

## THREE NEW SPECIES OF *AESCHYNANTHUS* (*GESNERIACEAE*)

### M. MENDUM\*

Two new species of *Aeschynanthus* from Borneo, *A. argentii* Mendum and *A. pseudohybridus* Mendum, and one from Palawan (Philippines), *A. batakiorum* Mendum & Madulid, are described and illustrated.

*Keywords.* *Aeschynanthus*. Gesneriaceae, new species, Palawan, Sabah, Sarawak.

### INTRODUCTION

Of approximately 150 species in the genus *Aeschynanthus*, the island of Borneo has about 30. The genus is at present divided into six sections, five of which are based on seed hair characters (the sixth contains one poorly known Chinese species). Over half the Bornean species belong to sect. *Aeschynanthus*, and sect. *Diplotrichium* is not represented at all. Several species present sectional problems; *A. pseudohybridus*, described here, is typical of sect. *Haplotrichium* but *A. argentii*, in the same section, is not. The Philippine islands also have approximately 30 species; seed of many is not known but again the majority appear to belong to sect. *Aeschynanthus*. Few collections have been made from the island of Palawan, the vegetation of which has strong affinities with the Bornean flora. *A. batakiorum* is a typical member of sect. *Polytrichium*.

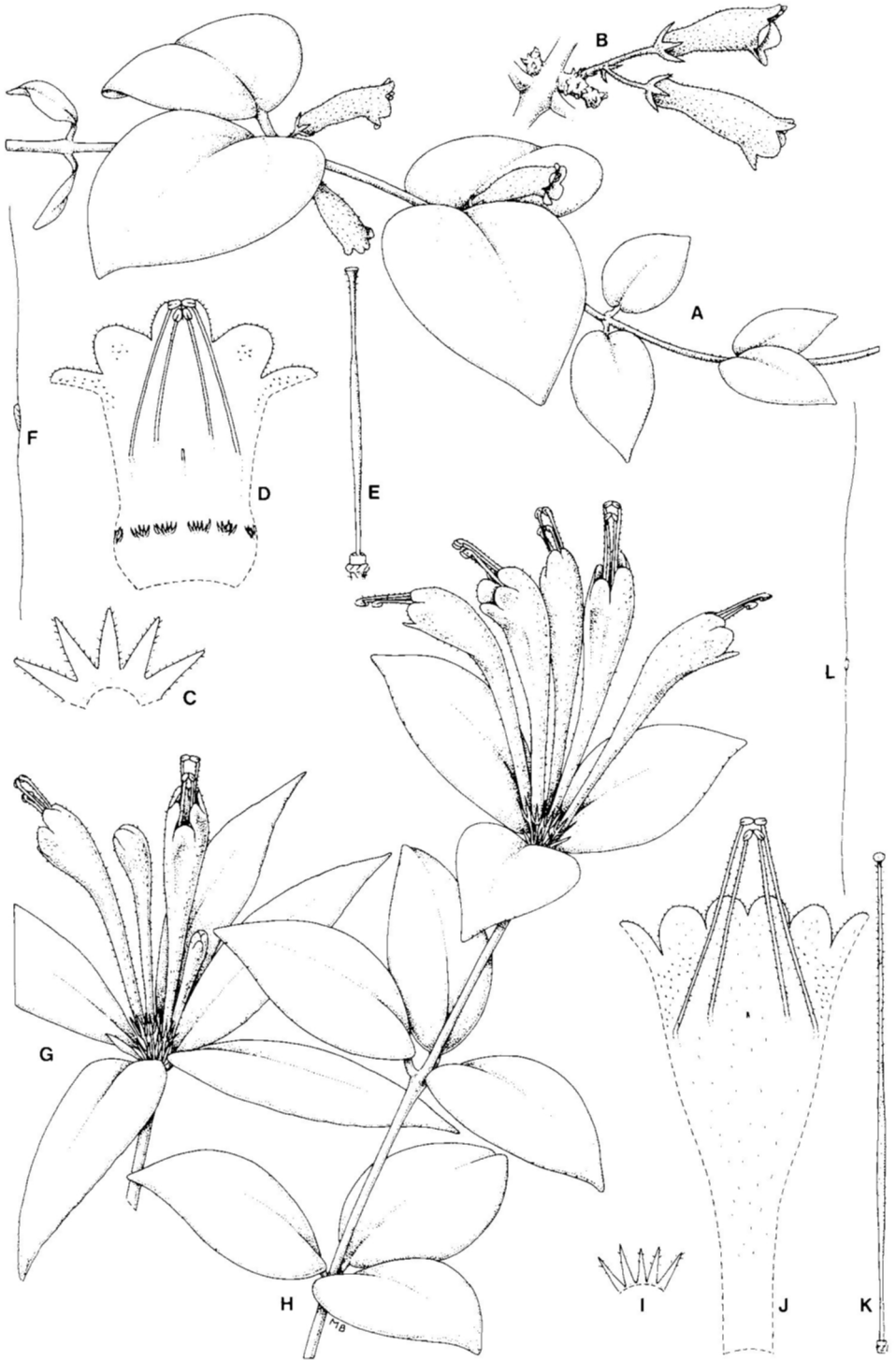
#### ***Aeschynanthus* (sect. *Haplotrichium*) *argentii* Mendum, sp. nov. Fig. 1A–F.**

