Orchidaceous Additions to the Flora of China (II)

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ABSTRACT: Continuing herbarium and literature studies of Chinese orchids reveals the presence of eight new species. The new taxa are *Anoectochilus dulongensis, Collabium yunnanense, Gastrochilus jeitouensis, Goodyera makuensis, Herminium gongganum, Platanthera anatina, P. danghatuensis* and *P. fugongensis. Collabium formosanum* is defined and considered endemic to Taiwan.

KEY WORDS: *Anoectochilus*, China, *Collabium*, *Gastrochilus*, *Goodyera*, *Herminium*, orchids, *Platanthera*.

INTRODUCTION

During a recent visit to the Harvard University Herbaria the opportunity arose to study Chinese orchid collections held by the California Academy of Sciences (CAS). Dr. David Boufford (HUH) was kind enough to initiate and arrange the loan of the material that forms the basis of this paper. The specimens at CAS are duplicates from the Gaoligong Shan Biodiversity Survey collected in the previous decade, among which six new entities were discovered. Furthermore, examination of specimens at HUH also revealed two novelties. Apart from Dr. Boufford's Sichuan *Herminium* L., the rest of the taxa described herein come from Yunnan, the most biodiverse area in China.

TAXONOMIC TREATMENTS

Anoectochilus Blume

This is a genus of about 40 species distributed from India to Fiji. The plants are generally terrestrial with a rosette of ovate-cordate, white, pink to gold reticulate veined leaves. Because of their attractive leaves they are known as jewel orchids. Many members of the genus are at risk of local extinction due to collection for the herbal medicine trade. In China and Taiwan there are now thirteen species (eight endemic), thus making these countries the centre of diversity for the genus.

Anoectochilus dulongensis Ormerod, ***sp. nov.***

Fig. 1

Type: CHINA, Yunnan, Gongshan, Dulong Jiang, W side of Dulong Jiang valley, ca. 700 m SW of Qinglam Dang and ca. 2 km NE of Myanmar border, 1270 m, 20 August 2006, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 32605* (Holotype: CAS).

Affinis A. calcareus Aver. *sed unguis labello brevioribus (2 vs. 4 mm) et apicibus petalis subquadrato-truncatis (vs. lanceolato-subacutis) differt.*

Terrestrial herb. Rhizome creeping, terete, rooting at nodes, ca. 15.6 cm long, 0.18–0.35 cm thick; internodes 1.6–2.5 cm long. Stem erect, terete, 5 leaved, ca. 3.8 cm long, 0.35 cm thick; internodes 0.5–1.6 cm long. Leaves ovate-subcordate, acute to subacuminate, "dark purple with golden lines", 2.2–4.2 cm long, 1.7–3.1 cm wide; petiole and sheath 1.2–1.4 cm long. Inflorescence terminal, pubescent, 17.9 cm long; peduncle 13 cm long; sheathing bracts 3, lax, 1.1–1.5 cm long; rachis subdensely 10 flowered, 4.9 cm long; floral bracts ovate-lanceolate, acute, to 9 mm long, 3.8–4.0 mm wide. Pedicellate ovary fusiform, pubescent, ca. 11.5 mm long. Flowers "white" but in dry state sepals appear to be pink tinged with hypochile and spur pink-red, externally pubescent. Dorsal sepal suborbicular, acute, deeply concave, forming with the petals a galea, 4.8 mm long, 4.3 mm wide. Lateral sepals obliquely oblong-elliptic, acute, 7.2 mm long basally, 6.2 mm long medially, 3.5 mm wide. Petals semirhombic, apex subquadrate, truncate, 5.8 mm long, 2.3 mm wide. Labellum spurred, trilobed, joined to column for 1.5–2.0 mm; spur conical, obtuse, inside near top with two stalked irregular glands, 3.8 mm long dorsally; hypochile fleshy, rigid, sidelobes triangular with rigidly incurved front margins, free part ca. 3 mm long, 2.0–2.5 mm wide laterally (i.e. 4–5 mm wide spread); mesochile tubular, each side with a laminate, dentate flange, 2 mm long; epichile bilobed, 1.8 mm long medially, lobules obliquely obcuneate, truncate, 4.2–6.2 mm long, 5 mm wide. Column stout, ca. 3.8 mm long; wings transversely oblong, obtuse, joined to spur dorsally.

Distribution: China (Yunnan). Habitat: Growing in shade in humus on granite, in tropical rainforest disturbed by agriculture and felling; 1270 m.

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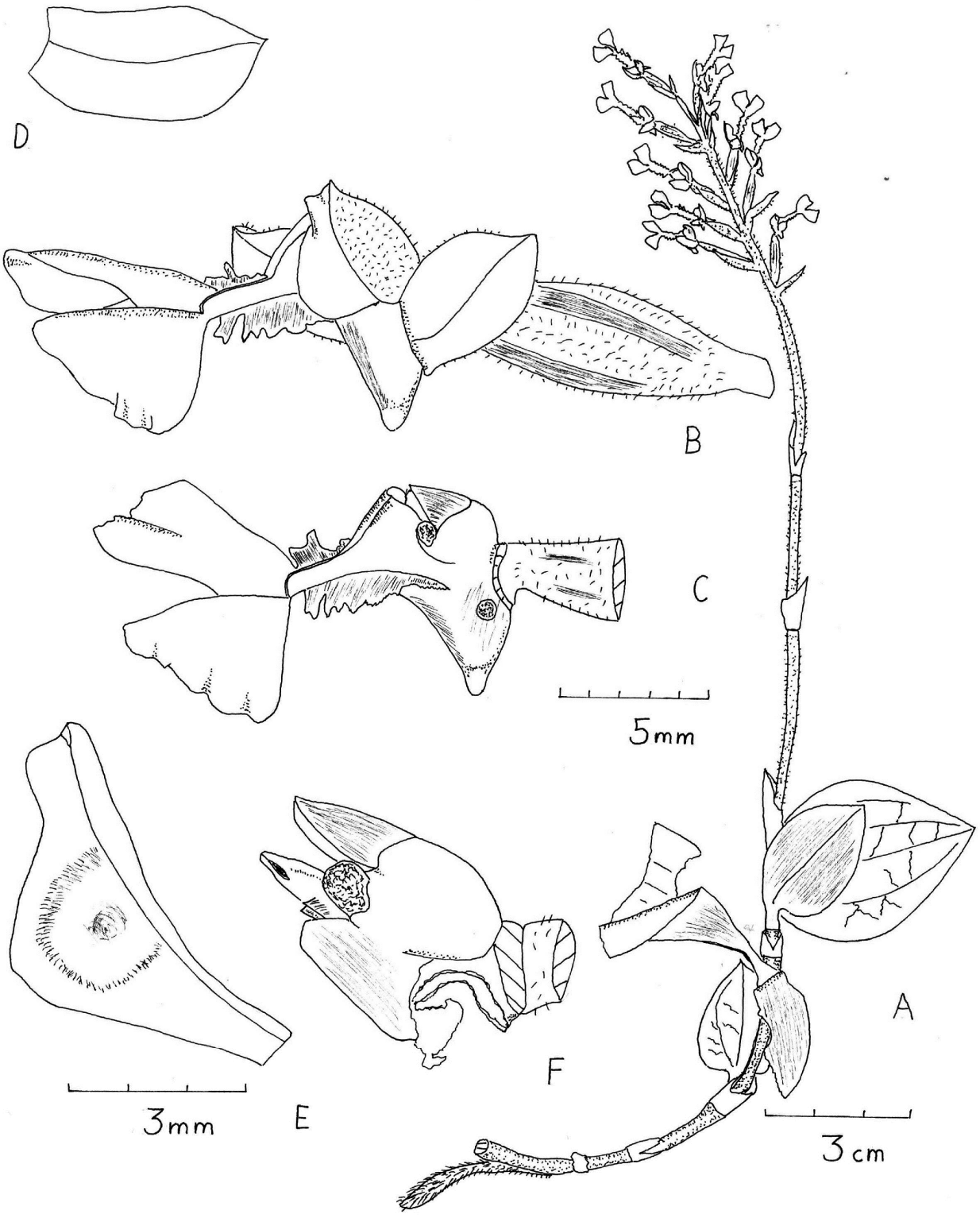


Fig. 1. *Anoectochilus dulongensis*. A: Plant. B: Flower. C: Flower minus tepals. D: Lateral sepal. E: Petal. F: Column. A, B, C, D and E to respective scales. Drawn from holotype.

