Orchidaceous Additions to the Flora of China

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ABSTRACT: Herbarium and literature studies of Chinese orchids reveals one new hybrid, three new species and the requirement for two new combinations. The new taxa are *Coelogyne ruidianensis, Habenaria wangii, Hemipilia mixta* and *Monomeria fengiana.* The new combinations are *Peristylus intrudens* and *Pinalia salwinensis.* The identities of *Peristylus tentaculatus* and *P. tipulifer* are clarified. The obscure *Ponerorchis exilis* is lectotypified and illustrated. Two dubious records, *Habenaria hystrix* and *Oberonia recurva*, are found not to occur in China.

KEY WORDS: China, orchids, additions, *Coelogyne, Habenaria, Hemipilia, Monomeria.*

INTRODUCTION

The recent publication (Wu et al., 2009) of volume 25 of the Flora of China series containing an English language treatment of the Orchidaceae has made studies considerably easier for those not fluent in reading Chinese. Thus it was possible during a recent visit to the Harvard University Herbaria to identify numerous specimens collected during Sino-American expeditions to China. Though many of the orchids collected are relatively well known plants, some uncommon species such as *Oreorchis angustata* L.O.Wms. ex Pearce & Cribb, *Peristylus jinchuanicus* K.Y. Lang and *Ponerorchis limprichtii* (Schltr.) Soo were among the notable taxa observed.

TAXONOMIC TREATMENTS

Coelogyne Lindl.

This genus of about 200 species has 31 species (6 endemic) recorded for China. Nine (one endemic) of these belong to section *Elatae* Pfitz., a group characterized by having several sterile bracts at the interface of the rachis and peduncle. Furthermore the inflorescence is determinate (i.e. it has a single flowering event) and the rachis is not bracteate at the apex. The closely related section *Proliferae* Lindl. differs in having a proliferous inflorescence (i.e. it has separate flowering events, up to 12 seasons, each time on a newly formed rachis) in which the rachis is terminated by sterile imbricate bracts.

The new taxon described here is one of the less horticulturally attractive species belonging to section *Elatae*.

Coelogyne ruidianensis Ormerod, *sp. nov.* Fig. 1

Type: China – Yunnan, Tenchong: Ruidian, Yunfeng Cun, Yunfeng Shan, along top of ridge NE of Yunfeng Si, ca. 9.2 km directly SW of Ruidian, 2990 m, 3 June 2006, *Gaoligong Shan Biodiversity Survey (H. Li et al.) 31025* (Holotype: GH!).

Affinis C. leucantha W.W.Sm. *sed pseudobulbis distans (non approximatis), longioribus (6 vs. 1.5-2.0 cm) et carinis medius multo brevioribus differt.*

Epiphytic herb. Rhizome covered with sheaths, 0.35 cm thick. Pseudobulbs 4.5-5.0 cm apart, subcylindric, erect, bifoliate, ca. 6 cm long, 0.7 cm thick. Leaves lanceolate, subacuminate, thinly coriaceous, blade 8.5-9.0 cm long, 2.60-2.95 cm wide; petiole ca. 2cm long. Inflorescence terminal, ca. 13.5 cm long; peduncle ca. 9 cm long; peduncle/rachis interface clothed with several imbricating bracts for 2.5 cm; rachis flexuous, laxly 7-8 flowered, ca. 4.5 cm long; floral bracts caducous, not seen. Pedicellate ovary subcylindric-clavate, 9 mm long. Flowers resupinate, greenish white, lip with brown stripes. Dorsal sepal oblong, apex shortly truncate with a dorsal mucro, concave basally, 15 mm long, 5.5 mm wide. Lateral sepals obliquely oblong, with an acute dorsal mucro apically, concave basally, 15.5 mm long, 4.2 mm wide. Petals linear, obtuse, 13.2 mm long, 1 mm wide. Labellum trilobed, saccate at base, 15.5 mm long, 8.5 mm wide; hypochile ca. 10 mm long medially, 8.5 mm wide; sidelobes shortly elliptic, rounded, outer margin entire, inner margin erose; epichile subquadrate, emarginate, margin minutely irregularly dentate, 5.5 mm long and wide; keels 3, lamellate, outer 2 terminating on middle of epichile, middle keel restricted to base of lip and obliquely truncate. Column semiclavate, narrowly winged, 11.2 mm long.