Corollae breves latae roseaeque intra partem inferiorem tubae caespitibus pilorum instructae hanc speciem novam ab *A. trichocalyce* Kraenzl., qui folia floresque formae et magnitudinis similis praebet sed corollam rubram lobis viridibus, caespitibus pilorum internis carentem, et stamina exserta habet, distinguunt.

Type: Sabah, Kinabalu National Park, Gunung Tambuyukon, on tree overhanging river in shade. 'Plant hanging 3m long. Flowers uniform pink except fading towards the base. Calyx pale green.' Alt. c.200m, 9 iii 1980, *G.C.G. Argent & P. Walpole* 1444 (holo. SAN, iso. E).

Subshrubby epiphyte. *Stems* trailing and pendulous to 3m, minutely hairy and light green when young, becoming glabrous and grey-brown with age; internodes to 8 × 0.3cm. *Leaves* opposite, thick and leathery, glossy mid-green above and paler below, glabrous; blade 4.3–10.1 × 2–6.1cm, elliptic to broadly elliptic, margins entire, apex shortly acuminate with blunt tip, base rounded to subcordate, midvein impressed above and prominent below, other veins indistinct; petioles 4–8mm, glabrous.

\* Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR, UK.



*Inflorescences* 2–3-flowered, borne on short glabrous axillary spurs towards tips of branches. *Peduncles* 1–3mm, minutely hairy. *Bracts* c.0.7mm, triangular, minutely hairy. *Bracteoles* c.2mm, linear, minutely hairy. *Pedice* slender, green, 6–8mm, with patent mostly eglandular hairs to 0.2mm. *Calyx* externally with sparse small eglandular hairs, internally glabrous, 5–6mm, divided almost to base, lobes 4–4.5mm, narrowly triangular, pale green flushed reddish at tips. *Corolla* externally pale pink shading to pale green at base, internally paler; tubular, arcuate, 1.9–2.3cm, c.4mm diam. and slightly swollen near base then flaring gently to throat, lower three lobes slightly spreading; upper lobes c.3 × 1.5mm (central sinus 1.5mm), rounded oblong, lateral lobes c.3 × 4mm, bluntly triangular, lower lobe c.3.5 × 3mm, rounded oblong, all fringed with tiny glandular hairs; corolla externally with coarse patent white eglandular hairs to 0.3mm, internally with five tufts of coarse upward-pointing eglandular hairs to 0.5mm about 4mm from base, and papillae in centres of lateral and lower lobes, extending onto floor of throat. *Stamens* 4, inserted about halfway up tube and not exerted; filaments greenish, with scattered sessile glands, swollen and hairy on edges at attachment to anthers, posticous pair c.0.9cm, anticous pair c.1.1cm; anthers greenish grey, 1.5 × 0.8mm, oblong; staminode 1mm. *Disc* c.1.6 × 1.5mm, scarcely lobed. *Stipe* c.1cm, glabrous. *Ovary* glabrous. *Style* c.5mm, sparsely and minutely glandular hairy in upper half. *Stigma* capitate, c.1mm diam. *Capsule* linear-cylindric, to 19 × 0.3cm. *Seeds* numerous, 0.8mm, papillose, with a single slender hair c.5mm at each end. Sabah; epiphyte in primary forest, c.200m.