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Etymology: Named after the Dulong Jiang (River), the type locality.

This new species is closely related to the Vietnamese *A. calcareus* Aver. but differs from it in the petals having a subquadrate, truncate (not lanceolate, subacute) apex, a shorter (2 vs. 4 mm) labellum mesochile and twice as broad hypochile sidelobes which reach up into the galea formed by the dorsal sepal and petals.

A photograph labelled *A. roxburghii* (Wall.) Lindl. in Jin et al. (2008) may represent *A. dulongensis* since it seems to show the shorter mesochile and broader sidelobes characteristic of the latter. In the Flora of China (Chen et al., 2009) I suspected this photograph represented *A. calcareus* but in light of the material at hand this seems not to be the case.

Collabium Blume

This genus was the subject of an excellent monograph by van der Burgh & de Vogel (1997) where they accepted eleven species. Since then the Bornean *C. ovalifolium* (Ames & C. Schweinf.) J.J. Wood has been added to the genus; it is an earlier name for *C. bicameratum* (J.J. Sm.) J.J. Wood.

Also, I stand by my view (Ormerod, 2001) that *C. chapaense* (Gagnep.) Seidenf. & Ormerod is a distinct species from *C. formosanum* Hayata. The revisers of *Collabium* based their concept of *C. formosanum* on two specimens that are referrable to *C. chapaense,* they saw no material of the former.

Thus with *C. yunnanense* described here, there are now thirteen species in *Collabium*; four (two endemic) of these occur in China and Taiwan.

Collabium formosanum Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30 (1): 319, 1911.

Collabiopsis formosana (Hayata) S.S. Ying, Col. Illustr. Indig. Orch. Taiwan 1, 2:112, 1977.

Type: TAIWAN, Nanto, Randaizan, July 1907, *T. Kawakami & U. Mori 3181* (Holotype: TI [not seen]).

Distribution: Taiwan.

Specimen examined: TAIWAN, Taipei Hsien, Sanshia, Peichatienshan, en route from mountain entrance to shelter, 950-1150 m, 15 June 1992, *C.C. Liao 367* (A).

This species is easily distinguished from the Vietnamese and Myanmarese *C. chapaense* by its conical, curved (vs. semiellipsoid, straight) mentum, broader (2.00–2.75 vs. 1.0–1.8 mm) petals and distinct low lamellate keels on the epichile.

In many ways (e.g. petal width, keels on epichile) *C. formosanum* is closer to *C. delavayi* (Gagnep.) Seidenf. but it differs from the latter in its conical, curved (vs. narrowly oblongoid, straight) mentum.

Collabium yunnanense Ormerod, ***sp. nov.***

Fig. 2

Type: CHINA, Yunnan, Lushui Xian, Luobenzhuo Xiang, E'ga Cun, on forest road at KM 30, E side of Gaoligongshan, 2200 m, 9 August 2005, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 25814* (Holotype: CAS).

Affinis C. chapaense (Gagnep.) Seidenf. & Ormerod *sed carinis labello crasse (non tenuiter) lamellatis et columna brevioribus (5.2 vs. 9–10 mm) differt.*

Epiphytic herb. Rhizome creeping, terete, 11–22 cm long, 0.1–0.2 cm thick; internodes 0.8–1.9 cm long, covered by thinly papery, tubular sheaths that quickly become white-grey and decay with age. Pseudobulbs subterete, slender, unifoliate, 4.2 cm apart, 2.5–2.6 cm long, base to 0.2 cm thick, apex ca. 0.05 cm thick. Leaves elliptic-lanceolate, subacuminate, 7.2–8.0 cm long, 2.6–2.9 cm wide, subpetiolate base 1.1–1.5 cm long. Inflorescence basal, 12.2 cm long; peduncle 7.3 cm long; sheathing bracts 2, tubular, acute, slightly inflated, 1.8–2.0 cm long; rachis laxly 6 flowered, 4.9 cm long; floral bracts lanceolate, acute, ca. 10 mm long, 2 mm wide. Pedicellate ovary clavate, ca. 10 mm long. Flowers yellow. Dorsal sepal linear-ligulate, slightly widened above, acute, 11 mm long, 1.1 mm wide. Lateral sepals ligulate-lanceolate, acute, free part 9.8 mm long, 1.8 mm wide, forming with the columnfoot an ellipsoid, obtuse mentum, 3.75 mm (including 1 mm fused to ovary) long, 2.2 mm wide laterally. Petals linear-ligulate, acute, subfalcate, 10 mm long, 1.2 mm wide. Labellum trilobed, ca. 10.6 mm long; hypochile 5.75 mm long medially, sidelobes semielliptic, apex irregular erose, inner edge ca. 2.5 mm long, outer edge ca. 4.5 mm long, ca. 2 mm wide; main keels 2, thickly laminate, curved in lateral view, obtuse, 1.8 mm wide laterally, a third transversely semilunate keel interposed at the apices of the 2 major keels, all 3 continuing on as low laminae on the basal quarter of the epichile; epichile subquadrate from a flabellate base, margins erose-lacerate, ca. 4.8 mm long and wide. Column semiterete, 5.2 mm long (minus anther cap).

Distribution: China (Yunnan). Habitat: Rare epiphyte on tree branch in undisturbed subtropical evergreen broadleaf forest on granite; 2200 m.

Etymology: Named after the province of Yunnan, the type locality.

This species is a member of the *C. formosanum* complex but it differs from the other three species in that group by its short (5.2 vs. 9–10 mm) column, and the labellum hypochile has two thickly (not thinly) fleshy keels of even (vs. raised up in apical half) width throughout that are interposed apically by a short

