrowly carinate) on the ovary, in the semicircular (vs. subquadrate) profile of the labellum hypochile, and the simply concave (vs. retrorse saccate) epichile. In labellum shape *A. bialatum* is very similar to the Javanese *A. inflatum* but it differs from that taxon in having more slender stems, narrower leaves, and leaf sheaths that are not inflated near the stem apex.

Agrostophyllum dewildeorum Ormerod, *sp. nov.*

Fig. 3.

Type: Indonesia, Sumatra, Aceh, Gunung Leuser Reserve, climbing of Gunung Bandahara, track from Kampung Seldok, NE to large 'blang' S of the summit, *c.* 25 km NNW of Kutatjane, Camp 2, 1700 m, 18 June 1972, *W.J.J.O. de Wilde & B.E.F. de Wilde-Duyfjies 12952* (Holotype: K).

Affinis A. cyathiforme J.J. Sm. s*ed interioris epichilo concavo-saccatis (vs. planis) et inferioris columna canaliculatis (vs. planis) differt.*

Epiphytic herb. Roots terete, pubescent, 1–2 mm thick. Stems caespitose, terete basally, leafy, 81.3 cm long, 0.175 cm thick basally, to 0.6 cm wide across sheaths; lower internodes 1.2–1.6 cm long. Leaves linear-lanceolate, apex shortly inequally acutely to obtusely bidentate, to bilobulate, 6.6–11.0 cm long, 0.60–0.95 cm wide, tips 0.1–0.2 cm long; leaf sheaths tubular, black-margined, shortly to half open, only opening down to next sheath in terminal 5 cm of stem, smooth, estipulate, exposed dorsal part 0.7–2.5 cm long. Inflorescence terminal, composed of numerous bracts, sheaths and flowers, 1.2 cm long and wide. Flowers pale yellowish. Pedicellate ovary terete, sulcate, 6.7 mm long. Dorsal sepal ovate-elliptic, acute, low carinate in upper half, 3 veined, 3.7 mm long, 2 mm wide. Lateral sepals obliquely ovate-elliptic, acute, carinate in upper half, 3 veined, 4 mm long, 2.2 mm wide. Petals obliquely ligulate-lanceolate, obtuse, 3 veined, 3.8 mm long, 0.95–1.00 wide. Labellum shallowly bisaccate in lateral profile, joined to column for *c.* 0.8 mm, *c.* 3.4 mm long; hypochile subglobose, *c.* 1.5 mm long, *c.* 1.7 mm wide laterally; ligula subquadrate, shallowly truncate-emarginate; epichile concave-saccate, apex thickened, obtuse, *c.* 1.9 mm long, 2.0–2.2 mm wide laterally (i.e. 4.0-4.4 mm wide spread). Column stoutly clavate, canaliculate ventrally, 2.0–2.2 mm long.

Distribution: Indonesia (Sumatra).

Habitat: Montane rainforest, 1700 m.

Etymology: Named after the collectors, W. de Wilde and B. de Wilde-Duyfjies.

This species is closely related to *A. cyathiforme* J.J. Sm. (W Indonesia, Malaysia) but differs from it in having the inner surface of the labellum epichile concave-saccate (vs. a flat inner surface that then curves at the sides), a stouter, broader column that ventrally has two thick pads with a channel between them (vs. a flat ventral surface below the stigma).

Agrostophyllum edanoanum Ormerod, *sp. nov.*

Fig. 4.

Type: Philippines, Luzon, Cagayan Prov., Mt. Cagua Volcano, 1150 m, 27 October 1929, *G. Edano 2318 (=BS 78648)* (Holotype: AMES).

Affinis A. urdanetae Ormerod *sed columna longioribus (2.5 vs. 2.0 mm) et angustioribus differt.*

Epiphytic herb. Roots terete, pubescent, 1–2 mm thick. Stem subterete basally, compressed above, upper three-quarters leafy, 26 cm long, 0.3 cm thick basally, 1.6–1.7 cm wide across leaf sheaths. Leaves oblong-ligulate, obtuse or slightly inequally obtusely bilobed, 6.0–19.4 cm long, 1.50–1.95 cm wide; leaf sheaths smooth, drying yellow, with a 1–2 mm wide black margin, exposed dorsal edge 3–4 cm long; stipule broadly deltate, acute, straight to falcate, 0.5–1.0 mm long. Inflorescence terminal, subglobose, composed of numerous bracts, sheaths and some flowers, *c.* 25 mm wide. Flowers white. Pedicellate ovary clavate, 6.8 mm