*Additional specimen examined.* Sabah: specimen cult. RBGE, accession no. 19801419, originating from type collected from Tambuyukon, *Argent & Walpole* 1444 (E).

The rather short broad pale flowers and relatively large leaves of this species would suggest placement in sect. *Polytrichium* or sect. *Microtrichium* rather than sect. *Haplotrichium* but the seed hairs leave little doubt as to its position. The only other morphologically similar species known from Borneo is *A. trichocalyx* Kraenzl. which has larger, ovate-elliptic, more acuminate leaves, a green-lobed red corolla lacking internal hair tufts, and exerted stamens. *A. trichocalyx* was placed in sect. *Haplotrichium* by Kraenzlin (1927), and tentatively transferred to sect. *Polytrichium* by Burt & Woods (1975) on the basis of its overall resemblance to other species in that section, but its seed has not yet been observed and it might well belong to sect. *Haplotrichium*. The inflorescences of *A. argentii* are unusual for the genus, consisting of short leafless side spurs bearing 1- or 2-flowered peduncles; the scars on the spurs

FIG. 1. *Aeschynanthus argentii* Mendum. A, habit ( $\times \frac{2}{3}$ ); B, inflorescence ( $\times 1$ ); C, calyx; D, corolla; E, gynoecium (all  $\times 2$ ); F, seed ( $\times 6$ ); drawn from *Argent & Walpole* 1444, and in cult. RBGE 19801419. *A. pseudohybridus* Mendum. G, flowering shoot ( $\times \frac{2}{3}$ ); H, flowering shoot ( $\times \frac{2}{3}$ ); I, calyx; J, corolla; K, gynoecium; L, seed (all  $\times 1$ ); G drawn from Ashton S19065; H–K drawn from *Lamb & Surat* ALED 296/91; L drawn from *Burt & Martin* B 4967, cult. RBGE 19672107.

indicate that flowers are produced occasionally over a considerable period. The plant in cultivation rarely flowers.

*A. argentii* is named in honour of Dr George Argent, who has made many valuable collections of *Aeschynanthus* on his extensive travels in SE Asia. This is the fifth previously undescribed species collected by him.

***Aeschynanthus* (sect. *Haplotrichium*) *pseudohybridus* Mendum, sp. nov. Fig. 1G–L.**

Species nova habitu vegetativo *A. longifloro* (Blume) A. DC. et *A. specioso* Hook. intermedia, ab ambabus differt corollis paulo minoribus acque et laete scarlatinis, versus basin nec viridiluteo (ut in *A. specioso*) nec purpureo (ut in *A. longifloro*) tinctis, lobis 3 inferioribus nec patentibus nec W-notatis, antheris minus quam 2.5mm longis (non c.4mm), foliis saepe 3-verticillatis (nec oppositis ut in *A. longifloro* nec 4–8 ut in *A. specioso*).

Type: Sabah, Tambunan District, Gunong Alab-Sinsuron, epiphytic small shrub on tree on steep slope just below ridge-top above Sinsuron waterfalls. 10 ii 1991, *A. Lamb* & *A. Surat* ALED 296/91 (holo. E).