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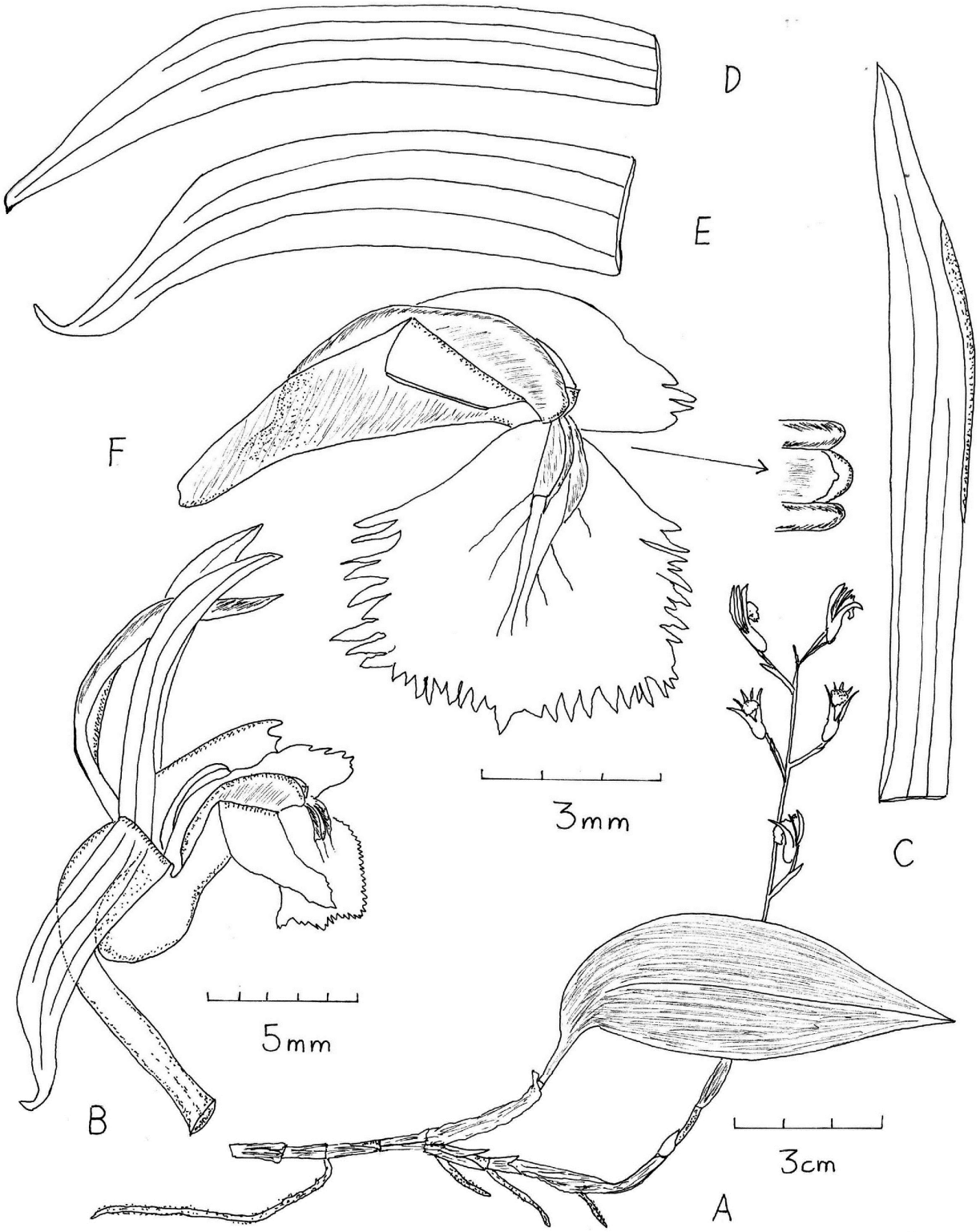


Fig. 2. ***Collabium yunnanense*****. A: Plant. B: Flower. C: Dorsal sepal. D: Petal. E: Lateral sepal. F: Labellum (one sidelobe removed; callus apex arrowed). A, B and C-F to respective scales. Drawn from holotype.**

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transverse (vs. parallel) callus/keel.

Gastrochilus D. Don

A vandaceous genus of about 50 species with its centre of diversity in China where 26 (14 endemic) taxa occur. The plants are usually epiphytes that often have subcorymbose racemes of spotted flowers that have a characteristic bowl-shaped lip.

Gastrochilus jietouensis Ormerod, ***sp. nov.***

Fig. 3

Type: CHINA, Yunnan, Tengchong: Jietou, Datang Cun, top ridge ca. 14.2 km NNE of Datang, W side of Gaoloigong Shan, 2660 m, 18 May 2006, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 30360* (Holotype: CAS).

Affinis G. corymbosus A.P. Das & S. Chanda *sed inflorescentiis racemosis (non subcorymbosus), tepalis parvioribus (4.8–6.0 × 2.5–3.1 vs. 8 × 4 mm) et medio epichilo anguste V-formis depresso (vs. rhomico-depressis) differt.*

Epiphytic herb. Roots terete, slender, 0.5–1.0 mm thick. Stem creeping, laxly to sublaxly foliose, producing many roots, 23.5 cm long, 0.05–0.10 cm thick. Leaves lanceolate, apex aristate (arista to 0.75 mm long), purple-brown spotted, 17–26 mm long, 4.0–5.5 mm wide; leaf sheaths purple-brown spotted, 4–7 mm long, apex opposite leaf blade with a deltate, subacute lobule ca. 0.9 mm long. Inflorescence axillary, 13 mm long; peduncle 9 mm long; sheathing bract one, midway on peduncle, irregularly cupular, amplectant, ca. 1.5 mm long; rachis somewhat angularly thickened, subalate, 4–5 flowered, 4 mm long; floral bracts broadly ovate, acute, ca. 1.5 mm long. Pedicellate ovary clavate, thickly ribbed above, 11 mm long. Flowers yellow-green with red spots, fleshy. Dorsal sepal obovate-oblong, obtuse, concave, 6 mm long, 3 mm wide. Lateral sepals oblong, obtuse-subcalceolate, outside thickened medially at apex, 4.8–5.0 mm long, 2.5 mm wide. Petals obliquely obovate-elliptic, obtuse, midvein thickened outside near apex, 5 mm wide, 3.1 mm wide. Labellum trilobed; hypochile subglobose, deeply saccate, ca. 5 mm long dorsally, ca. 1.3 mm wide near apex, mouth ca. 3 mm wide; epichile reniform, obtuse, medially with 2 obscure convexities that have a shallow, narrowly V-form space between them, ca. 3.0–3.5 mm long, 7.6–7.8 mm wide. Column short, broad, 2.5 mm long, 3 mm wide laterally.

Distribution: China (Yunnan). Habitat: Occasional epiphyte on tree in undisturbed subtropical evergreen broadleaf forest on marble, dominated by *Rhododendron, Tsuga* and Fagaceae; 2660 m.

Etymology: Named **after** the Jietou Xian, the type locality.

This species is most closely related to the NE Indian *G. corymbosus* A.P. Das & S. Chanda but differs from it in having narrower (to 5.5 vs. 8 mm wide), lanceolate (not ovate-oblong) leaves, a racemose (not subcorymbose) inflorescence, smaller flowers (sepals and petal 4.8–6.0 × 2.5–3.1 vs. 8 × 4 mm), and a labellum epichile with two convexities between which is a shallow V-shaped (not rhombic) depression.

Goodyera R. Brown

A pantropical and circumboreal genus of about 85 species in the traditional sense. The plants belong to the Jewel Orchid group (Subtribe Goodyerinae Ridl.) but only a few taxa have attractively marked leaves. In China and Taiwan there are about 29 species (12 endemic). Recently Bhattacharjee (2012) found the endemic variant *G. dongchenii* Lucksom var. *gongligongenis* X.H. Jin & S.C. Chen to be a synonym of *G. hemsleyana* King & Pantl. Also, Barretto et al. (2011) have reduced *G. yangmeishanensis* T.P. Lin to a synonym of the widespread *G. pusilla* Blume.

Goodyera makuensis Ormerod, ***sp. nov.***

Fig. 4

Type: CHINA, Yunnan, Gongshan, Dulong Jiang, near Longbuxian, W side of Dulong Jiang valley, ca. 1 km NW of Maku and ca. 4 km NE of Myanmar border, 2050 m, 19 August 2006, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 32540* (Holotype: CAS).