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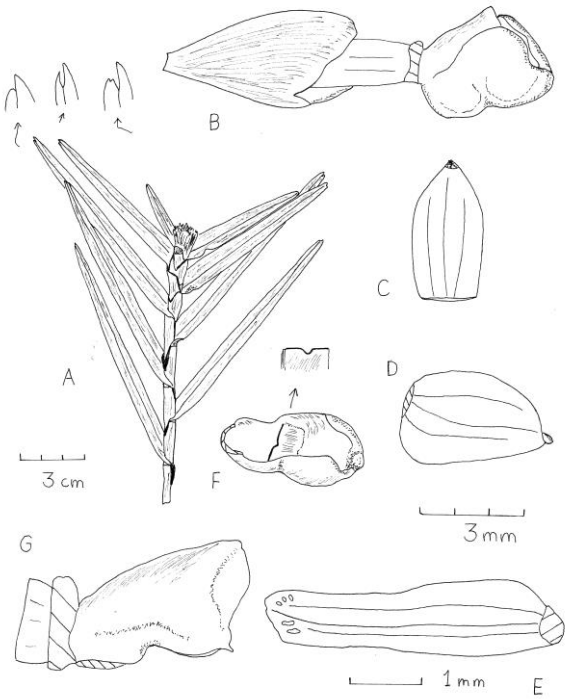


Fig. 3. ***Agrostophyllum dewildeorum*** **Ormerod. A, stem apex (leaf tips arrowed); B, flower (minus tepals) and bract; C, dorsal sepal; D, lateral sepal; E, petal; F, labellum (oblique view); G, column. Drawn from holotype.**

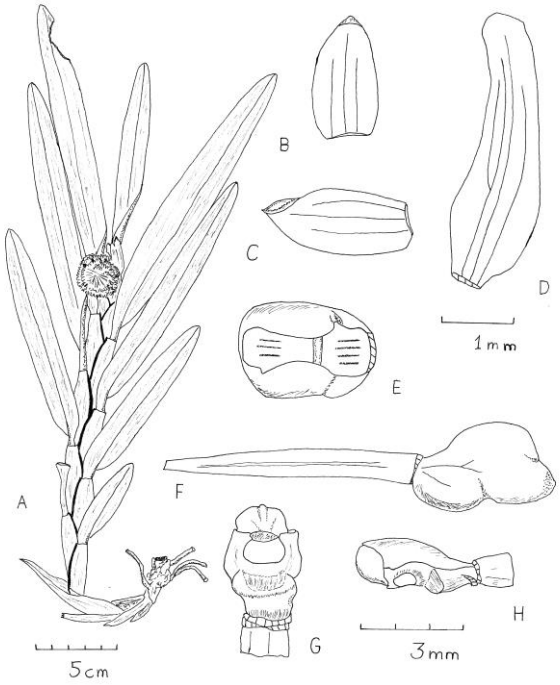


Fig. 4. ***Agrostophyllum edanoanum*** **Ormerod. A, plant; B, dorsal sepal; C, lateral sepal; D, petal; E, labellm; F, flower minus tepals; GH, column (ventral and lateral views). Drawn from holotype.**

long. Dorsal sepal elliptic, subacute, 3 veined, upper third carinate, 3.2 mm long, 1.8 mm wide. Lateral sepals oblong-elliptic, acute, 3 veined, prominently carinate in upper half, 4.0–4.1 mm long, 1.95 mm wide. Petals ligulate-lanceolate, obtuse, 3 veined, 3.6 mm long, 1 mm wide. Labellum shallowly bisaccate-concave in lateral profile, *c.* 3.4 mm long; hypochile subglobose, *c.* 1.5 mm long, 2 mm wide dorsally, 1.5 mm wide laterally; ligula transversely rectangular, truncate; epichile broadly and shallowly saccate, upper margins curved over, apex thickened slightly, *c.* 1.9 mm long, 2 mm wide dorsally (unspread). Column clavate, basal half with a truncate thickening, 2.5 mm long.

Distribution: Philippines.

Habitat: On tree trunk on forested slopes, 1150 m.

Etymology: Named after Gregorio E. Edano (d. 1960), collector of the type.