Epiphytic shrub to 3m. *Stems* stiff and twiggy, spreading to arching downwards, glabrous, green often heavily flushed purple when young, becoming grey-brown with age; internodes to 11.5 × 0.3cm, when young slightly angular in cross-section. *Leaves* most often in whorls of three, occasionally opposite or in pseudowhorls of up to six, thick and leathery, mid- to deep green above and paler often purple-flushed below, glabrous or rarely minutely hairy below; blade 2.7–11.3 × 1.6–4.6cm, narrowly elliptic to elliptic or broadly elliptic, margins entire, apex acute to acuminate, base rounded to acute, midvein impressed above and prominent below, often purple, other veins indistinct; petioles 1–9mm but usually short, glabrous. *Inflorescences* pseudoterminal, 1–8-flowered, or occasionally axillary, 1–2-flowered. *Peduncles* minute. *Bracts* several, 0.5–5mm, narrowly triangular, glabrous to sparsely hairy. *Pedicel* purple, 6–10mm, slightly ribbed towards apex, glabrous to glandular hairy. *Calyx* 4.5–9mm, green to purple, divided almost to base, lobes very narrowly triangular, glabrous or with scattered 0.2mm glandular hairs externally. *Corolla* externally bright red to crimson, internally cream shading to yellow at throat with lobes yellow margined red; tubular, almost straight, 5.1–7cm long, narrow for lower 1/3 then widening, and curving in upper 1/3, lobes not at all spreading; upper lobes c.6 × 6mm (central sinus 4mm), rounded; lateral lobes c.7.5 × 7mm, rounded oblong; lower lobe c.9 × 6mm, rounded oblong, all fringed with glandular hairs; corolla externally with sparse 0.2mm glandular hairs, internally papillose at bases of lateral and lower lobes and extending onto floor of tube, and with scattered colourless 0.2mm glandular hairs throughout. *Stamens* 4, inserted about 4.5cm from base of corolla, exerted; filaments yellow, papillose and hairy where inside corolla, hairy where exerted, thickened at attachment to anthers, posticous pair c.2.6cm, anticus pair c.3.2cm; anthers purplish, oblong, posticous pair c.1.8 × 1mm, anticus pair c.2.5 × 1mm; pollen yellow; staminode 1.2mm. *Disc* 0.8 × 1.8mm, slightly lobed. *Stipe* to 1.8cm.

glabrous. *Ovary*: with scattered sessile glands becoming denser towards apex. *Style* to 3cm with 0.3mm patent glandular hairs. *Stigma* ± circular, to 2.2 × 2mm, glandular hairy on back and margins. *Capsule* linear cylindrical, to 29 × 0.4cm. *Seeds* numerous, 1.5mm, with a single delicate hair c.3.1cm at the apical and another c.3.8cm at the hilar end.

Sabah. Sarawak: epiphyte in primary and secondary forest, 800–1710m.

*Additional specimens examined.* Sabah: Kimanis to Keningau road, near top of pass, alt. c.1200m, 21 ii 1980, *Argent* 1334 (E); Penampang District, Km40 on Kota Kinabalu-Tambunan road, alt. 1000–1050m, 20 i 1984, *Beaman* 8341 (E); *Lamb* SAN 93499 (E); Just outside Kinabalu National Park, 100m from Tabubang river, alt.1200m, 13 ix 1993, *Nais et al.* SNP 05705 (SP); Kinabalu National Park, Marai Parai spur, summit area, alt. 1710m, *Nais et al.* SNP 05760 (SP); RBGE acc. no. 19821494, originally coll. Gunong Lotung, alt.1500m, 1982, *Argent* s.n.. Sarawak, 2nd Division: specimen cult. RBGE acc. no. 19971340, originally coll. Lanjak-Entimau Wildlife Sanctuary, between S. Mujok & Ulu S. Ensirieng, alt.250m, x 1993, *Vogel, Schuiteman & Roelfsema* 932741; 4th Division: Bintulu, Merurong Plateau, alt. 1030m, 14 v 1960, *Brunig* S8765 (K); Bintulu District, eastern ridge of Bt. Kana, alt 800–950m, 20 xi 1963, *Hirano & Hotta* 1427 (E, KYO); 7th Division: Hose Mts. Bt. Kajang carapa, alt. 900m, 5 iv 1964, *Ashton* S19065 (E); S.E. Hose Mts, hill W. of Ulu Melinau, alt. 1030m, 19 viii 1967, *Burt & Martin* B4967 (E) & cult. as RBGE acc. no. 19672107; Bt. Bakar between Ulu Sg. Janan, Katibas, Song & Ulu Sg. Yong, Kapit, alt. c.800m, 30 v 1977, *Ilias Paie* S36354 (L).