Affinis G. myanmarica Ormerod & C.S. Kumar *sed petalis floribus univenis (non bivenis), appendicibus labello teres (vs. subulatis ad complanatis) et epichilo apicibus plano-triangularis (vs. conduplicato-triangularis) differt.*

Epiphytic herb. Rhizome creeping, terete, rooting at nodes, 4 cm long, 0.2 cm thick; internodes 0.55–0.80 cm long. Stem erect, terete, 3–4 leaved, ca. 5 cm long, 0.175–0.300 cm thick; internodes 1.0–1.4 cm long. Leaves obliquely lanceolate to oblong-lanceolate, subacute, with obscure darker green patterning in dry state, 5.0–6.6 cm long, 1.75–3.60 cm wide; petiole and sheath 2.7–3.1 cm long. Inflorescence terminal, pubescent, 9.8 cm long; peduncle6 cm long; sheathing bracts 2, 1.6–2.0 cm long; rachis subdensely 10 flowered, 3.8 cm long; floral bracts ovate-lanceolate, to 15 mm long, 4 mm wide. Pedicellate ovary fusiform, pubescent, 6.8 mm long. Flowers resupinate, upper parts white, rest brownish, externally pubescent. Dorsal

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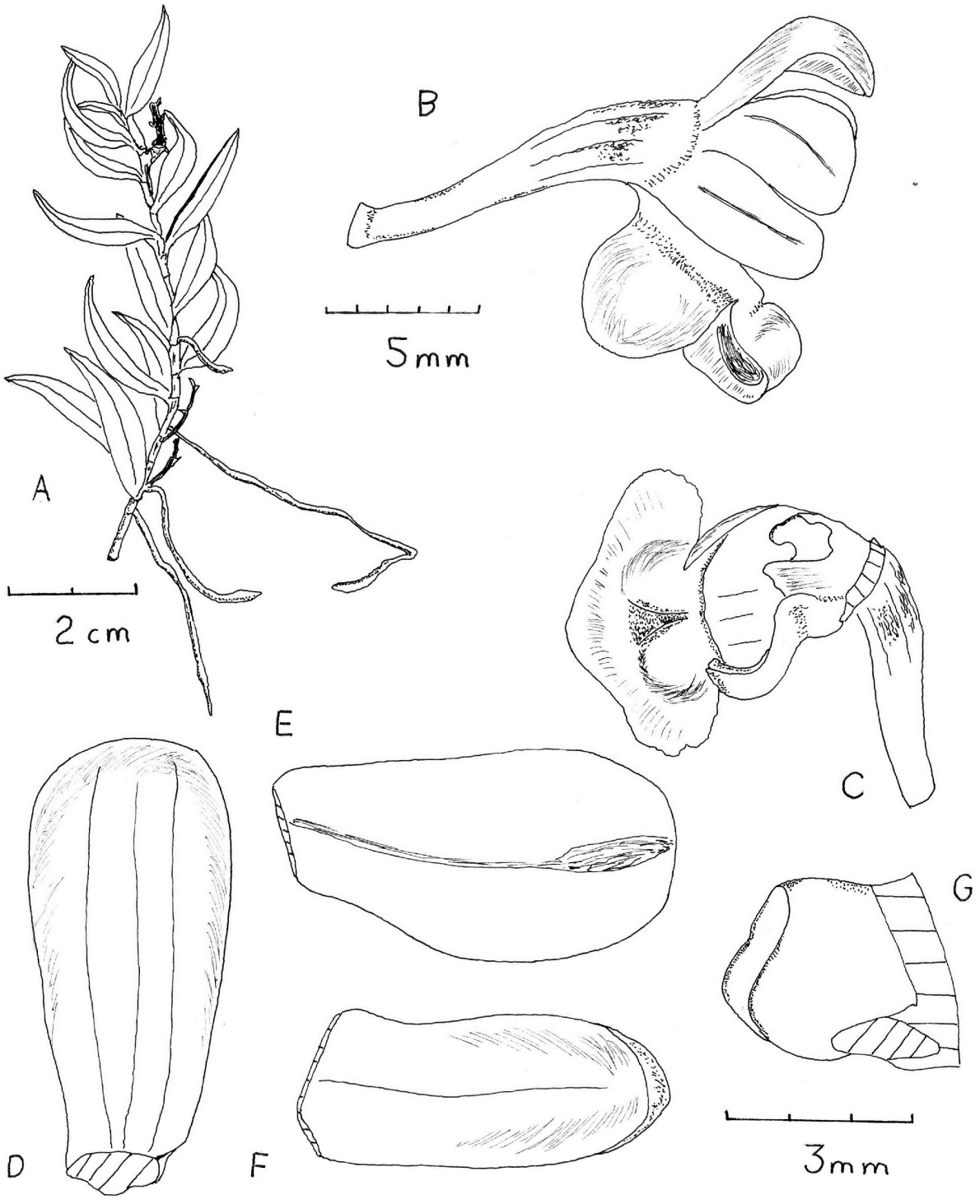


Fig. 3. ***Gastrochilus jietouensis.*** **A: Plant (upper half). B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal (inverted). F: Lateral sepal. G: Column. A, B, C and D-G to respective scales. Drawn from holotype.**

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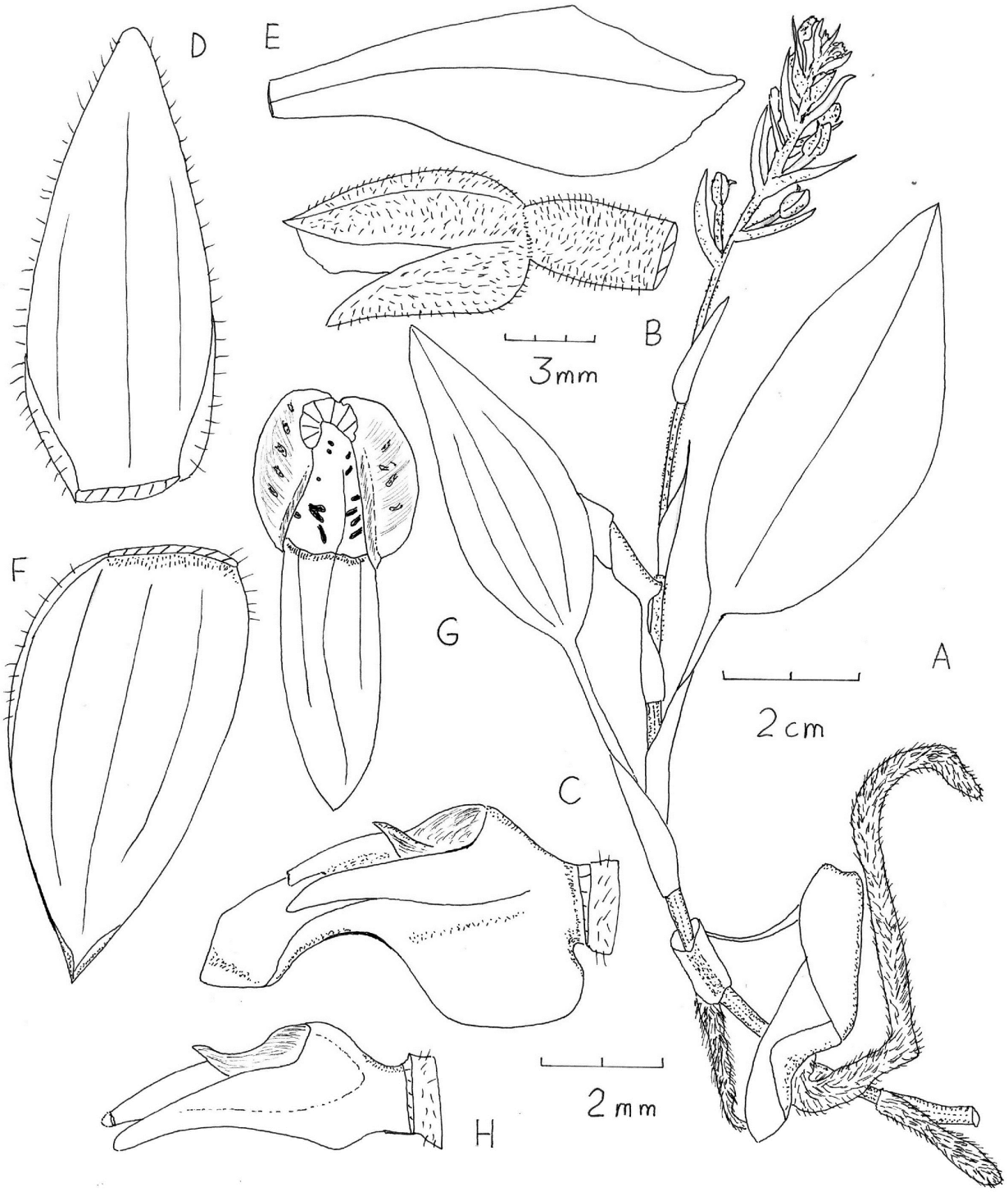