Distribution: China (Yunnan). Habitat: Undisturbed subtropical evergreen broadleaf well-developed forest

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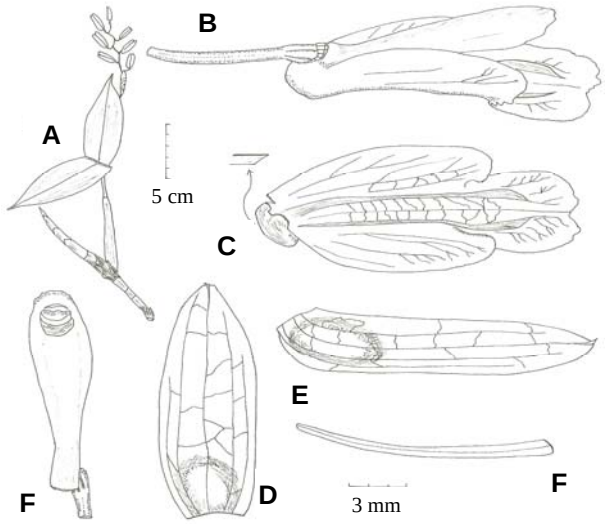


Fig.1. *Coelogyne ruidianensis*. A: Plant. B: Flower minus tepals. C. Labellum (hidden median keel arrowed). D: Dorsal sepal, outside. E: Lateral sepal, outside. F: Petal. G: Column, below. A and B-G to respective scales. Drawn from holotype.

dominated by *Lithocarpus* and *Schima* with scattered *Pinus* on drier slopes, 2990 m.

Etymology: The specific epithet refers to Ruidian, the type locality.

Notes: This species is related to *C. leucantha* W.W.Sm. but differs in having longer (6 vs. 1.5-2.0 cm) subcylindric (not ovoid-conical) pseudobulbs, dull greenish white flowers with a brown-striped lip (vs. pure white with a yellow patch on the epichile), and a labellum with a median keel restricted to the base (vs. equal in length to the outer two).

It is possible that photographs of the plant called *C. longipes* Lindl. (section *Proliferae*) in Jin et al. (2009) represent *C. ruidianensis* since these depict a species of section *Elatae* as evidenced by the determinate inflorescences. Characters such as the subcylindric pseudobulbs and greenish-yellow flowers and brown-striped lip seem to match *C. ruidianensis* best.

Habenaria Willd.

Chen and Cribb (in Wu et al., 2009) record 54 species (19 endemic) from China and Taiwan. To these I add *H. wangii* (described below) but delete *H. hystrix* Ames. Also the Taiwanese endemic *H. longiracema* Fukuyama is wrongly treated as a synonym of *H. lucida* Lindl. It differs from the latter in having a much shorter spur and narrower, ligulate (not elliptic) sidelobes. Another taxon, *H. yuana* Tang & Wang, is not endemic to China as listed in the Flora of China since it also occurs in Myanmar and Thailand (see Ormerod and Sathish, Kumar 2009).

Habenaria ciliolaris Krzl., Bot. Jahrb. Syst. 16: 169, 1892.

Type: China– Little Hong Kong, *Ford 95* (Holotype: K).

Habenaria kweitschuensis Schltr., Rep. Sp. Nov. Regni Veg. 17:26, 1921.
Type: China – Guizhou, rivulet of Kiao ta, August 1911, *J.E. Esquirol 3009* (Holotype: B, destroyed).
Habenaria hystrix auct. non Ames: Merrill, Lingnan Sci. J. 7:300, 1929; Seidenf., Dan Bot. Ark. 31, 3:98 p.p., 1977.

Distribution: China; Vietnam; Taiwan.

Specimens examined: China – Guizhou, Jiangkou Xian, Heiwan River, SE side of Fanjing Range, 560 m, 20 August 1986, *Sino-American Guizhou Botanical Expedition (B. Barthlolomew et al.) 81* (A); Daiyenpeng, along the Kaitu River, SW side of the Fanjing Range, 750-1000 m, 12 September 1986, *Sino-American Guizhou Botanical Expedition (B. Barthlomew et al.) 1231* (A). Guangxi, Kiennan District, near Tung Lei Village, Sai Hang Cheung, 1-11 September 1934, *S.K. Lau 4311* (A); *sine loc.*, 1935, *S.P. Ko 55439* (A). Hainan, Kumyun, 18 September 1936, *S.K. Lau 27904* (AMES).

