

TOWARDS A REVISION OF AGALMYLA (GESNERIACEAE)

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SUMMARY

A brief summary of the present taxonomic position in *Agalmyla* Blume (Gesneriaceae) is given. Six new species are described, *A. bicolor*, *A. exannulata* and *A. remotidentata* from Sulawesi, *A. macrocalyx* from Borneo (Sarawak), *A. samarica* from the Philippines (Samar) and *A. manuselae* from the Moluccas (Seram). The plant long known as *Dichrotrichum ternateum* de Vriese is transferred to *Agalmyla*, under its oldest epithet, as *A. elongata* (Blume) B.L. Burtt, and two other early names of species from New Guinea are also transferred as *A. chalmersii* (F. Muell.) B.L. Burtt and *A. triflora* (Valeton) B.L. Burtt.

Key words: *Agalmyla*, *Dichrotrichum*, Gesneriaceae, SE Asia.

INTRODUCTION

It is some years since one of us (Burtt, 1968) set out reasons for remodelling the genus *Agalmyla* Blume. This resulted in its expansion by the inclusion of *Dichrotrichum* de Vriese and *Tetradema* Schltr.

One very interesting new character has since been discovered by Kvist & Pedersen (1986) in an investigation of the distribution of phenolic acids in Gesneriaceae. Their survey covered 590 species in 91 genera and included five species of *Agalmyla* that were representative of the genus in its enlarged sense. All five showed the presence of homogentisic acid (compound G in their table of results), a substance found nowhere else in the family. This is independent support for the revised concept of the genus.

When the generic limits were under consideration it was realized that species identifications, especially in New Guinea, were very uncertain; therefore very few specific transfers to *Agalmyla* were made [only *A. borneensis* (Schlechter), *A. bracteata* (Stapf), *A. clarkei* (Elmer), *A. johannis-winkleri* (Kraenzlin) and *A. rubra* (Merrill) – all attributable to Burtt, 1968: 224]. The correct epithet for the type species of *Dichrotrichum*, *D. ternateum*, was then uncertain: it has now been sorted out and the earliest epithet, from *Tromsdorffia* ? *elongata* Blume, is adopted below.

Schlechter had revised the genus in New Guinea (under *Dichrotrichum*) in 1923, recognizing 18 species. Unfortunately he had to leave two of the oldest names, *D. chalmersii* F. Muell. and *D. triflorum* Valeton, on one side as “species insufficiently known to me”. Isotypes of these names have been examined and there is no doubt that the species will stand; they are transferred to *Agalmyla* below.

A full revision of *Agalmyla* has now been put in hand (there are perhaps 60 species all told), but prior to this a number of unidentified specimens were examined and we

have decided that some of these are so well-marked that they can be safely published as new species without further delay. *Agalmyla bicolor*, *A. exannulata* and *A. remotidentata* are all from Sulawesi and form a distinct little group characterized by leaves with distant marginal teeth and corollas lacking the ring of hairs that is usually present on the inside just above the base of the tube; *A. samarica* from the island of Samar in the Philippines is noteworthy for its reddish-brown bristly indumentum, long filiform pilose calyx-segments and yellow flowers (the flower-colour being shared with some of the Sulawesi plants); *A. macrocalyx* was found on Gunung Murud in N Sarawak; *A. manuselae* from Seram is an erect plant with no close allies. Other species with this habit are *A. erecta* B.L. Burtt from Sarawak, which is terrestrial, *A. clarkei* (Elmer) B.L. Burtt and *A. rubra* (Merr.) B.L. Burtt from the Philippines, which are epiphytic; but there is no close affinity between *A. manuselae* and any of these. All other known species are root-climbers.

1. *Agalmyla bicolor* Hilliard & B.L. Burtt, *spec. nov.*

Corollae tubo flavo lobis rubris ad huc ab omnibus aliis distincta. Inter species alias celebicas corollis annulo basali pilorum carentes ovario dense pubescente distinguenda. *Agalmyla exannulata* floribus rubris et *A. remotidentata* (ambo infra descriptae) floribus omnino flavis et calycis segmentis triplo longioribus recedunt. — Typus: *De Joncheere 1245* (holo L; iso E), Sulawesi, Sopo valley, up to P. Dingin, primary forest, 1200 m, 1979.