Fig. 4. *Goodyera makuensis*. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum. H: Column. A, B and C-H to respective scales. Drawn from holotype.

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sepal ovate-lanceolate, subacute, concave, forming a galea with the petals, 7 mm long, 3 mm wide. Lateral sepals obliquely ovate-elliptic, acute, 6.5 mm long, 3.5 mm wide. Petals obliquely oblanceolate-rhombic, acute, 7 mm long, 2.7 mm wide. Labellum 6 mm long; hypochile saccate, inside with several terete, simple to branched glands, ca. 2.25 mm long, 2.25 mm wide dorsally; epichile oblong-lanceolate, subacute, ca. 3.75 mm long, 1.8 mm wide basally, narrowing to 1.3 mm wide. Column 4.5 mm long; brachia ligulate-lanceolate, obtuse to subacute.

Distribution: China (Yunnan). Habitat: Occasional epiphytic herb growing in shade of subtropical evergreen broadleaf forest disturbed by agriculture and felling; 2050 m.

Etymology: Named after the town of Maku, near the type locality.

This species appears to be most closely related to *G. myanmarica* Ormerod & C.S. Kumar but differs from it in having flowers with one-veined (not two veined) petals, terete (not flat to subulate) glands in the labellum hypochile, and an epichile lacking lamellae (vs. bilamellate) with a simple flat (vs. conduplicate), triangular apex.

Herminium L.

Eighteen species (ten endemic) were accepted as occurring in China (Chen et al., 2009). The plants are often small terrestrial herbs, growing up to 4700 m altitude. The *Peristylus*-like flowers are usually small, and white to green coloured. Thus with *H. gongganum* described here, China now has nineteen species (eleven endemic).

Herminium gongganum Ormerod, ***sp. nov.***

Fig. 5

Type: CHINA, Sichuan, Luding Xian, Moxi: Gongga Shan, E side, downstream from Hailuo Guo Glacier, upstream from Camp 3, 3000-3100 m, 20 August 1997, *D.E. Boufford, M.J. Donoghue & R.H. Ree 27373* (Holotype: A).

Affinis H. carnosilabre Tang & F.T. Wang *sed floribus duplo majoribus, alba (non viridis), petalis oblongo-ellipticis et latioribus (vs. oblongis, 1.85 vs. 0.50 mm latis) differt.*

Terrestrial herb. Stem erect, terete, bifoliate, 90 mm long (not including 12 mm long subterranean part), 0.3–0.5 mm thick; cauline sheaths 2, basal, 7–23 mm long. Leaves narrowly oblong, subacute, disjunct, blade 30–40 mm long (not including attenuate base of 2–11 mm long), 4.75–7.50 mm wide. Inflorescence terminal, 94 mm long; peduncle 72 mm long; sheathing bracts 2, 7–9 mm long; rachis sublaxly secundly 7 flowered, 22 mm long; floral bracts ovate-lanceolate, acute, to 5 mm long. Pedicellate ovary fusiform-ellipsoid, 4 mm long. Flowers white. Dorsal sepal oblong-elliptic, acute, 3.9 mm long, 1.9 mm wide. Lateral sepals oblong-lanceolate, acute, 4.3 mm long, 1.8–1.9 mm wide. Petals oblong-lanceolate, obtuse, 3.9 mm long, 1.85 mm wide. Labellum spurred, joined to column and ovary for ca. 1 mm; spur narrowly ovoid, obtuse, ca. 2.2 mm long, ca. 1 mm wide laterally; blade oblong-lanceolate, obtuse, fleshy, lower half densely papillose inside, ca. 3.8 mm long, 1.0–1.2 mm wide. Column semiterete, 2 mm long; stigmatophores narrowly ligulate-lanceolate, slightly upcurved.

Distribution: China (Sichuan). Habitat: In moss as base of a slope near a stream in *Abies* forest with deciduous shrub understorey; 3000–3100 m.

Etymology: Named after the type locality, Gongga Shan.

This species does not seem to have any close relatives. It would key out near *H. carnosilabre* Tang & F.T. Wang in Chen et al. (2009) but it differs from that taxon in having twice as large white (not green) flowers with wider (1.85 vs. 0.50 mm), oblong-elliptic (not oblong) petals.

Platanthera L.C. Richard

A genus of mostly terrestrial *Habenaria*-like orchids commonly said to have about 200 species that are distributed throughout the northern hemisphere with a few taxa occurring in Malesia (out to New Guinea). Recently Bateman et al. (2009) expanded the genus to include *Diphylax* Hook.f. and *Tsaiorchis* Tang & Wang. Whilst I agree with the inclusion of *Diphylax* in *Platanthera,* it remains to be proven that *Tsaiorchis* belongs here too. The latter genus is probably more closely related to *Amitostigma* Schltr.

Thus with an expanded definition of the genus, two new species and two new records by Jin & Efimov (2012), and the three taxa described here, there are 42 species (21 endemic) in China. Also, I think that *P. opsimantha* Tang & Wang from Yunnan will probably prove to be a different from *P. uniformis* Tang & Wang due to the smaller flowers of the former but studies of the types are required.

Platanthera anatina Ormerod, ***sp. nov.***

Fig. 6

Type: CHINA, Yunnan, Salwin/Kiukiang Divide, E of Tehahtu, 2900 m, 15 September 1938, *T.T. Yu 20270A* (Holotype: AMES).