Notes: Records of *H. hystrix* [=*H. muricata* (Schauer) Rchb.f. 1857, see Wood and Ormerod, 1998] from China refer to misidentified collections of *H. ciliolaris. Habenaria muricata* differs from *H. ciliolaris* in the dorsal sepal lacking laminate keels and in having an umbonate thickening on the base of the midlobe.

Habenaria wangii Ormerod, *sp. nov.* Fig. 2

Type: China – Yunnan, Che-li Hsien, Dah-meng-lun, Maan-bung, 1000 m, August 1936, *C.W. Wang 77553* (Holotype: AMES!).

Affinis H. ciliolaris Krzl. *sed carinis sepalis dorsalis latosulcatis (vs. esulcatis), calcar brevioribus (14 vs. 17-23 mm), columna recurvatis (non recto) et altioribus (4 vs. 2.85-3.00 mm) differt.*

Erect terrestrial herb. Tubers 2, ellipsoid, 10-15 mm long, 7 mm thick. Roots terete, pubescent. Stem terete, 4-leaved in apical quarter, 13.5 cm long, 0.3 cm thick; cauline sheaths 2 in lower half, 3.5-3.7 cm long. Leaves narrowly elliptic to ovate-elliptic, obtuse to acute, 9.5-12.5 cm long, 4.10-4.75 cm wide; petiole and sheath 1.5-3.6 cm long. Inflorescence terminal, muricate along ribs, 28.9 cm long; peduncle 18.7 cm long; sheathing bracts 5, lax, 1.7-3.5 cm long; rachis laxly 9-10 flowered, 10.2 cm long; floral bracts rhombic-ovate, subacuminate, margin ciliate, 15-16 mm long, 8-10 mm wide. Pedicellate ovary cylindric-fusiform, with several narrowly minutely irregularly erose ribs, to 19 mm long. Flowers resupinate, light green. Dorsal sepal suborbicular, cucullate, acute, margins minutely ciliate-dentate, dorsally with 3 irregularly dentate-ciliate keels, the median one broadly grooved for 2/3 of its length, 7 mm long, 7.0-7.5 mm wide. Lateral sepals strongly

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obliquely ovate, obtuse, reflexed, 3-veined, 8.9 mm long, 6.9 mm wide. Petals obliquely ligulate-lanceolate, subacute, subfalcate, 1-veined, forming a galea with dorsal sepal, 6.5 mm long, 2.3-2.5 mm wide. Labellum spurred, trilobed, lobes all deflexed; spur clavate, retrorse, 14 mm long; sidelobes linear, semiterete, acute, fleshy, 3-veined, 14 mm long, ca. 2 mm wide basally; midlobe linear, semiterete, acute, fleshy, 3-veined, 13 mm long. Column erect, recurved, 4 mm tall, 6.5-7.5 mm long to theca tips; thecas 4 mm long.

Distribution: China (Yunnan). Habitat: Dense forest, 1000 m.

Etymology: Named for C.W. Wang, collector of the type specimen.

Notes: This species shares with *H. ciliolaris* a muricate inflorescence and a dorsal sepal bearing three lamellate dentate-ciliolate keels. However *H. wangii* may be distinguished from *H. ciliolaris* by the median keel of the dorsal sepal being shallowly and broadly grooved (vs. narrowly slit-grooved), a more stoutly (vs. slenderly) clavate, shorter (14 vs. 17-23 mm) spur and a taller (4 vs. 2.85-3.00 mm) recurved (vs. straight-backed) column with longer (4 vs. 2.3-2.9 mm) thecas.

In the illustration provided of *H. wangii* the midlobe appears to be humped at the base, this is however an artefact of pressing and not a natural feature of the flower.

Hemipilia Lindl.

This is a genus of seven or eight species distributed from Nepal to Taiwan. It is probable that all the species known in the genus occur in China. The plants are easily identified by their single cordate, often purple-marked, ground-hugging leaves and racemes of pinkish to purple flowers with the column bearing a prominent hornlike rostellum. I add below the first named hybrid for the genus.

Hemipilia mixta Ormerod, *hybr. nov.* Fig. 3

Type: China – Sichuan, mountains N of Baurong and E of the Yalung River, 3630 m, July 1929, *J.F. Rock 17810* (Holotype: AMES!).