Epiphytic herb, stems elongate, creeping, rooting, c. 4 mm diam. on flowering part, strongly appressed-pubescent, hairs 0.3–0.5 mm long, acute. *Leaves* opposite, one very small, blade of developed leaf 50–115 by 23–42 mm, elliptic, apex subacute, base cuneate, scarcely oblique, tapering into petiole, margins entire, 4–5 pairs of lateral veins ascending at angle of c. 45°, looping near margins, upper surface with scattered acute hairs c. 0.4 mm long, strongly appressed, globular glands as well, less than 0.1 mm diam. (best seen on young leaves), lower surface more densely appressed-pubescent especially over veins, hairs up to c. 0.7 mm long; petiole c. 23–70 mm long, appressed-pubescent. *Flowers* up to c. 10 in axillary clusters. *Bracts* (only one seen) c. 8 by 1 mm, linear-oblong, hairy as leaf. *Pedicels* 9–10 mm long, strongly appressed-pubescent, hairs c. 0.25 mm long, upward-pointing. *Calyx* tube c. 0.8 mm long, lobes 5, subequal, c. 3 by 1.7 mm, narrowly triangular, acute, glabrous inside, outside densely pubescent, hairs c. 0.25 mm long, strongly appressed. *Corolla* c. 32 mm long, tube (measured from sinuses of posticous pair of lobes to base) 28 mm long, (measured from sinuses of anticous lobe to base) 25 mm, narrowly funnel-shaped, slightly curved, mouth oblique, posticous lobes erect, 3.8 by 2.6 mm, oblong-elliptic, apex rounded, lateral lobes ascending, 6.5 by 3.5 mm, broadly elliptic, apex rounded, anticous lobe 5 by 3.3 mm, broadly elliptic, porrect, margins of all lobes undulate, corolla 'red with yellow petals', pubescent outside, hairs c. 0.25 mm long, curved, upward-pointing, acute, inside minutely glandular-puberulous all over, hairs c. 0.1 mm long, scattered, all lobes densely glandular-puberulous on inner face, palate with stout conical papillae c. 0.1 mm long from base of anticous lobe to point of insertion of anticous filaments. *Stamens* 4, inserted c. 15 mm above base of tube, anticous filaments 24 mm long, anticous anthers 1.8 mm long, posticous filaments 20 mm long, posticous anthers 1.5

mm long, all filaments clad in delicate gland-tipped hairs up to 0.3 mm long, anthers cohering in pairs at their tips; staminode 1 mm long. *Disc* cupular, 1.5 by 1.5 mm, fleshy, rim crenulate. *Ovary* 18 by 1.1 mm including stipe 3 mm long, both style and ovary puberulous, hairs upward-pointing, both acute and gland-tipped, stipe glabrous. *Style* c. 5 mm long (in male phase) tapering into ovary. *Stigma* of 2 equal lobes c. 1.2 by 1 mm (in male phase of flower). *Fruit* not seen.

2. *Agalmyla chalmersii* (F. Muell.) B.L. Burt, *comb. nov.*

Dichrotrichum chalmersii F. Muell., Melbourne Chem. Drug. (June 1884). — Type: New Guinea, Owen Stanley Range, 1884, *Chalmers* (K, MEL).

[*Dichrotrichum papuanum* S. Moore, J. Bot. 37 (1899) 174, nom. nud.]

[*Chalmersia papuana* F. Muell. MSS; S. Moore, J. Bot. 37 (1899) 174, in syn.]

The following specimens agree well with Chalmers' material. An important feature, not mentioned in Mueller's description, is that the ovary is hairy. This puts *A. chalmersii* in the second half of Schlechter's key.

Specimens studied: PAPUA NEW GUINEA. Central Highlands Prov., Nondugl, Apr. 1951, *Womersley NGF 4416* (K). Western Highlands Prov., Kapiago Subprov., Batane, off Tari Rd., 9 miles from Kapiago, S 5° 22', E 142° 33', 4450 ft, 30 Oct. 1968, *Womersley, Vandenberg & Galore NGF 37224* (K). Eastern Highlands Prov., Arau, 1400 m, 6 Oct. 1959, *Brass 31896* (K). Morobe Prov., Buang region, gully north of Wagau airstrip, S 6° 45', E 146° 50', 4000 ft, 3 Nov. 1963, *Womersley NGF 17870* (E, K).