Agrostophyllum edanoanum belongs to a subgroup of taxa related to *A. formosanum* Rolfe. Previously *A. saccatilabium* Ames & Quis. was the only member of this subgroup reported from the Philippines, but another three are now described here. Though this group is clearly related to *A. javanicum* and its allies, it may be distinguished from them by the fleshier labellum, with less saccate (or more concave) divisions, and a generally stouter column. *Agrostophyllum edanoanum* is easily distinguished from its allies by its habit (with close-fitting leaf sheaths that are not inflated, that do not spread away from the stem or expose the internodes) which closely resembles that of the unrelated *A. longivaginatum* Ames. Florally *A. edanoanum* resembles *A. urdanetae* but that taxon has broader stems (to 2.6 cm wide across leaf sheaths), partially exposed (vs. fully covered) internodes in the upper third of the stem, and flowers with a much broader column that lacks a semiterete, truncate ventral thickening.

Agrostophyllum emwoodiae Ormerod, *sp. nov.*

Fig. 5.

Type: Philippines, Leyte, Jaro, Masaganap, 600 m, 13 October 1914, *C.A. Wenzel 0596* (Holotype: AMES).

Affinis A. philippinense Ames *sed vaginis inflorescentiis parvioribus, ovario in sectionis subquadratis, bialatis (vs. hexalatis), columna subsigmoideis-angulatis (vs. recto) et longioribus (3.0-3.1 vs. 2.6 mm) differt.*

Epiphytic herb. Roots terete, pubescent, 0.8-2.5 mm thick. Stems subterete basally, leafy, 48-57 cm long,

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0.5-0.6 cm thick basally, 1.4-3.4 cm wide across sheaths. Leaves ligulate to ligulate-lanceolate, apex shortly conduplicate, acute, 7.2-20.0 cm long, 1.70-2.85 cm wide; leaf sheaths smooth, sometimes weakly striate, not or finely black-margined, dorsal exposed edge 3.5-5.3 cm long, 0.9-1.3 cm wide laterally; stipule deltate, broadly falcate, acute, *c.* 1 mm long. Inflorescence terminal, subglobose, composed of numerous bracts, sheaths and flowers, 33-45 mm wide; outer sheaths enclosing inflorescence oblong-elliptic, *c.* 25 mm long, 10-12 mm wide. Flowers with white sepals and petals, lip light yellow. Pedicellate ovary slender, subquadrate in section with two narrow wings, *c.* 8.5 mm long. Dorsal sepal oblong, acute, carinate near the apex, 3 veined, 5.3 mm long, 2 mm wide. Lateral sepals obliquely ovate, acute, upper third carinate, 3 veined, 5.5 mm long, 3 mm wide. Petals ovate-elliptic, acute, 5 veined, 5 mm long, 2.1-2.9 mm wide. Labellum trilobed, 5.60-5.75 mm long; hypochile inside with 3 low keels, sidelobes obliquely obovate, obtuse, 2.20-2.25 mm long, 1.2 mm wide laterally; ligula subquadrate, apex weakly lobulate; epichile broadly ovate-subcordate, subacute, base with 2 low ridges, *c.* 3.5 mm long, 4.3-4.9 mm wide. Column subsigmoid-angulate, 3.0-3.1 mm long.

Distribution: Philippines.

Habitat: Forest, 60-1905 m.

Specimens examined: **Philippines**, Leyte, Jaro, Conpagal, 800 m, 25 November 1914, *C.A. Wenzel 0725* (AMES); Jaro, Masaganap, 700 m, 23 November 1914, *C.A. Wenzel 0705* (AMES); Jaro, Masaganap, 750 m, 11 February 1914, *C.A. Wenzel 0274* (AMES); Dagami, Puguajan, 60 m, 10 November 1912, *C.A. Wenzel 16* (AMES 13636); without locality, 7 November 1914, *C.A. Wenzel 0618* (AMES). Negros, Negros Oriental, Cuernos Mts., Dumaguete, March 1908, *A.D.E. Elmer 9450* (AMES); Cuernos de Negros, summit, 1905 m, 19 May 1948, *G.E. Edano 323 (= PNH 5332)* (AMES); Tanjay, Lake Balinsasayao, Mt, Balinsasayao summit, 975 m, 10 September 1948, *G.E. Edano 316 (= PNH 5321)* (AMES).

Etymology: Named after Emily Wood, curator of the Harvard University Herbaria.