Labello floribus integro ad trilobatis, margine erosis ad laceratis, late cruciformis ad flabellatis.

Terrestrial herb. Tubers 2, oblongoid to ellipsoid, 10-35 mm long, 7-12 mm thick. Leaf basal, appressed to substrate, suborbicular-cordate, shortly subacuminate, 2.8-5.5 cm (along midvein, 3.9-7.0 cm from lobe tip to apex) long, 3.9-6.9 cm wide. Inflorescence glabrous, 16.5-31.6 cm long; peduncle 7.5-20.0 cm long; sheathing bracts 0 - 2, 10.5 - 20.0 mm long; rachis sublaxly secundly 9-12 flowered; floral bracts ovate-lanceolate, acute, 7-12 mm long, 3.0-4.3 mm wide. Pedicellate ovary clavate, 9.5-22.0 mm long. Flowers resupinate, purple. Dorsal sepal oblong, mucronate, 7 mm long, 3.8 mm wide. Lateral sepals obliquely ovate, obtuse, 7.8 mm long, 4.3 mm wide. Petals obliquely ovate, obtuse, minutely papillose-pubescent outside, 5.9 mm long, 3.4 mm wide. Labellum spurred, broadly cruciform to flabellate, entire to trilobed, margins weakly erose to lacerate, papillose-pubescent above, ciliate along basal margins, ca. 7.9 mm long, 8.5 mm wide; spur narrowly conical-cylindric, obtuse, 12.5 to 17.5 mm long. Column ca. 2.3 mm tall, ca. 3 mm long to tip of rostellum.

Distribution: China (Sichuan). Habitat: On grassy banks (Type), 3050-4265 m.

Additional specimen examined: China – Sichuan, Muli Kingdom, 3050-4265 m, June 1922, *J.F. Rock 5485* (AMES).

Etymology: From the Latin *mixtum*, meaning mixing or mingling, referring to the apparent hybrid nature of the plant.

Notes: This entity appears to be a natural hybrid between *H. cordifolia* Lindl. and *H. flabellata* Bureau & Franchet since the morphology of the labellum is intermediate between these two taxa. The shape and dentation of the labellum is variable, indicating the features of an unstable first generation hybrid.

Monomeria Lindl.

This genus of *Bulbophyllum*-like plants previously consisted of two species. One, *M. barbata* Lindl., is distributed from Nepal to Vietnam and the other, *M. dichroma* (Rolfe) Schltr., is endemic to Vietnam. The discovery of an endemic Chinese species is an exciting addition to the flora since only the widespread *M. barbata* was reported for China. *Monomeria* may be distinguished from *Bulbophyllum* Thouars by the pollinia which possess a common stipe. All three *Monomeria* species share the same habit (distant, conical pseudobulbs; petiolate, ligulate leaves), erect, racemose inflorescences of medium-sized flowers, erose-lacerate petals, thickly papillose-pubescent inner surfaces of the lateral sepals and a labellum with ligulate-falcate sidelobes.

Figures (e.g. Seidenfaden, 1992) of *M. dichroma* often show the inner surface of the lateral sepals to be unadorned with papillae but these are certainly present in material seen at AMES and are mentioned in the protologue of the basionymic name *Bulbophyllum dichromum* Rolfe.

Monomeria fengiana Ormerod, *sp. nov.* Fig. 4

Type: China - Yunnan, Malipo: Hwang-jin-in,

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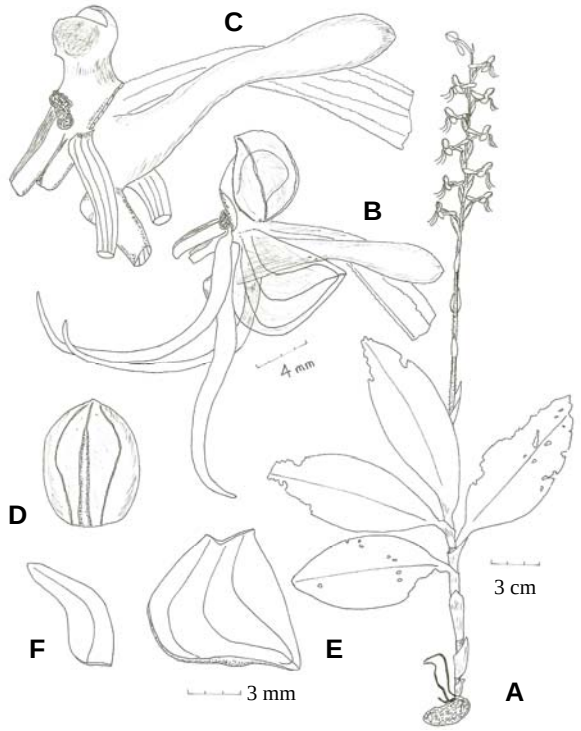