3. *Agalmyla elongata* (Blume) B.L. Burt, *comb. nov.*

Tromsdorffia ? elongata Blume, Bijdr. 14 (1826) 763. — *Morstdorffia elongata* (Blume) Steud., Nomencl. ed. 2, 2 (1841) 162. — *Liebigia ? elongata* (Blume) A. DC., Prodr. 9 (1845) 259. — *Dichrotrichum elongatum* (Blume) Vill. in Blanco, Fl. Filip. ed. 3, 4: Noviss. App. (1880) 150. — *Dichrotrichum ternateum* (Reinw. ex) de Vriese, Pl. Ind. Bat. Or. (1856) 7, t. 1–2; Hook. f., Bot. Mag. (1884) 110, t. 6791. — Neotype (proposed here): *Reinwardt s. n.* (L), Moluccas, Ternate, Aug. 1821.

No type specimen of *Tromsdorffia ? elongata* Blume has been located. It cannot have been one of Blume's own collections, as he never went to the Moluccas. The probability is that Blume saw a specimen collected by Reinwardt, who was on Ternate in 1821, five years before Blume's name was published. Either Blume omitted to write the name on Reinwardt's plant, or the actual specimen he saw has been lost. The specimen now in the Rijksherbarium, Leiden, bears Reinwardt's own notes (thanks are due to Dr. M.M.J. van Balgooy for a photocopy of these) and was evidently part of his own herbarium bequeathed to the Rijksherbarium on his death in 1854.

Reinwardt's notes show that he himself had no doubts that the plant to which he attached the name *Dichrotrichum ternateum* was the same as Blume's *Tromsdorffia ? elongata*. He simply retained his own epithet which he had given to the plant, under *Bignonia*, in his unpublished "Obs. 1498"; De Vriese quotes this with the date 1821, the actual year when Reinwardt was on Ternate. It therefore seems appropriate to designate Reinwardt's own specimen as the neotype of Blume's name. When De Vriese published Reinwardt's name he made one tiny alteration in citing Blume's treatment: he wrote *Tromsdorffia elongata* Bl. ? and not *Tromsdorffia ? elongata* Bl. Whether

the changed position of the ? indicated that De Vriese was uncertain about the identity of the plant, rather than sharing Blume's doubt about its position in *Tromsdorffia*, is immaterial; there is no previous species *elongata* in *Agalmyla* and the oldest epithet can be used; the question whether *ternateum* was technically illegitimate is unimportant.

The following specimens can be safely identified as *A. elongata*: MOLUCCAS. Ternate, *Beccari s.n.* (K); Oct. 1874, *Moseley s.n.* (K); Gunung Aki Abdes, 30 Aug. 1951, *Idjan & Mochtar 12* (K). Tidore, Gunung Mala Mala, 7 July 1926, *Lam 3687* (K). Morotai, Gunung Pare Pare, 900 m, 26 May 1949, *Kostermans 1131* (K); ibidem, 1000 m, 28 May 1949, *Kostermans 1302* (K).

4. *Agalmyla exannulata* Hilliard & B.L. Burt, *spec. nov.*

Agalmyla bicolori (vide supra) affinis sed corolla omnino rubra extra pilis aliis glandulosis aliis eglandulosis (nec extra dense et breviter pilis eglandulosis indutis), ovario glabro (nec pubescente) distinguitur. — Typus: *Johansson, Nybom & Riebe 257* (holo E; iso L), Sulawesi, c. S 1° 10', E 120° 10', N slope of Gunung Nokilalaki, 1650 m, primary forest, 9 March 1981.