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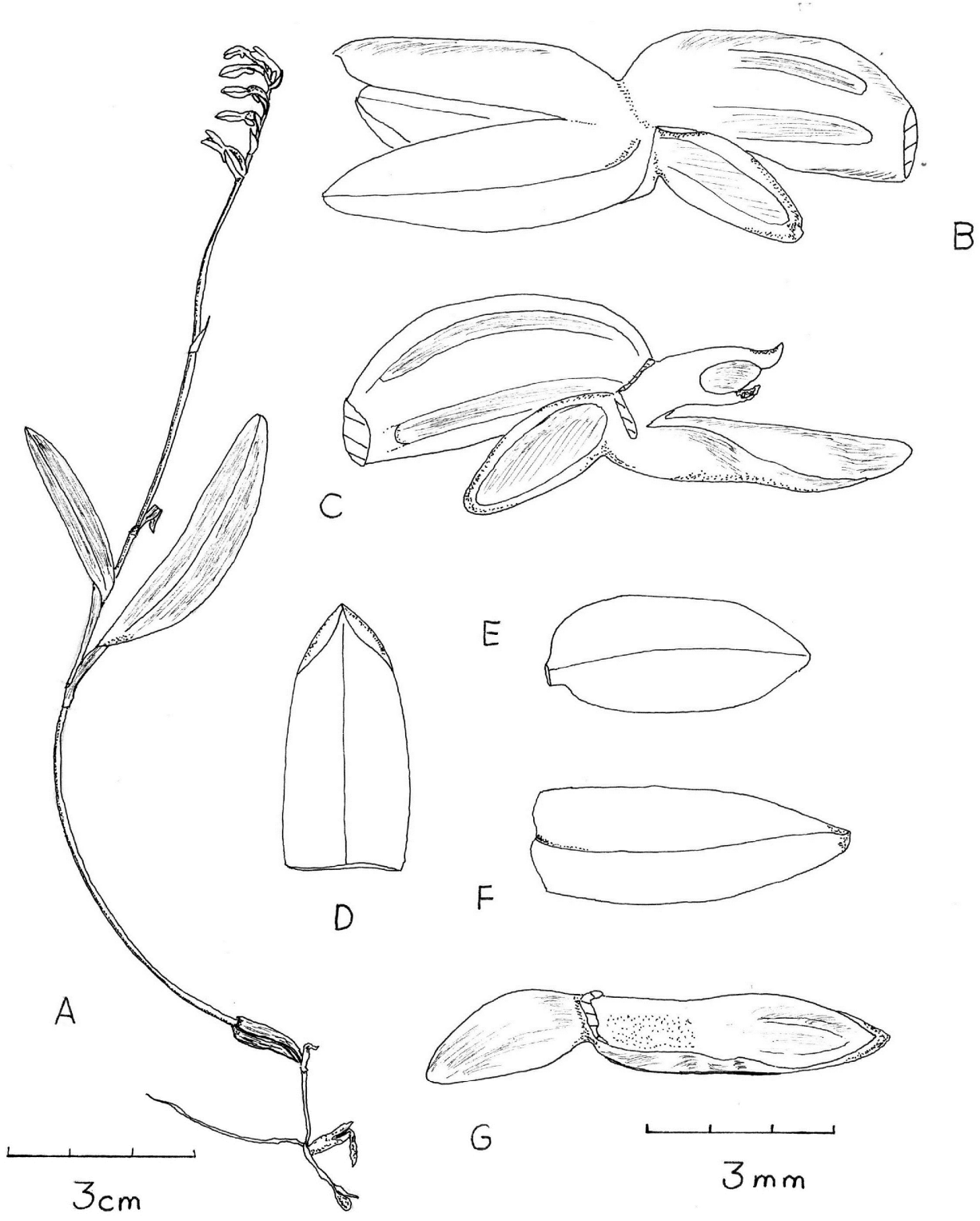


Fig. 5. ***Herminium gongganum*****. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum and spur. A and B-G to respective scales. Drawn from holotype.**

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Affinis P. danghatuensis Ormerod *sed appendices lateralis anthera subaequalis (non brevioribus) differt.*

Terrestrial herb. Roots and tubers not seen. Stem erect, terete, unifoliate, 2 sheathed, ca. 1 cm long, 0.05 cm thick. Leaf oblong-ovate, obtuse, 1.25 cm long, 0.8 cm wide; petiole 0.1–0.2 cm long. Inflorescence terminal, 15.2–17.6 cm long; peduncle 12.5–14.5 cm long; sheathing bracts 4–7, lax, lowest one subfoliaceous sometimes, 0.5–0.8 cm long; rachis secundly to subspirally 10–12 flowered, 2.7–3.1 cm long; floral bracts ovate, acute, to 4.5 mm long, 1.8–2.0 mm wide. Pedicellate ovary subfusiform, to 5.5 mm long. Flowers white. Dorsal sepal oblong, subacute, 5.5 mm long, 1.75 mm wide. Lateral sepals oblong-lanceolate, subacute, 5.95–6.00 mm long, 1.5–1.7 mm wide. Petals oblong, subacute, 5 mm long, 1.75–1.80 mm wide. Labellum spurred, joined to column and ovary for ca. 1 mm; spur subfusiform-ellipsoid, obtuse, 2.3 mm long dorsally, 1 mm wide laterally; blade oblong-lanceolate, subacute, shallowly concave and minutely papillose in lower half, fleshy, ca. 4.2 mm long, 1.3 mm wide. Column 1.95 mm long, lower half dilated; lateral appendages ligulate, subequal to anther.

Distribution: China (Yunnan). Habitat: Margin of subalpine swamp; 2900 m.

Etymology: From the Latin *anatinus* meaning duck, in reference to the resemblance of the column to a duck's head.

This species is most closely related to *P. danghatuensis* but differs from it in having flowers with a shorter (2.3 vs. 3 mm) spur, a column with a dilated (vs. undilated) lower half, and longer lateral appendages that are subequal with the anther.

Platanthera anatina, P. contigua Tang & F.T. Wang, *P. danghatuensis* (herein described), *P. opsimantha* Tang & F.T. Wang, *P. uniformis* Tang & F.T. Wang and *P. urceolata* (C.B. Clarke) R.M. Bateman are all referrable to the former genus *Diphylax*. This group was previously believed to have only three species but it has obviously speciated in China since only *P. urceolata* occurs outside the country in Bhutan, India and Myanmar. It is my belief that further novelties in this complex will be described because many of the taxa look superficially similar and therefore they may have been overlooked in the herbarium.

Platanthera danghatuensis Ormerod, ***sp. nov.***

Fig. 7

Type: CHINA, Yunnan, Gongshan: Cikai, vicinity of Danghatu, near KM 49 on the road from Gongshan to Kongdang and ca. 20.4 km WNW of Gongshan on the E side of Gaoligong Shan, 3280 m, 9 February 2006, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 34546* (Holotype: CAS).

Affinis P. anatina Ormerod *sed appendices lateralis anthera brevioribus (non subaequalis) differt.*

Terrestrial herb. Roots and tubers not seen. Stem fragment terete, unifoliate, 0.7 cm long, 0.03 cm thick. Leaf ovate, acute, 1.3 cm long, 0.7 cm wide. Inflorescence terminal, 14.7 cm long; peduncle 12 cm long; sheathing bracts lanceolate, acute, 4, lax, 0.6–1.0 cm long; rachis sublaxly 6 flowered, 2.7 cm long; floral bracts ovate-lanceolate, acute, 5 mm long, 1 mm wide. Pedicellate ovary fusiform, 4 mm long. Flowers white. Dorsal sepal oblong, acute, midvein low carinate externally, 5.75 mm long, 1.8 mm wide. Lateral sepals obliquely oblong-lanceolate, acute, midvein low carinate externally, 6 mm long, 1.8 mm wide. Petals oblong-oblanceolate, acute, 5.1 mm long, 1.8 mm wide. Labellum spurred, joined to column and ovary for ca. 1.3 mm; spur oblongoid-fusiform, obtuse, 3 mm long, 1.2 mm wide laterally; blade oblong-lanceolate, subacute, fleshy, shallowly channelled and finely papillose in lower half, 4.5–4.7 mm long, 1.5 mm wide. Column 2.0–2.1 mm long; lateral appendages rectangular, one third as long as anther.

Distribution: China (Yunnan). Habitat: Growing in a thicket in wetland disturbed by clearing, vegetation dominated by Ericaceae, Bamboo, *Juncus,* Cyperaceae and grasses; 3280 m.

Etymology: Named after Danghatu, near the type locality.

This species is closely related to *P. anatina* but it has a longer (3 vs. 2.3 mm) spur, a column with an undilated (vs. dilated) base, and much shorter, rectangular (vs. linear-ligulate) lateral appendages.