Fig. 2. *Halbenaria wangii*. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal from behind. E: Lateral sepal. E: Petal. A, B and C-F to respective scales. Drawn from holotype.

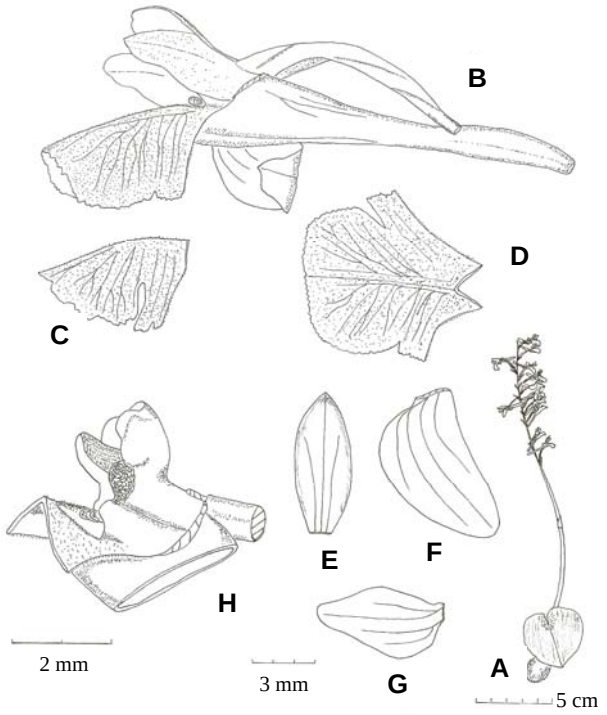


Fig. 3. *Hemipilia mixta*. A: Plant. B: Flower (minus lateral sepal). C. Labellum (another flower, lateral view). D: Labellum. E: Dorsal sepal. F: Lateral sepal. G: Petal. H: Column and base of labellum. A, B-G and H to respective scales. A from Rock 5485, rest from holotype.

1400-1600 m, 8 November 1947, *K.M. Feng 13049* (Holotype: AMES!).

Affinis M. barbata Lindl. *sed marginibus sepalis recto-coalitis (non libero-tortis) differt.*

Epiphytic herb. Rhizome creeping, terete, 4.5-7.0 mm thick. Roots terete, mostly emerging under pseudobulbs, 1 mm thick. Pseudobulbs conical, erect, 7 cm apart, 1-leaved, 3.5-4.0 cm tall, 1.0-1.5 cm thick. Leaf oblong-ligulate, obtuse, coriaceous, midnerve keeled below, petiolate, blade 35.5 cm long, 4.25 cm wide; petiole 13.3 cm long. Inflorescence basal, terete, erect from a curved base, glabrous, 37.2 cm long; peduncle 17.5 cm long, 0.3 cm thick; sheathing bracts 2, loosely tubular, obliquely truncate, 1.3-1.5 cm long; rachis laxly 12 or more flowered, 19.7 cm long; floral bracts ovate-lanceolate, acute, 5-veined, to 12 mm long, 4 mm wide. Pedicellate ovary clavate, 16 mm long. Flowers resupinate, greenish with purple spots. Dorsal sepal ovate-deltate, acute, base with free deltate corners, 5-veined, 12-13 mm long, 6.5 mm wide. Lateral sepals obliquely ovate-elliptic, obliquely subacuminate, lower margin coherent to form a synsepalum, inner surface (especially in lower half) covered in thick papillae, 5-veined, 16.5 mm long, 8 mm wide. Petals much wider than long, decurrent on columnfoot, erose-lacerate, 1-veined, 2.5 mm long, 7 mm wide. Labellum articulate on columnfoot, trilobed, medially with 2 outer lamellae, between which another 2 lamellae, all 4 merging on the disc of the lamina, edges irregular to erose, ca. 9 mm long, basally 5.5 mm wide; lamina broadly obovate, emarginate, ca. 4.5 mm wide; lateral lobes linear-ligulate, apex dentate, falcate, ca. 5 mm long. Column stout, broadly winged, 5 mm long, 4.5 mm wide laterally; brachia ovate-deltate, acute, 2 mm long; pollinia 4 in 2 pairs, stipe not observed; columnfoot curved, 12.5 mm long (including free apex).