Epiphytic herb, stem elongate, creeping, rooting, c. 5 mm diam. on flowering part, appressed-pubescent, hairs to 0.5 mm long, coarse, acute. *Leaves* opposite, only the developed leaves seen, blade c. 150 by 37 mm, elliptic, apex shortly acuminate, base cuneate, very oblique, margins with few small distant teeth, c. 8 pairs of lateral veins ascending at angle of c. 60°, looping near margins, upper surface with few scattered hairs c. 0.8 mm long, lower gland-dotted, coarse acute hairs up to 1 mm long over veins, scattered over blade; petiole c. 80 mm long, appressed-pubescent, hairs c. 0.6 mm long. *Flowers* few in axillary clusters. *Bracts* c. 7 by 1 mm, linear-lanceolate, acute, pubescent outside, glabrous inside. *Pedicels* up to 16 mm long, pubescent, hairs up to 0.5 mm long, sharply ascending. *Calyx* tube 2 mm long, lobes 5, largest pair 3.8 by 2 mm, 3 smaller lobes 2.8 by 1.5 mm, all triangular, acute, minutely glandular inside, outside and margins pubescent, hairs up to 0.25 mm long, acute, sharply ascending, minute scattered globose glands as well. *Corolla* c. 39 mm long, tube (measured from sinuses of posticous pair of lobes to base) 34 mm long, (measured from sinuses of anticous lobe to base) 24 mm, funnel-shaped, curved, mouth oblique, laterally compressed (?), posticous lobes erect, 5 by 2.5 mm, oblong, apex rounded, lateral lobes ascending, 12 by 4 mm, oblong, apex rounded, anticous lobe 9.5 by 4 mm, oblong-elliptic, tapering from base upwards, porrect, outside of corolla 'red, tube pale inside', pubescent outside, hairs up to 0.2 mm long, mixed acute and gland-tipped, all lobes glandular-puberulous on inner face, palate with rounded papillae less than 0.1 mm long running from base of anticous lobe to point of insertion of anticous filaments, otherwise glabrous. *Stamens* 4, inserted 20 mm above base of tube, anticous filaments 45 by 1 mm, anticous anthers 2.5 mm long, cohering at their tips; posticous filaments 37 by 0.5 mm, posticous anthers c. 1.2 mm long, cohering at their tips, all filaments clad in delicate patent hairs to c. 0.5 mm long; staminode 3 mm long, filiform. *Disc* cupular, 1.5 by 1.8 mm, fleshy, rim crenulate, 'yellow'. *Ovary* 25 by 2 mm, glabrous, sessile. *Style* 34 mm long tapering into ovary, glandular-puberulous, hairs c. 0.25 mm long. *Stigma* of 2 equal lobes 2.5 by 2.5 mm, fleshy, 'pale violet', minute stigmatic papillae all over inner faces. *Fruit* not seen.

5. *Agalmyla macrocalyx* Hilliard & B.L. Burt, *spec. nov.*

Ob inflorescentias subsessiles bracteis magnis circumcinctas et calycem magnum fere 30 mm longum, tubo brevissimo 1 mm longo tantum, corollam kermesinam segmentis antico et lateralibus linea nigra notatis ab *A. borneensi* (Schltr.) B.L. Burt distinguitur. Ab *A. johannis-winkleri* (Kraenzl.) B.L. Burt foliorum laminis ellipticis, petiolis subappresse pilosis (nec laminis longe lanceolatis petiolis glabris vel sparsim pilosis), calyce 30 mm (nec ad 12 mm) longo differt. — Typus: *Burt & Martin 5370* (holo E), Sarawak, 4th Div., route from Bakelalan to Gunung Murud, below Camp IV, c. 6000 ft, 4 Oct. 1967.