Though this species seems to be common, it appears to have escaped prior description due to the majority of collections being in fruit and its external similarity to *A. philippinense* Ames. The latter species differs in having its inflorescence surrounded by large papery sheaths, flowers with a six-ribbed (vs. subquadrate in section with two wings) ovary, elliptic (vs. obliquely obovate) hypochile sidelobes, and an almost straight (vs. subsigmoid-angulate), shorter (2.6 vs. 3.0-3.1 mm) column.

A collection [*M.D. Sulit 1225 (= PNH 5318)* (AMES)] in early fruit from Laguna Province, Luzon is very similar to *A. emwoodiae* in habit but it seems not to have a winged ovary. It is I suspect another entity in this group that remains to be described.

Agrostophyllum inflatum Ormerod, *sp. nov.*

Fig. 6.

Type: Indonesia, Java, without locality, *cult. Hort. Bogor. 407* (Holotype: AMES).

Agrostophyllum javanicum auct. non Blume: J.J. Sm., Orch. Java: 289, 1905; Fig.-Atlas: T. 221, 1908.

Affinis A. javanicum Blume *sed foliis latioribus (7.0-7.5 vs. 4.5-5.0 mm), vaginis foliis ad apicis caulis inflatis (vs. tubulosis), hypochilo in visu lateralis subcircularis (vs. subquadratis) et epichilo concavo-saccatis (vs. retrorso-saccatis) differt.*

Presumably epiphytic herb. Rhizome and roots not seen. Stem terete basally, slightly compressed apically, leafy, 55.2 cm long, *c.* 0.2 cm thick basally, 0.6–1.0 cm wide across sheaths. Leaves linear-ligulate, apex minutely bidentate, 13–14 cm long, 0.70–0.75 cm wide; leaf sheaths smooth, shortly to half open (up to 1 cm), but uppermost sheaths fully open to the next sheath, black-margined, apex truncate to subdeltate, lower sheaths compressed-tubular, uppermost sheaths inflated, exposed dorsal edge 1.4–2.5 cm long, 0.4–0.7 cm wide. Inflorescence terminal, subglobose, composed of numerous bracts, sheaths and flowers, 25 mm long, 35 mm wide. Flower colour unknown. Pedicellate ovary subterete, *c.* 5.5 mm long. Dorsal sepal ovate-elliptic, acute, 3–5 veined, 3.9 mm long, 1.95 mm wide. Lateral sepals obliquely ovate, acute, carinate in upper half, 3 veined, 4.1 mm long, 2.1 mm wide. Petals ligulate-lanceolate, subacute, 1 veined, 4.2 mm long, 0.95 mm wide. Labellum bisaccate in lateral view, *c.* 3.8 mm long; hypochile subglobose, *c.* 1.5 mm long; ligula subquadrate, truncate; epichile subglobose, upper margins irregularly dentate, *c.* 2.0–2.3 mm long, 2.75 mm wide laterally (i.e. 5.5 mm wide spread). Column semiterete, clavate, slightly arched, 3.2 mm long.

Distribution: Indonesia (Java).

Habitat: Not known.

Etymology: From the Latin *inflatus*, meaning blown up or inflated, in reference to the inflated leaf sheaths.

This species is related to *A. javanicum* but has thicker (6-10 vs. 3.0-3.5 mm) stems when measured across the leaf sheaths, wider (7.0-7.5 vs. 4.5-5.0) leaves, more widely opened or split leaf sheaths that are inflated (vs. tightly tubular) near the apex of the stem, larger (35 vs. 18-21 mm wide) inflorescences, and flowers with a hypochile that is subcircular (vs. subquadrate) in profile, and a epichile that is saccate-subglobose (vs. retrorse saccate).

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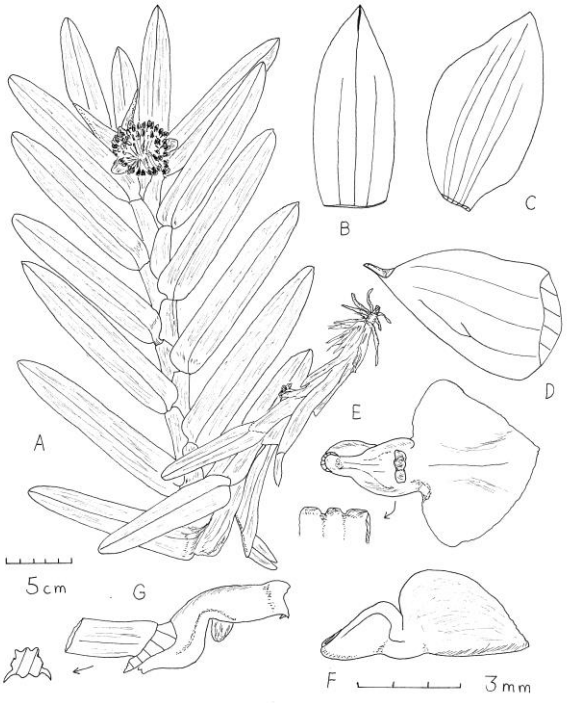