Distribution: China (Yunnan). Habitat: Mixed forests, 1400-1600 m.

Etymology: Named for K.M. Feng who collected the type specimen.

Notes: This species shares its column and petal shape with *M. barbata* but differs in having semiclosed, urceolate (not spreading, open) flowers in which the lateral sepals are coherent (not free) by the lower margins, broadly (vs. narrowly) attached to the columnfoot and untwisted (vs. twisted), thereby not exposing the papillose inner surfaces.

Oberonia Lindl.

In volume 25 of the Flora of China (Chen et al., in

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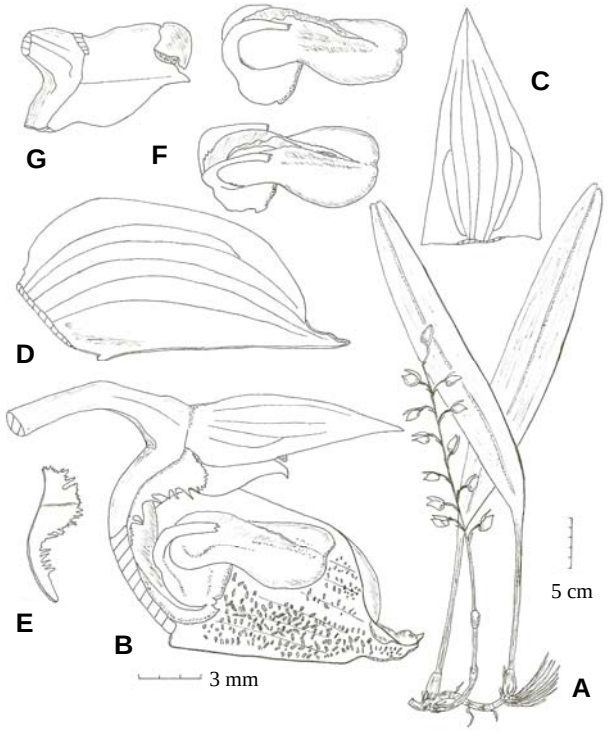


Fig. 4. *Monomeria fengiana*. A: Plant. B: Flower (minus lateral sepal). C. Dorsal sepal. D: Lateral sepal. E: Petal. F: Labella. G: Column. A and B-G to respective scales. Drawn from holotype.

Wu et al., 2009) 33 species (11 endemic) were recorded from China and Taiwan. By error we listed *O. recurva* Lindl. based on Ko 55774 (AMES!) which was cited by Seidenfaden (1968). That specimen is actually an isotype of *O. cathayana* W.Y. Chun & T. Tang ex S.C. Chen and thus the record of *O. recurva* from China should be deleted. Also an error in the key indicates that *O. kwangsiensis* Seidenf. and *O. cathayana* have erose margins to the lip when the margins of both taxa are either entire or irregular.

Also of interest is that X.H. Jin and colleagues (2010) have confirmed that *O. insularis* Hayata is indeed the earlier name for *O. pumila* (Fukuyama ex S.C. Chen & K.Y. Lang) Ormerod and not a synonym of *O. japonica* (Makino) Makino.

Peristylus Blume

Chen et al. (in Wu et al., 2009) recorded 19 species (five endemic) from China and Taiwan. Hsu et al. (2009) have since added *P. gracilis* Blume to the flora of Taiwan. Recent studies of herbarium material should keep these numbers the same but change some of the names and circumscriptions of the taxa involved. In particular there has been much confusion over the application of the names of taxa with filamentous labellum sidelobes. The following notes may help on the subject.