Epiphytic herb, stems elongate, creeping, rooting, c. 10 mm diam. on flowering part, appressed-pubescent, hairs up to 2 mm long, coarse, acute. *Leaves* opposite, one of each pair greatly reduced, 23–30 by 10 mm, broadly lanceolate, acute, base broad, appressed-pubescent outside, glabrous inside; blade of developed leaf 110–250 by 27–70 mm, elliptic, apex shortly acuminate, base cuneate, margins serrulate, each tooth tipped with a hydathode, 12–16 pairs of lateral veins ascending at angle of c. 45°, running out to margins, upper surface glandular-punctate, appressed hairs confined to margins, lower surface thinly appressed-pubescent (densely pubescent over veins), hairs up to 2 mm long, coarse, acute, glandular-punctate as well; petiole 50–110 mm long, stout, appressed-pubescent. *Flowers* in crowded axillary almost sessile cymes surrounded by an involucre of c. 10 big bracts. *Bracts* 33–50 by 22–40 mm, outer broadly ovate, inner broadly elliptic tapering to a broad base, margins coarsely toothed to entire, red, glabrous inside except at tips, outside appressed-pubescent, hairs up to 1 mm long, stout. *Pedicels* up to 10 mm long, very stout, warted, appressed-pubescent, hairs to c. 0.5 mm long. *Calyx* lobed to within 1 mm of base, lobes 5, subequal, c. 28 by 10 mm, thick-textured, broadly elliptic, apex ± rounded, base slightly narrowed, appressed-pubescent outside, hairs up to 0.8 mm long, margins similarly hairy, inside very minutely puberulous. *Corolla* c. 50 mm long, tube (measured from sinuses of posticous pair of lobes to base) 40 mm long, measured from anticous sinuses to base 30 mm, broadly funnel-shaped, curved, mouth oblique, laterally compressed, posticous lobes erect, c. 7 by 6.5 mm, oblong, lateral lobes ascending, c. 15 by 9 mm, oblong, apex rounded, anticous lobe porrect, c. 15 by 7 mm, oblong-elliptic, folded longitudinally, corolla bright red, appressed-pubescent outside, hairs stout, acute, up to 1 mm long, inside of all lobes minutely puberulous, stoutest hairs on anticous lobe, minute sessile globose glands at base of anticous lobe and descending down tube to point of insertion of anticous filaments, a ring of stout, acute, upward-pointing hairs c. 2 mm long inserted c. 7 mm above base of tube, median dark stripe on lateral and anticous lobes, the tissue slightly raised, more strongly so on anticous lobe. *Stamens* 4, inserted c. 22 mm above base of tube, anticous filaments c. 40 mm long, anthers c. 4.5 mm; posticous filaments c. 32 mm long, anthers c. 3 mm, all filaments blue, glabrous, anthers cohering in pairs at their tips; staminode c. 1 mm long. *Disc* cupular, 1.5 by 5 mm, fleshy, rim crenulate. *Ovary* c. 38 by 3.5 mm (fertilized), sessile, glabrous. *Style* c. 25 mm long, tapering into ovary, glabrous. *Stigma* of 2 equal fleshy lobes c. 7 by 5.3 mm, minute stigmatic papillae all over inner face. *Fruit* splitting into 4 papery valves c. 300 by 7 mm. *Seeds* c. 1 by 0.25 mm, ellipsoid, brown, papillate (from raised epidermal cells?), at each end an appendage c. 4 mm long, base broad, tapering upwards, membranous.

Specimens seen (in addition to type): SARAWAK. 5th Div., route from Bakelalan to Gunung Murud, near Camp III, c. 5800 ft, 28 Sept. 1967, *Burt & Martin 5286* (E). Kelabit Highlands, Gunung Murud east, path to the top, 1800 m, 5 Apr. 1970, *Nooteboom & Chai 1942* (L).

6. *Agalmyna manuselae* Hilliard & B.L. Burt, *spec. nov.*

Nulli arcte affinis. Planta erecta (vel terrestris vel epiphytica dubium est), foliis anguste lanceolatis, marginibus integris leviter revolutis, suboppositis vel in verticilla irregularia congesta omnibus similibus. Flores axillares solitarii vel pauci in pedunculo brevissimo suffulti, pedicellis 6–12 mm longis appresse pubescentibus, corolla 25 mm longa distincti.

— Typus: *Eyma 1918* (holo L), Ceram, Pipileina, Manoesala [Manusela N.P.], 29 Oct. 1937.