Platanthera fugongensis Ormerod, ***sp. nov.***

Fig. 8

Type: CHINA, Yunnan, Fugong Xian, Lishadi Xiang, Yaduo Cun, above Shidali along the N side of S fork of Yam He, E side of Gaoligong Shan, 2620 m, 15 August 2005, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 28318* (Holotype: CAS).

Inflorescentiis densifloris, parvifloris, sepalis 2.8–4.7 mm longis, petalis ovato-ellipticis, obtusis, columna brevis, 1.1–1.2 mm longis.

Terrestrial herb. Roots terete, stout, pubescent, fragment 6.5 cm long, 0.4–0.5 cm thick. Stem erect, terete, trifoliate, ca. 8 cm long, 0.3 cm thick, covered by leaf sheaths; cauline sheaths tubular, ca. 2 cm long.

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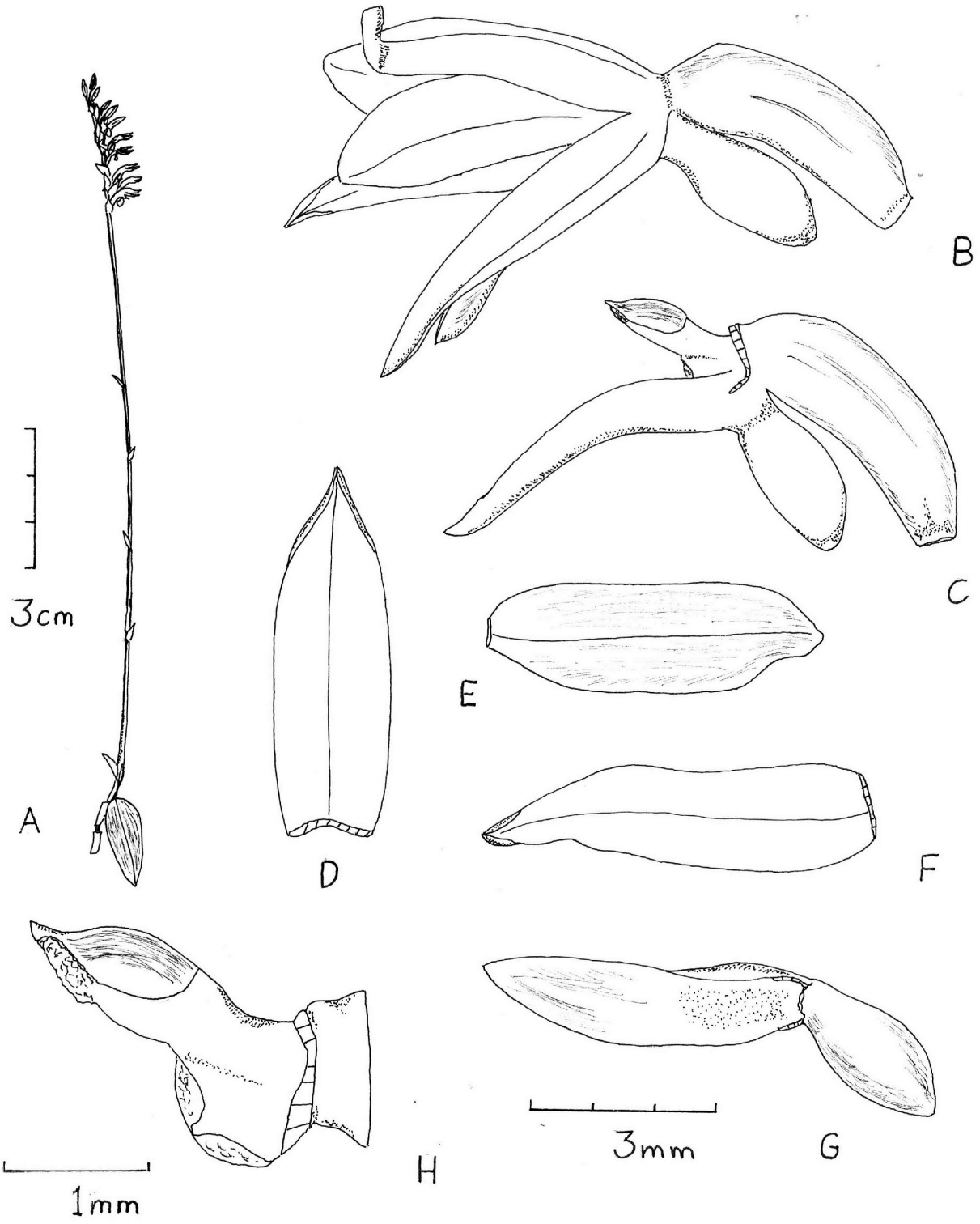


Fig. 6. ***Platanthera anatina.*** **A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum and spur. H: Column. A, B-G and H to respective scales. Drawn from holotype.**

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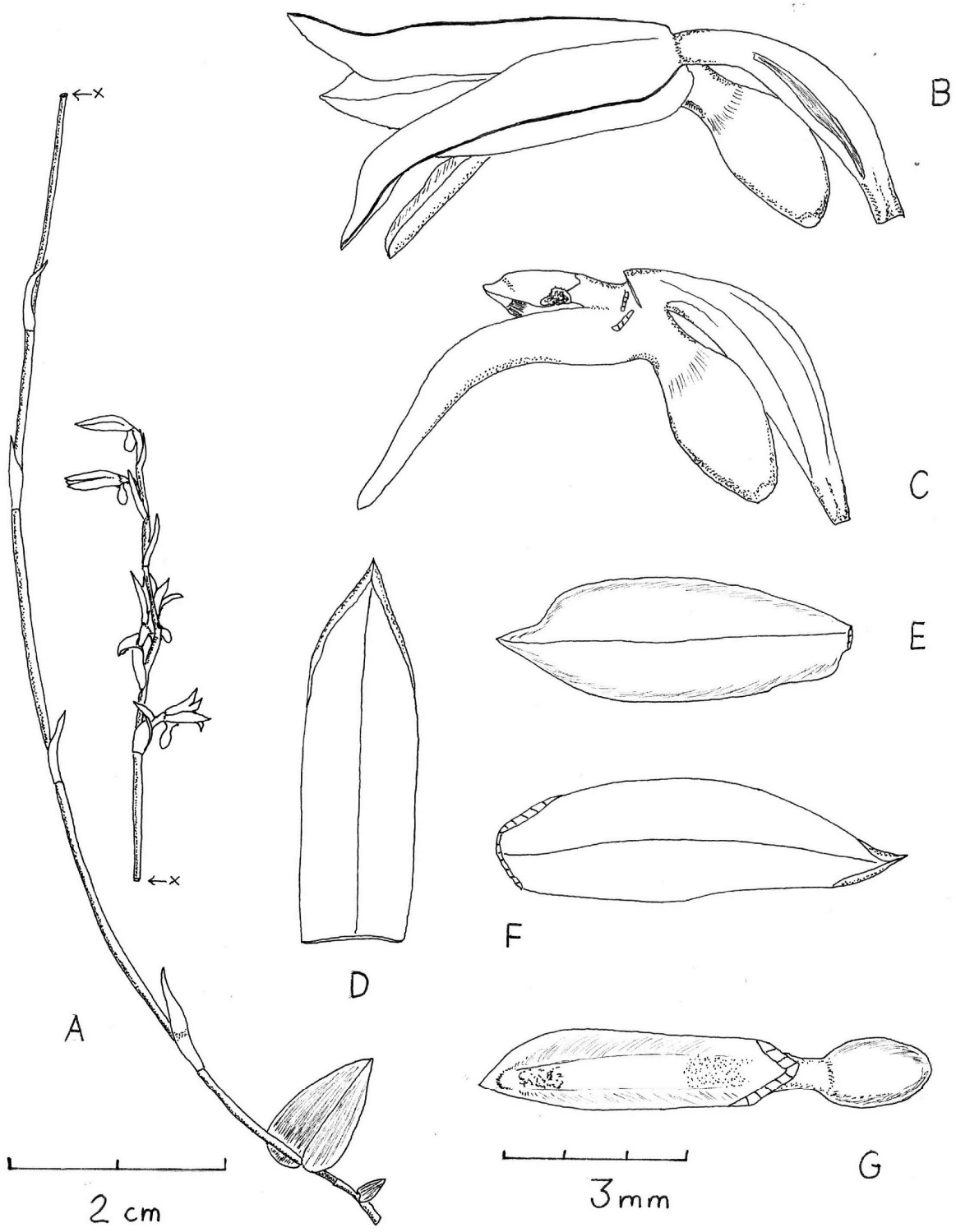