Fig. 5. ***Agrostophyllum emwoodiae*** **Ormerod. A, plant; B, dorsal sepal; C, petal; D, lateral sepal; EF, labellum (dorsal and lateral views, ligula arrowed); G, column (ovary section arrowed). Drawn from holotype.**

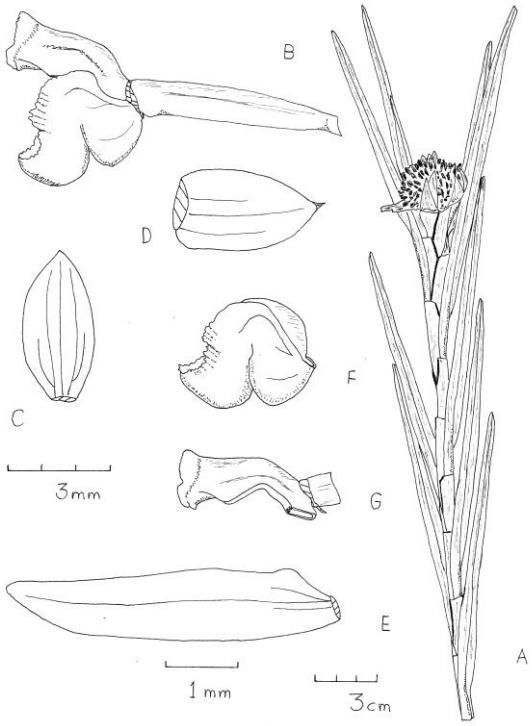


Fig. 6. ***Agrostophyllum inflatum*** **Ormerod. A, stem (upper half); B, flower minus tepals; C, dorsal sepal; D, lateral sepal; E, petal; F, labellum; G, column. Drawn from holotype.**

Agrostophyllum javanicum Blume, Bijdr.: 368, 1825; Tabellen: f. 53, 1825.

Type: Indonesia, Java, Bantam and Buitenzorg Provinces, *C.L. Blume s.n.* (Holotype: L, HLB 902 322-109, photo. AMES).

Agrostophyllum tenue J.J. Sm., Bull. Jard. Bot. Buitenz. s.2, 26: 33, 1918. *syn. nov.*

Types: Indonesia, Java, Tjadas Malang, near Tjibeber, 1000 m, leg. *W.F. Winckel, cult. Hort. Bogor. 194* (Syntype: BO, not seen); Priangan, Tjibodas, Gunung Gede, 1425 m, January 1895, *H. Hallier 229* (Syntype: BO, sterile, not seen); Pasir, Kaboejoetan, near Lemboer Tjimaloha, Mangoekromodiredjo, January 1897, *S.H. Koorders 26547B* (Syntype: BO, sterile, not seen).

Distribution: Indonesia (Java, Sumatra).

Habitat: Forest, 1000-1425 m.

Specimens examined: **Indonesia**, Java, without locality, *cult. Hort. Bogor. s.n.* (AMES). Sumatra, above Kampong Tengah, 1000 m, 28 January 1907, *R. Schlechter 15967* (AMES).

Working from Bogor, J.J. Smith (1905) did not realise his use of the name *A. javanicum* was not in agreement with the type of the species in Leiden. The characters of *A. tenue* are identical with those of the true *A. javanicum*. The plant misidentified as *A. javanicum* by Smith (1905) is described as *A. inflatum* above. I have not seen any material of *A. javanicum* from Malaysia. A record of the synonym *A. tenue* from Sabah (Wood et al. 2011) is described above as *A. bialatum*. Some records of *A. javanicum* from Sabah (e.g. Wood et al. 2011) that have been studied proved to be *A. globiceps* Schltr. (Ormerod 2012). Further examination of Malaysian records of *A. javanicum* will likely show that these also belong to other taxa.