Herb, habit and stature unknown, stems apparently simple, erect, 3–5 mm diam. on flowering part, longitudinally striate, young parts appressed-pubescent, hairs stout, acute, upward-pointing, up to 0.8 mm long, glabrescent. *Leaves* opposite, subopposite, or \pm ternate, apparently subequal, but a reduced leaf or leaf-like bract may subtend a pedicel; blade of largest leaves 70–120 by 10–20 mm, \pm narrowly elliptic (upper part mostly slightly broader than lower), apex very acute, base narrowly cuneate and tapering into a petiolar part 10–26 mm long, margins entire but slight irregularities induced by hydathodes (?), lateral veins in c. 5 pairs, immersed, sharply ascending at angle of c. 30°, looping near margins, upper surface thinly pubescent, hairs scattered, appressed, c. 0.5 mm long, more plentiful on midrib, closely glandular-punctate, lower surface with scattered sessile glands, appressed hairs plentiful on midrib, thinly scattered on blade; petiolar part appressed-pubescent. *Flowers* axillary, solitary or subsolitary. *Bract* (or reduced leaf?) 4–6 by 1.5–2 mm, lanceolate, acuminate, appressed-pubescent. *Pedicels* 6–12 mm long, expanded below calyx, appressed-pubescent. *Calyx* divided to within 0.5 mm of base, lobes 5, subequal, c. 9.5 by 2 mm at base, lanceolate acuminate, margins involute upwards, apex bluntly callose-tipped, outside coarse appressed acute hairs up to 0.7 mm long, minutely gland-dotted as well, inside glabrous in lower part, involute upper part minutely puberulous with acute and gland-tipped hairs. *Corolla* 25 mm long, tube (measured from sinuses of posticous pair of lobes to base) 21 mm long, (measured from sinuses of anticous lobe to base) 16 mm, funnel-shaped, curved, mouth oblique, somewhat compressed laterally, posticous lobes erect, 4 by 3.8 mm, suborbicular, lateral lobes spreading more or less at right angles to posticous lobes, 5 by 4.5 mm, oblong, apex broadly rounded, anticous lobe 5 by 4 mm, broadly elliptic, either porrect or deflexed, corolla 'rose red outside, inside salmon-coloured', outside pubescent with \pm spreading hairs up to 1 mm long, mostly acute, some gland-tipped, minute short-stalked glands as well; inside of lobes densely pubescent, hairs to 0.25 mm long, mixed acute and gland-tipped, patch of sessile globose glands less than 0.1 mm diam. running from base of anticous lobe to point of insertion of anticous filaments, 5 discrete tufts of gland-tipped hairs c. 1 mm long each arising from a small cushion of tissue inserted in a ring 4 mm above base of tube, elsewhere inside tube above ring scattered gland-tipped hairs c. 1 mm long. *Stamens* 4, inserted 9 mm above base of tube, anticous filaments c. 28 mm long, anthers 3 mm long, posticous filaments c. 24 mm long, anthers 2.5 mm, all filaments glandular-puberulous, hairs c. 0.3 mm long, anthers cohering at their tips in pairs; staminode well developed, 9 mm long, filiform, with or without a rudimentary anther. *Disc* cupular, fleshy, 1 by 1.5 mm,

apex crenulate. *Ovary* 14 by 1 mm, sessile, glabrous. *Style* 15 mm long, tapering into ovary, glandular-puberulous, hairs c. 0.3 mm long. *Stigma* of 2 equal fleshy lobes 2 by 0.8 mm, inner faces covered in minute stigmatic papillae. *Fruit*: only fragments seen. *Seeds* c. 1 by 0.25 mm, ellipsoid, brown, papillate (from raised epidermal cells?), at each end an appendage c. 3 mm long, broad at base, tapering upwards, flat, membranous, pale.

This species is known only from the type specimen which lacks any indication whether it is terrestrial or epiphytic. Nevertheless it seems best to draw attention to it by giving it a name in the hope that collectors will be stimulated to search for this interesting plant. The arrangement of the leaves, and the question whether the minor leaf of each pair has developed to normal size or been completely suppressed, cannot be decided from a herbarium specimen. Similar problems of precise phyllotaxis arise in *A. clarkei* from the Philippines. The leaves are unusual in the genus in having entire slightly revolute margins. Usually the margins are toothed and some at least of the teeth bear hydathodes.

7. *Agalmyla remotidentata* Hilliard & B.L. Burt, *spec. nov.*

Agalmylae bicolori (vide supra) affinis, sed laminis foliorum multo longioribus (majoribus 300–425 mm, nec 50–115 mm tantum) calycis tubo 3 mm (nec 0.8 mm) et lobis 9 mm (nec c. 3 mm) longis, corolla flava (nec bicolori) differt. — Typus: *Hennipman 5480* (holo E; iso L), Sulawesi (Celebes), Roroka Timbu Mts, c. 80 km S of Palu, primary evergreen rain forest, 1750–1850 m, 18 May 1979.