Peristylus intrudens (Ames) Ormerod, *comb. nov.*

Basionym: *Habenaria intrudens* Ames, Schedul. Orch. 6:1, f.1, 1923.
Type: Philippines-Luzon, Rizal Prov., Antipolo, 100 m, October 1913, *M. Ramos BS 21999* (Holotype: AMES!).
Peristylus spiranthes (Schauer) Rchb.f. var. *taipoensis* S.Y. Hu & Barretto, Chung Chi J. 13, 2:2, f.1, 1976. *syn. nov.*
Peristylus taipoensis (S.Y. Hu & Barretto) T.C. Hsu & S.W. Chung, Taiwania 54, 1:84, 2009.
Peristylus lacertifer (Lindl.) J.J. Sm. var. *taipoensis* (S.Y. Hu & Barretto) S.C. Chen, Gale & Cribb, Fl. China 25:143, 2009.
Type: China-Hong Kong, New Territories, 25 August 1970, *G. Barretto for S.Y. Hu 10944* (Holotype: K; Isotype: A!).

Distribution: China; Taiwan; Philippines.

Specimens examined: China – Hong Kong, Taipo, forestry station, 16 August 1970, *S.Y. Hu 10851 p.p.* (A); New Territories, 25 August 1970, *G. Barretto for S.Y. Hu 10943* (A); 26 August 1970, *G. Barretto for S.Y. Hu 10945* (A); Hong Kong, *C. Wright 524* (GH).

Notes: I agree with Hsu and Chung (2009) that this taxon deserves species status. However after comparison of the type of *Habenaria intrudens* with an isotype of *Peristylus spiranthes* var. *taipoensis* I find them conspecific and therefore transfer to *Peristylus* the earlier name. The species differs from *P. lacertifer* in having white flowers, short labellum sidelobes and more elliptic petals. There are perhaps other differences in callus shape too.

It should be noted that *P. lacertifer* is sometimes white (rather than green or greenish-white) flowered [e.g. *Lau 17* (A) from Hong Kong] and it occasionally has rather short (but narrower) sidelobes.

Peristylus tentaculatus (Lindl.) J.J. Sm., Fl. Buitenz. 6: 35, 1905.

Glossula tentaculata Lindl., Bot. Reg. 10:t.862, 1825.
Glossaspis tentaculata (Lindl.) Spreng., Syst. Veg. 3: 694, 1826.
Habenaria tentaculata (Lindl.) Rchb.f., Otia Bot. Hamb. 1: 34, 1878.
Type: China, *sine loc*., December 1824, *cult. Horticultural Society, Chiswick ex J.D. Parks s.n.* (Holotype: K-L).
Glossaspis antennifera Rchb.f., Linnaea 25: 225, 1852.
Type: China – Hong Kong, in ravines, March 1845, *Fortune 182* (Holotype: K-L; Isotype: K).
Habenaria tentaculata (Lindl.) Rchb.f. var. *acutifolia* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30: 354, 1911. *syn. nov.*
Habenaria formosana Schltr., Repert. Sp. Nov. Regni Veg., Beih. 4: 127, 1919.
Peristylus flagellifer (Makino) Ohwi var. *acutifolius* (Hayata) Hatusima, Fl. Ryukyu: 84, 1971.
Peristylus formosanus (Schltr.) T.P. Lin, Nat. Orch. Taiwan 2: 274, 1977.
Peristylus lacertifer (Lindl.) J.J. Sm. var. *formosana* (Schltr.)

臺灣大學學術期刊資料庫

S.S. Ying, Col. Ill. Indig. Orch. Taiwan 2: 631, 1990. *nom. superfl.*
Type: Taiwan-Shintengai, January 1904, *S. Nagasawa s.n.* (Holotype: TI).

Distribution: China; Taiwan; Japan (Ryukyus).

Specimens examined: China – Guangxi, Shap Man Taai Shan, Tang Lung Village, SE of Shang-sze, Guangdong border, 20 September 1934, *W.T. Tsang 24312* (AMES). Hong Kong, *Hance 524* (GH); *Champion 30* (GH); *Milford s.n. (282)* (GH); *C. Wright 523* (GH); Tai Po, 20 February 1969, *S.Y. Hu 6613* (A); Pine Grove, 21 September 1969, *S.Y. Hu 7905* (A); 5 January 1969, *S.Y. Hu 6433* (A); Castle Peak, 10 March 1973, *S.Y. Hu 13062* (A); 15 January 1972, *S.Y. Hu 11412A* (A); Fau Tan Valley, 29 January 1972, *S.Y. Hu 11456* (A); Pokfulam Reservoir, 12 September 1956, *Y.S. Lau 16* (A); High Island, 11 November 1969, *S.Y. Hu 8665* (A); *S.Y. Hu 8741* (A); 25 November 1969, *S.Y. Hu 8895* (A); High Island Reservoir, 14 October 1969, *S.Y. Hu 8222* (A).
Taiwan – Taipei, Mt. Sushou-shan, near Sunshan, 18 December 1960, *T. Shimizu 10431* (A).