Agrostophyllum javanicum may be recognised by its slender (3.0–3.5 mm thick across leaf sheaths) stems, tightly tubular, hardly opened or split leaf sheaths, linear (to 5 mm wide) leaves, small (18–21 mm wide) inflorescences, and labellum with a hypochile that is subquadrate in lateral profile, and a retrorsely saccate epichile.

Agrostophyllum loheri Ormerod, *sp. nov.*

Fig. 7.

Type: Philippines, Luzon, central part, June, *A. Loher 2131B* (Holotype: K; Iconotype: K).

Affinis A. emwoodiae Ormerod *sed petalis floribus*

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lanceolatis (vs. ovatis), lobis lateralibus semicircularis (vs. oblique obovatis), et basi columna subgracilis (vs. crassissimus) differt.

Presumably epiphytic herb. Rhizome and roots not seen. Stem compressed, transversely elliptic in section, laxly 7 leaved, *c.* 60 cm long, 1.25 cm wide across leaf sheaths at apex. Leaves ligulate to ligulate-lanceolate, apex subacute, 21.0–24.8 cm long, 2.4–2.6 cm wide; leaf sheaths smooth, black-margined, 3.0–3.1 (to 8.5 cm on drawing) cm long, 0.6–1.2 cm wide laterally; stipule deltate, acute, to 1 mm long. Inflorescence terminal, composed of numerous bracts, sheaths and flowers, *c.* 20 mm long, 30 mm wide. Flowers dirty white. Pedicellate ovary slenderly clavate, narrowly winged, 8.0–8.5 mm long. Dorsal sepal oblong, subacute, apical quarter low carinate, 3 veined, 4.4–4.6 mm long, 1.8–1.9 mm wide. Lateral sepals obliquely oblong, apex subacuminate, upper half highly carinate, 3 veined, 5 mm long, 1.9 mm wide. Petals obliquely lanceolate, subacute, 3 veined, 4.1–4.3 mm long, 0.90–0.95 mm wide. Labellum trilobed, *c.* 3.9–4.0 mm long; hypochile concave, sidelobes semicircular, broadly rounded, *c.*1.5 mm long, 1.3 mm wide dorsally, 1.2 mm wide laterally; ligula subquadrate, truncate; epichile ovate-cordate, acute, medially with 2 convexities, *c.* 2.4–2.5 mm long, 3.0–3.3 mm wide. Column obliquely erect, semiterete, clavate, slightly arched, 3.20–3.75 mm long.

Distribution: Philippines.

Habitat: Not known.

Etymology: Named after the collector, August Loher (1874–1930).

This species appears to have been collected only once by August Loher in central Luzon (probably in Rizal Province), possibly in June 1895–6. The type sheet consists of the apex of two stems that have been taken out of spirit. Fortunately Loher also made a detailed drawing and notes on the living plant. This has been used to supplement the description above.

Agrostophyllum loheri is somewhat similar to *A. emwoodiae* but it has flowers with narrower petals, semicircular (vs. obliquely obovate) sidelobes, and a straighter (vs. subsigmoid-angulate) column with an unthickened (vs. thickened) base. Another similar species is the poorly known *A. merrillii* Ames [Holotype: Mindoro, *E.D. Merrill 5844* (AMES)] but the latter has narrower (14–20 vs. *c.* 24–25 mm wide) leaves, narrower (8.0–9.5 vs. 6–12 mm wide laterally) leaf sheaths, and wider (2 vs. 1 mm) petals.

Agrostophyllum urdanetae Ormerod, *sp. nov.*

Fig. 8.

Type: Philippines, Mindanao, Agusan Prov., Cabadbaran (Mt. Urdaneta), altitude unknown, September 1912, *A.D.E. Elmer 13852* (Holotype: AMES).