Specimens of *A. pseudohybridus* have been in the herbarium at Edinburgh for some time, tentatively labelled *A. speciosus* Hook. × *longiflorus* (Blume) A. DC. It would seem to be very closely related to both these species and leaf characters could be considered intermediate but the corolla characters could not, and are consistent over a wide geographical range. The corollas of *A. pseudohybridus* are bright scarlet, up to 7cm long, the lobes not spreading and without dark marks. *A. speciosus* has corollas greenish yellow at base shading to flame-red, 8–9cm long, the three lower lobes spreading and with conspicuous W-shaped dark marks, and *A. longiflorus* has corollas rich crimson shading to purple at the base, 8cm long, the three lower lobes spreading and with W-shaped dark marks. The anthers and stigma of *A. pseudohybridus* are, at 2.5 and 2.2mm, about half the size of those of *A. speciosus* and *A. longiflorus*. Vegetatively there are two distinct forms of this species. All the specimens from Sabah (seven collections) have shorter, broader, acute leaves, usually in whorls of three, as does one collection (RBGE acc. no. 19971340) from the Lanjak-Entimau Wildlife Sanctuary in the south of Sarawak. This specimen is anomalous in an otherwise clear geographical division between the two forms. The other five collections seen, from central Sarawak, have longer, narrower, more acuminate leaves in pseudowhorls of 2–6. Further collections, especially from intervening areas, are needed to establish clearly the status of these two forms.

***Aeschynanthus* (sect. *Polytrichium*) *batakiorum* Mendum & Madulid, sp. nov.**  
**Fig. 2A–G.**

Haec species nova calyce stellato flavovirente et, pro sectione *Polytrichio*, floribus magnis distinguenda est. Specierum duarum proximarum, *A. asclepioides* (Elmer)