Epiphytic herb, stems elongate (recorded up to 6 m), creeping, rooting, c. 5–7 mm diam. on flowering part, glabrous. *Leaves* opposite, paired, the smaller leaves all fallen, blade of large leaves c. 300–425 by 50–100 mm, elliptic, apex acuminate, base long-attenuate into a winged petiolar part 100–150 mm long, margins coarsely toothed, teeth distant, each tipped with a hydathode, c. 12 pairs of lateral veins ascending at angle of c. 60°, looping near margins, upper surface glabrous or very nearly so, lower sparsely and minutely gland-dotted, scattered coarse acute hairs up to 1 mm long mainly on midrib and margins. *Flowers* in almost sessile crowded axillary cymes. *Bract* c. 14 by 1.2 mm, linear-lanceolate, acute, villous outside, hairs red (as on pedicel, calyx and corolla), glabrous inside; bracteole (one only) c. 12 by 1 mm, narrowly elliptic tapering at both ends, hairy as bract. *Pedicel* c. 10–14 mm long, villous, hairs up to 2.5 mm long, patent. *Calyx* tube 3 mm long, lobes 5, 9 by 2–3 mm at base, subequal, narrowly triangular, acuminate, glabrous inside, outside scattered patent acute hairs up to 3 mm long underlain by much shorter acute hairs and minute globose glands. *Corolla* c. 39 mm long, tube (measured from sinuses of posticous pair of lobes to base) c. 33.5 mm long, (measured from sinuses of anticous lobe to base) c. 23 mm, funnel-shaped, curved, mouth oblique, laterally compressed (?), posticous lobes erect, 6 by 3.5 mm, oblong-elliptic, obtuse, lateral lobes ascending, 14 by 4 mm, anticous lobe 13 by 4 mm, elliptic, probably porrect, outside of corolla yellow, villous with patent acute hairs up to c. 2 mm long underlain by much shorter acute hairs and minute globose glands; glabrous inside except for palate with fleshy pyramidal papillae c. 0.2 mm long below anticous lobe and extending down between the anticous filaments for c. 5 mm below their point of insertion. *Stamens* 4, inserted c. 18 mm above base of

tube, anticous filaments c. 42 mm long, anticous anthers c. 3 mm long, cohering at their tips, posticous filaments c. 35 mm long, posticous anthers c. 2 mm long, cohering at their tips; all filaments clad in delicate patent glandular hairs c. 0.4 mm long; staminode 4 mm long, filiform. *Disc* cupular, fleshy, 1.2 by 1.5 mm, corrugated vertically. *Ovary* 4 by 0.8 mm, glabrous, sessile. *Style* (in male phase of flower) c. 1.3 mm long, constricted below the stigma and above the ovary, constrictions glabrous, rest of style glandular-pubescent, hairs c. 0.4 mm long. *Stigma* of 2 equal lobes c. 0.5 by 0.5 mm. *Fruit* not seen.

Specimens seen (other than type): SULAWESI (Celebes), Mt Roroka Timbu, 1700 m, W slope, 16 May 1979, *Van Balgooy* 3388 (E, K); Danau Taming, 1700 m, *Van Balgooy* 3472 (E).

8. *Agalmyla samarica* Hilliard & B.L. Burt, *spec. nov.*

Primo aspectu indumento hispido-villoso pilis rubro-brunneis patentibus 3–4 mm longis, calycis segmentis filiformibus c. 20 by 1 mm recognoscenda; etiam corolla extra fulvescenti-aurantiaca c. 25 mm longa, intus ligulis 2 transversis carnosissimis 3 by 1 mm 14 mm supra basin tubi inter filamenta antica locatis distincta. — Typus: *Gutierrez et al.* 490 (PNH 117472) (holo K; iso L), Philippines, Samar, near summit Mt Apoy, N 11° 24', E 125° 25', primary forest, alt. 600–800 ft, May 1969.