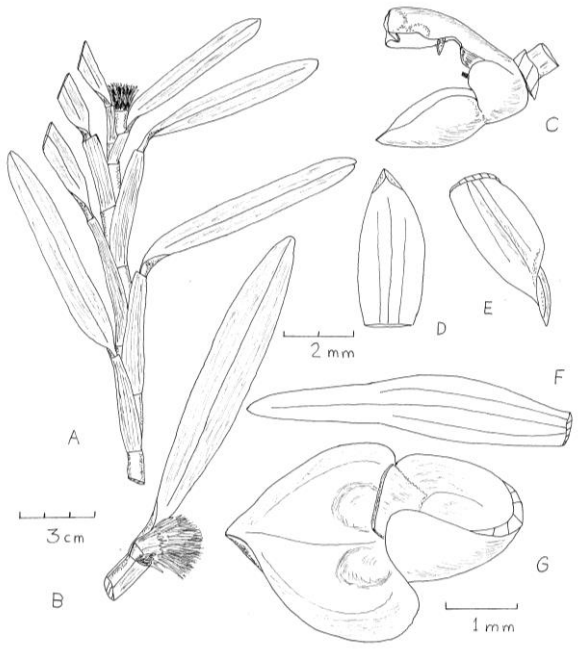


Fig. 7. *Agrostophyllum loheri* Ormerod. A, stem (upper part, no scale); B, stem apex; C, flower minus tepals; D, dorsal sepal; E, lateral sepal; F, petal; G, labellum. A from Loher sketch, rest from holotype.

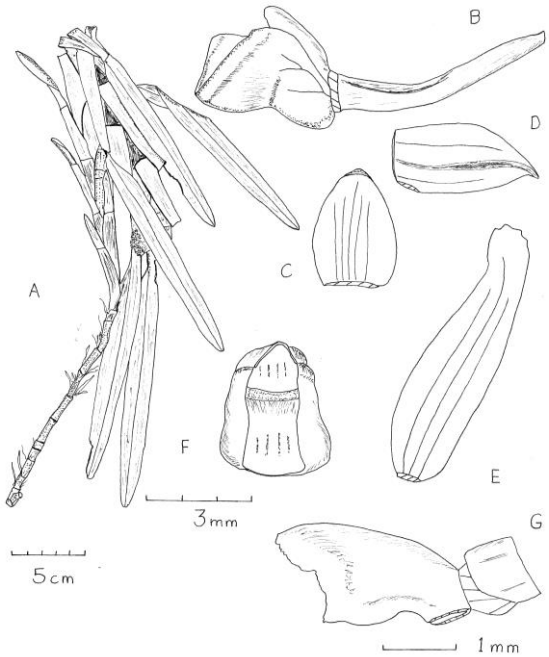


Fig. 8. *Agrostophyllum urdanetae* Ormerod. A, stem; B, flower minus tepals; C, dorsal sepal; D, lateral sepal; E, petal; F, labellum; G, column. Drawn from holotype.

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Affinis A. saccatilabium Ames & Quis. *sed columna latioribus et basi epulvinatis (vs. pulvinatis) differt.*

Presumably epiphytic herb. Rhizome and roots not seen. Stem terete basally, compressed above, leafy, 55 cm long, base *c.* 0.50–0.55 mm thick, 1.3–2.6 cm wide across leaf sheaths; internodes exposed basally in upper third of stem, 1.0–3.3 cm long. Leaves linear-ligulate, apex minutely conduplicate, obtuse, thinly coriaceous, 15.7–21.0 cm long, 1.55–1.70 cm wide; leaf sheaths smooth, black-margined, 2.1–7.5 cm long, 0.75–1.60 cm wide laterally; stipule deltate, acute to obtuse, very short, to 0.5 mm long. Inflorescence terminal, subglobose, seminutant, composed of numerous bracts, sheaths and flowers, *c.* 27 mm wide. Flower colour unknown. Pedicellate ovary clavate, possibly sparsely furfuraceous, 6 mm long. Dorsal sepal ovate, obtuse, 3.5 mm long, 2.3 mm wide. Lateral sepals obliquely oblong-elliptic, acute, carinate, 3.8 mm long, 2 mm wide. Petals obliquely ligulate-lanceolate, subacute, 3 veined, 3.75 mm long, 1 mm wide. Labellum shallowly bisaccate-concave in lateral view, *c.* 3.75 mm long; hypochile saccate-concave, *c.* 1.1 mm long, 1.9 mm wide dorsally, 1.00–1.75 mm wide laterally; ligula transversely rectangular, truncate; epichile concave, *c.* 1.65 mm long, 2.5 mm wide dorsally, 2.3 mm wide laterally (i.e. 4.6 mm wide spread). Column stout, broadly dilated, *c.* 2 mm long.

Distribution: Philippines.

Habitat: Not known.

Etymology: Named after the type locality, Mt. Urdaneta.

This species is related to *A. saccatilabium* Ames & Quis., sharing with it characters such as the stem having partially exposed internodes, and very similar floral morphology. However *A. urdanetae* differs in having a much broader column that lacks a basal cushion. Another similar species is *A. vulcanicum* but its stems have unexposed internodes, and flowers have a widely spreading labellum epichile, with a more slender, clavate column.