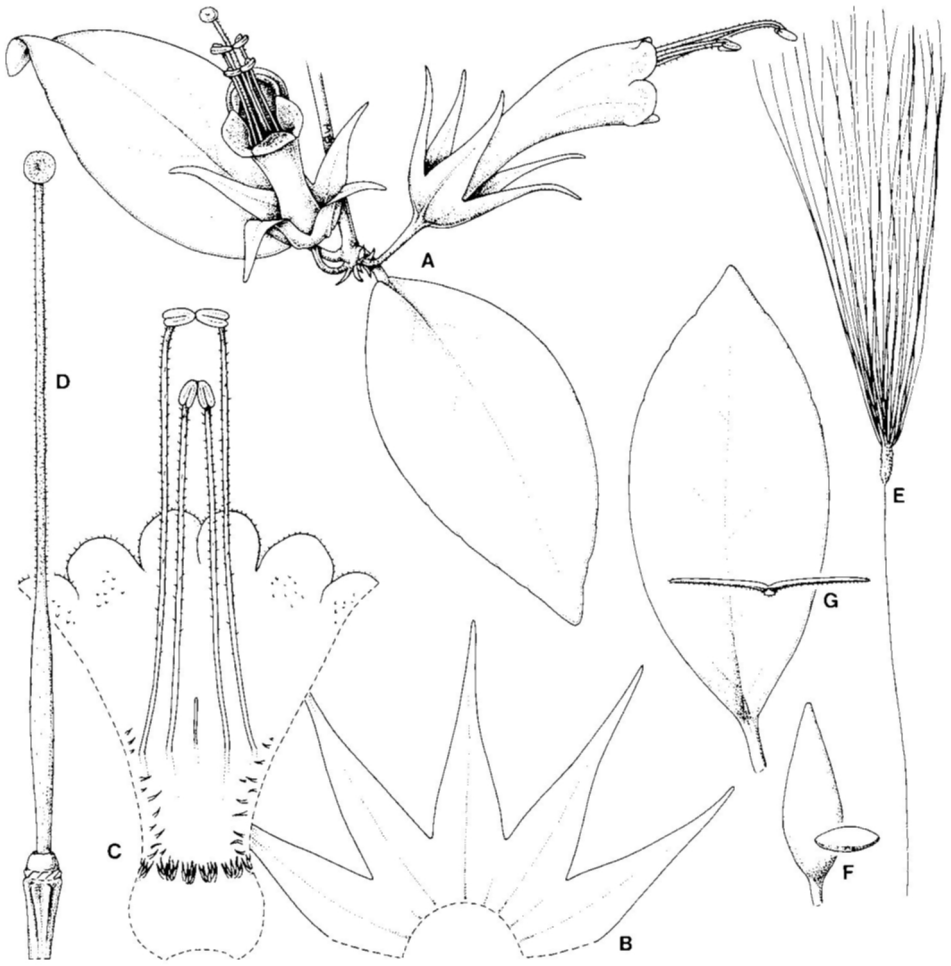


FIG. 2. *Aeschynanthus batakiorum* Mendum & Madulid. A, inflorescence ( $\times 1$ ); B, calyx; C, corolla; D, gynoecium (all  $\times 1.5$ ); E, seed ( $\times 3$ ); F, leaf when cutting collected; G, leaf in cultivation (both  $\times \frac{2}{3}$ ); A–D, F, G drawn from RBGE 19980285; E drawn from Mendum, Argent *et al.* 25354.

B.L. Burt & P. Woods calycem ad basem divisum lobis tenuibus 3cm longis ultra corollam 2.5cm longam extensis tenet, et *A. albidus* (Blume) Steud. calycem 2.5cm longum partim divisum haud patentem et ultra corollam 2cm longam extensum habet.

Type: Specimen cult. RBGE accession no. 19980285, originating from Philippines, Palawan, between San Rafael and Cleopatra Needle, small plant on fallen log on riverbank, alt.300m. 24 i 1998. Mendum, Argent, Cronk, Middleton, Wilkie, Fuentes & Chavez 25468 (holo. PNH; iso. E).