Epiphyte, stems elongate, creeping, rooting, 4–6 mm diam. on flowering part, villous with coarse acute \pm spreading red-brown hairs 3–4 mm long, minutely gland-dotted as well. *Leaves* opposite, paired, very unequal in size, blade of large leaves 110–155 by 37–75 mm, elliptic, apex acute, base cuneate to almost rounded, slightly oblique or not, margins weakly to strongly coarsely serrate or doubly serrate, 4–5 pairs of lateral veins ascending at angle of c. 45°, looping near margins, both surfaces villous with red-brown hairs 2.5–4 mm long, minutely glandular as well, glandular hairs scattered; petiole 50–80 mm long, hairy as blade; smaller leaf of each pair very variable in size, apparently sometimes wanting. *Flowers* in almost sessile crowded axillary cymes. *Bract* 10–17 by 2 mm, elliptic, apex acute, base cuneate, villous, hairs up to 2–4 mm long. *Pedicel* 14–18 mm long, villous as bract. *Calyx* divided to within less than 1 mm of base, lobes 5, \pm equal, c. 20 by 1 mm at base, linear-subulate, villous outside, hairs to 4 mm long, glabrous inside on upper part, minutely glandular in lower. *Corolla* c. 25 mm long, tube (measured from sinuses of posticous pair of lobes to base) 20.5–21.5 mm long, (measured from sinus of anticous lobe to base) 16–18.5 mm, funnel-shaped, curved, mouth round (?), oblique, posticous lobes erect, 3.5–4 by 1.4–2.3 mm, oblong, apex obtuse, lateral lobes ascending, c. 6 by 2–2.6 mm, anticous lobe probably porrect, 5.5–5.8 by 2 mm, outside of corolla yellow or yellowish-orange, villous, hairs up to 1.3 mm long, inside of lobes clad in short (to 0.2 mm) broad-based acute hairs, shorter on anticous lobe, mixed with minute almost sessile glandular hairs extending down tube to level of insertion of stamens, ring of stout upward-pointing hairs c. 2 mm long inserted 5–6 mm above base of tube, 2 fleshy flaps of tissue c. 3 by 1 mm, rounded on outer face, inserted c. 14 mm above base of tube, 4 mm below sinuses of anticous lobe. *Stamens* 4, inserted c. 14 mm above base of tube, anticous filaments c. 12 mm long, posticous filaments c. 11 mm, all glabrous or a few minute glandular hairs near base, anthers c. 2 mm long, cohering in pairs at their tips; staminode c. 1 mm long. *Disc* cupular, fleshy, c. 1 mm deep, apex shallowly 5-lobed. *Ovary*

c. 6 mm long, sessile, glabrous becoming minutely glandular. *Style* (in male phase) c. 7 mm long, glabrous, tapering smoothly into ovary. *Stigma* of 2 equal lobes c. 1.2 by 0.9 mm. *Fruit* not seen.

Note — *Sulit 3000* was given the epithet *stenophyllum* (under *Dichrotrichum*) in the herbarium by Merrill & Quisumbing. Fortunately it was never published as it would have made a later homonym of *D. stenophyllum* Merr. from Borneo, now reduced to *Agalmyla johannis-winkleri* (Kraenzl.) B.L. Burtt (Burtt, 1968).

Additional specimen: PHILIPPINES, Samar, Mt Calbiga, Wright, c. 300 m, 23 May 1948, mid-mountain forest type, vicinity of km 61 ridge, *Sulit 3000* (PNH 6401, K).

9. *Agalmyla triflora* (Valeton) B.L. Burtt, *comb. nov.*

Dichrotrichum triflorum Valeton in Bull. Dép. Agric. Indes Néerl. 10 (1907) 57. — Type: *Wichmann* (BO, L), NW Irian Jaya, Gunung Sinagaj [S of Humboldt Bay, c. 141° E], 1903.

It may be noted that Schlechter (1923: 297), despite leaving this species unplaced, added to it *Gjellerup 528* from the Cyclops Mountains. This has not yet been seen by us.

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REFERENCES

- Burtt, B.L. 1968. Studies in the Gesneriaceae of the Old World, XXIX. A reconsideration of generic limits in tribe Trichosporeae. *Notes Roy. Bot. Gard. Edinb.* 38: 219–225.
Kvist, L.P. & J.A. Pedersen. 1986. Distribution and taxonomic implications of some phenolics in the family Gesneriaceae determined by EPR spectroscopy. *Biochem. Syst. Ecol.* 14: 385–405.
Schlechter, R. 1923. Gesneriaceae papuanae. *Bot. Jahrb. Syst.* 58: 255–379.