Agrostophyllum vulcanicum Ormerod, *sp. nov.*

Fig. 9.

Type: Philippines, Luzon, Albay Prov., Mayon Volcano, 915 m, September 1928, *M. Ramos & G.E. Edano BS 75715* (Holotype: AMES).

Affinis A. urdanetae Ormerod *sed internodiis caulis omnino obtectis, epichilo floribus apertis (vs. semiclausis), et columna clavatis (vs. late dilatatis) differt.*

Epiphytic herb. Roots terete, pubescent, 1.0–2.5 mm thick. Stems compressed basally, transversely elliptic in section, 9 leaved in upper half, 15–23 cm long, 0.3–0.5 cm thick basally, 1.5–2.3 cm wide across leaf sheaths above. Leaves ligulate, apex obtuse to shallowly obtusely bilobed, 7.0–20.3 cm long, 1.05–1.45 cm wide; leaf sheaths, smooth, finely striate dry, broadly (1.0–2.5 mm wide) black-margined, conduplicate-compressed, exposed dorsal edge 2.0–3.4 cm long; stipule deltate, acute, 1.0–2.5 cm long. Inflorescence terminal, nutant, subglobose, composed of numerous bracts, sheaths and flowers, 20 mm long, 20–25 mm wide. Flowers white. Pedicellate ovary slenderly clavate, sparsely furfuraceous, 8 mm long. Dorsal sepal ovate, subacute, 3 veined, 3.5 mm long, 2.2 mm wide. Lateral sepals obliquely oblong, subacute, 3 veined, carinate, 4.3 mm long, 2 mm wide. Petals obliquely oblong-lanceolate, obtuse, 3 veined, 3.9 mm long, 1.25 mm wide. Labellum shallowly bisaccate-concave in profile, *c.* 3.9 mm long; hypochile obovate-subquadrate in profile above, saccate-concave, 2 mm long and wide; ligula transversely elliptic, apex lunate-excised; epichile shortly flabellate, obtuse, concave, *c.* 1.9 mm long, 3.75 mm wide unspread. Column semiterete, clavate, *c.* 2.5 mm long.

Distribution: Philippines.

Habitat: On tree trunks on forested slopes, 915 m.

Specimen examined: **Philippines**, Luzon, Benguet Prov., between Baguio and Sablon, no altitude, 19 November 1904, *R.S. Williams 1926* (K).

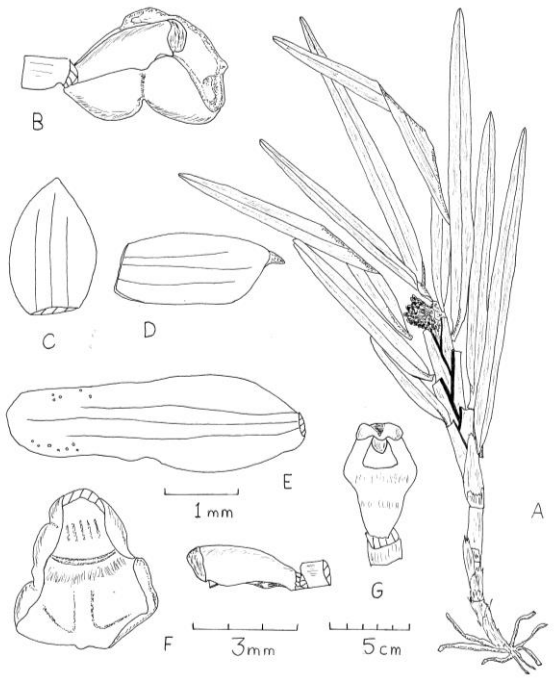


Fig. 9. *Agrostophyllum vulcanicum* Ormerod. A, plant; B, flower minus tepals; C, dorsal sepal; D, lateral sepal; E, petal; F, labellum; G, column (lateral and ventral views). Drawn from holotype.

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Etymology: From the Latin *vulcanus*, after Vulcan, the Roman god of fire, in reference to the type locality, the Mayon Volcano.

This species is related to *A. urdanetae* but differs from it in having leaf sheaths that do not expose the stem internodes, flowers with a more widely open labellum epichile, and a narrower, clavate (vs. broadly dilated) column. *Agrostophyllum vulcanicum* may also be recognised by its distinctive habit whereby the stems are relatively short, clavate, and the broadly black-margined leaf sheaths are obliquely inserted (thus the apices point outward) on the stem.

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