Fig. 7. ***Platanthera danghatuensis.*** **A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum and spur (not flat). A and B-G to respective scales. Drawn from holotype.**

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Leaves all damaged, probably oblong-lanceolate, possibly to ca. 12 cm long, 1.1–2.4 cm wide; sheathing base enclosing stem for ca. 2.5 cm. Inflorescence terminal, 11.2 cm long; peduncle evaginate, ca. 4.2 cm long (including basal 2 cm sheathed by uppermost leaf); rachis densely many flowered, 7 cm long; floral bracts lanceolate to ovate-lanceolate, acute, 4–22 mm long, 1.6–3.3 mm wide. Pedicellate ovary thickly fusiform, ca. 7 mm long. Flowers greenish yellow. Dorsal sepal broadly ovate-suborbicular, subacute, outside carinate in upper third, 2.8 mm long, 2.75 mm wide. Lateral sepals ovate-elliptic, obtuse, basal third united to side of labellum, 4.7 mm long, free part ca. 3 mm long, 2.3 mm wide. Petals obliquely ovate-elliptic, obtuse, 2.9 mm long, 2 mm wide. Labellum spurred, joined to column and ovary for ca. 1.2 mm; spur cylindric, obtuse, weakly arcuate, ca. 6 mm long, 1 mm thick; blade oblong, obtuse, ca. 3.5 mm long, 1.95–2.00 mm wide. Column short, stout, 1 mm long dorsally, 1.1–1.2 mm long.

Distribution: China (Yunnan).

Habitat: Rare plant in subtropical evergreen broadleaf forest dominated by *Lithocarpus* and *Ilex,* disturbed by felling, on a moist slope in loam on granite; 2620 m.

Etymology: Named after the type locality, Fugong Xian.

I am unable to identify any close relatives of this species. It can be recognised by its three leaved stems, dense flowered inflorescence, small flowers with the lateral sepals adnate to the lip, and ovate-elliptic, broadly obtuse petals.

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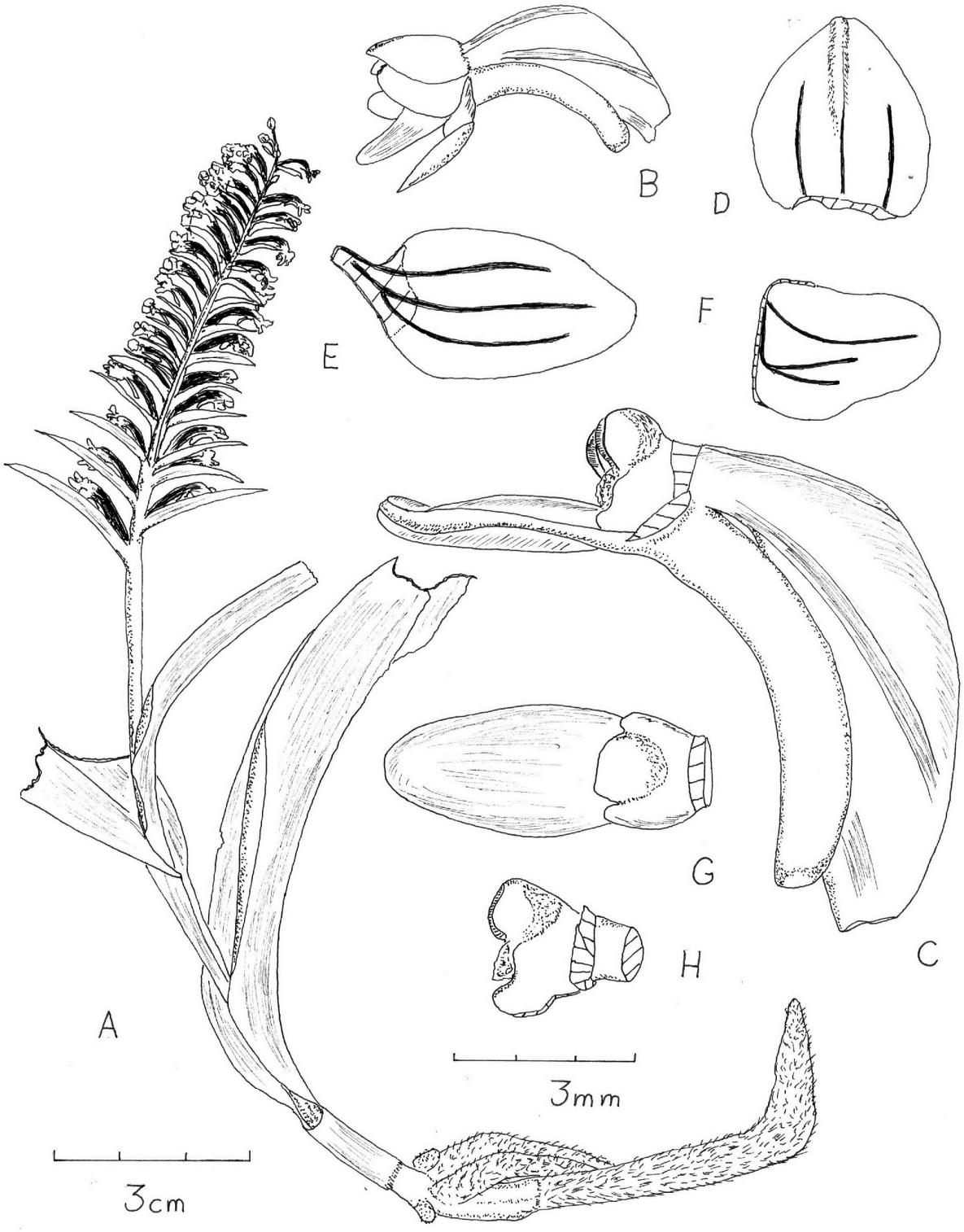


Fig. 8. ***Platanthera fugongensis*****. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Lateral sepal. F: Petal. G: Labellum and column (above). H: Column. A and B-H to respective scales. Drawn from holotype.**

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中國植物誌之蘭科新見

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摘要：對中國蘭科植物文獻與標本之持續研究，本文發表了八個蘭科新種，這些新分類群即為*Anoectochilus dulongensis*、*Collabium yunnanense*、*Gastrochilus jeitouensis*、*Goodyera makuensis*、*Herminium gongganum*、*Platanthera anatina*、*P. danghatuensis*和*P. fugongensis*。除此之外，對*Collabium formosanum*之檢視，本文認為其為台灣特有種。

關鍵詞：開唇蘭屬、中國、柯麗白蘭屬、松蘭屬、斑葉蘭屬、腳根蘭屬、蘭花、粉蝶蘭屬。

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