Subshrubby epiphyte. *Stems* scrambling, becoming spreading or pendulous, green when young, becoming pale grey-brown with age; minutely hairy when very young, hairs colourless, patent, eglandular; internodes to  $6.5 \times 0.4$  cm. *Leaves* opposite, very variable from small and extremely thick to quite soft and thin (depending on growing conditions); glossy mid-green above and paler below, midvein below becoming deep purple with age; glabrous above and softly hairy below and on margins, becoming progressively more glabrous with age, hairs minute, eglandular, colourless; blade  $3-16.5 \times 1.5-5.9$  cm, oblong-elliptic to elliptic, apex acute to shortly acuminate, tip rounded, base acute, margins subentire, midvein impressed above and very prominent below, other veins faintly visible; petioles 6-15 mm, slightly grooved above, sparsely and minutely hairy when young. *Inflorescences* axillary or pseudoterminal, 1- or 2-flowered. *Peduncles* minute. *Bracts* caducous, green, 2-6 mm, linear, sparsely and minutely hairy. *Pedicel* light green, 1.1-1.5 cm, slightly ribbed, widening towards apex, slightly scurfy towards base. *Calyx* lime-green, glabrous, 2.4-2.5 cm, campanulate and fused for 5-7 mm, lobes curving outwards, narrowly triangular and acute with prominent midvein. *Corolla* quite fleshy, externally lime-green shading to brownish green in upper  $\frac{1}{3}$ , internally lime-green in lower  $\frac{3}{4}$ , then maroon-purple with lobes margined green spotted maroon; tubular, arcuate, 3.9-4.1 cm long, slightly gibbous and 6 mm diam. just above base then narrowing slightly before flaring to c. 7 mm at throat, lobes not widely spreading; upper lobes c.  $5.5 \times 5.5$  mm, lateral and lower lobes c.  $6 \times 6$  mm, all rounded oblong and fringed with minute glandular hairs; corolla externally with scattered sessile glands in upper  $\frac{2}{3}$ , internally with coarse upward-pointing transparent gland-tipped hairs to 3 mm, in five tufts in narrow part of tube and smaller, scattered and inward-pointing on floor of tube to just above insertion of stamens, and with small papillae in centres of lateral and lower lobes. *Stamens* 4, inserted c. 2 cm from corolla base, long exerted; filaments thickened at attachment to anther, pale green, with c. 0.2 mm gland-tipped purple hairs especially in upper half; posticous pair c. 3.2 cm, anticus pair c. 3.5 cm; anthers purplish, ovate-oblong, c.  $3 \times 1.5$  mm; pollen pale mauve; staminode 4.5-17 mm. *Disc* c.  $1.5 \times 3$  mm, unlobed. *Stipe* c. 2 mm, green with occasional sessile glands, as is *ovary*. *Style* c. 3.9 cm, pale green with patent pink glandular hairs to 0.3 mm, dense in lower half. *Stigma* circular, 3 mm diam, peltate, pink, densely glandular hairy. *Capsule* linear-cylindric to  $25 \times 0.5$  cm. *Seeds* numerous, 2 mm, papillose, with a coma of 25-30 hairs to 2 cm at the hilar end and a single 1.7 cm hair at the apical end. Philippines, Palawan: epiphyte on trees overhanging rivers, from sea-level to c. 500 m.

*Additional specimens examined.* Palawan, on trail to Cleopatra Needle, alt. 100 m, 18 i 1998, Mendum, Argent, Cronk, Middleton, Wilkie, Fuentes & Chavez 25354 (E); Specimen cult. RBGE, accession. no. 19982274, originating from either Palawan or Luzon, coll. E.-K. Wiberg (E).

This species is vegetatively similar to *A. asclepioides* (Elmer) B.L. Burt & P. Woods from the Philippine islands of Luzon, Mindoro, Leyte, Panay and Mindanao, and to *A. albidus* (Blume) Steud., which occurs in Peninsular Malaysia, throughout west-

ern Indonesia and in Borneo. The former has a calyx divided to the base with very slender 3cm lobes overtopping the 2.5cm externally hairy corolla with no constriction, and the latter has a calyx which although partly divided and 2.5cm is not spreading and star-like and which overtops the 2cm straight-sided corolla. Members of sect. *Polytrichium* have rather dull-coloured and insignificant flowers but *A. batakiorum* is rather more attractive and the spreading lime-green calyx is particularly noticeable. The specific epithet is in honour of the Batak tribespeople of that area of Palawan, who were such excellent field guides and companions.

*A. batakiorum* was collected as vegetative cuttings and seed in January 1998, and flowered in cultivation at RBGE in September. The type specimen was collected as a small, but not juvenile, plant from a fallen tree; the glabrous leaves were c.3.5 × 1.2cm and 5mm thick but in cultivation the leaves are up to 12.7 × 5.2cm and only 1.5mm thick (Fig. 2F,G). The thick leaves were presumably in response to the prolonged 'el Ninõ' suffered in 1997–8, followed by adequate water supplies in cultivation, and emphasizes the care needed when using leaf characters for identification purposes. A similar situation was observed when cuttings of *A. myrmecophilus* P. Woods were transferred to greenhouse cultivation (Burt & Woods, 1975).

A small *Aeschynanthus* cutting from a plant collected in either Palawan or Luzon by Ms E.-K. Wiberg, of Umea, Sweden, and grown in Sweden, was sent to RBGE in August 1998 (acc. no. 19982274); it subsequently flowered and is *A. batakiorum*. Although unlikely, the distribution might thus possibly extend to Luzon.

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