Notes: Although similar to *P. calcaratus* (Rolfe) S.Y. Hu and *P. tipulifer* (Par. & Rchb.f.) Mukerjee in habit and the long filamentous sidelobes at right angles to the midlobe, this species is distinguished from them in its short and thickly fusiform spur and labellum having a dome-shaped callus between the sidelobes. The other two taxa have longer clavate to subglobose spurs and the labellum bears a narrow transverse wall-like callus that joins to the base of each sidelobe.

The characters of *Habenaria formosana* are exactly those of *Peristylus tentaculatus* and therefore they must be treated as conspecific. I have not seen the description of *Habenaria brevicalcarata* Fukuyama but it likely belongs in the synonymy too.

Peristylus tipulifer (Par. & Rchb.f.) Mukerjee, Not. Roy. Bot. Gard. Edinb. 21: 158, 1953.

Habenaria tipulifera Par. & Rchb.f, Trans. Linn. Soc., Bot. 30:139, 1874.
Type: Myanmar – Moulmein, *C. Parish 292* (Holotype: W; Isotype: K).
Habenaria brandisii Hook.f., Fl. Brit. Ind. 6: 162, 1890.
Peristylus brandisii (Hook.f.) Krzl., Orch. Gen. Sp.: 506, 1901.
Type: Myanmar – Pegu, *Brandis 1050* (Holotype: CAL; icon K!).
Habenaria garretti Rolfe ex Downie, Bull. Misc. Inf. Kew: 418, 1925. *syn.nov.*
Peristylus garrettii (Rolfe ex Downie) J.J. Wood & Ormerod, Taiwania 48, 3: 141, 2003.
Type: Thailand – Chiang Mai, Doi Sutep, 915-1525 m, 5 September 1909, *A.F.G. Kerr 118* (Holotype: K; Isotype: AMES!).
Peristylus tentaculatus auct. non (Lindl.) J.J.Sm.: Seidenf., Dan. Bot. Ark. 31, 3:41, f.18, 1977; Kurzweil, Gard. Bull. Singap. 60, 1:51, f.1-3, 2008; Nord. J. Bot. 28: 39, f.11, 2010; S.C. Chen, Gale & Cribb, Fl. China 25: 139, 2009 p.p.

Distribution: Nepal; India; Myanmar; China; Thailand.

Specimen examined: China – Yunnan, Menghai Xian, 1700 m, 6 September 1991, *Z.H. Tsi 91-472* (AMES).

Notes: Seidenfaden's (1977) treatment of *P. tentaculatus* has misled several later authors (e.g. Chen et al. in Wu et al., 2009; Kurzweil, 2008; Ormerod, 2003). The problems began with Seidenfaden's reduction of *Habenaria garrettii* to *Peristylus tentaculatus* and referral of several Thai collections to the latter. At the same time Seidenfaden recognised *P. tipulifer* as a separate species based on larger vegetative features and a slightly narrower spur. Kurzweil (2008) subsequently found that the discriminating characters of *P. tipulifer* and *P. tentaculatus* (sensu Seidenfaden) were connected by intermediates and he thus united the two taxa.

As explained above under *P. tentaculatus*, the latter is quite distinct in its floral features such as spur shape and labellum callus type. *Habenaria garrettii* clearly belongs with *Peristylus tipulifer* and therefore the previous new record (Ormerod, 2003) of it for China is listed here under the oldest name.

Pinalia Lindl.

Chen et al. (in Wu et al., 2009) recognised 17 species (six endemic) as occurring in China and Taiwan. Previously all species of *Pinalia* had been placed in a broadly construed *Eria* Lindl. To the list of endemic taxa should be added *Eria salwinensis* (here transferred), it has been wrongly treated as a synonym of *Pinalia spicata* (D.Don) S.C. Chen & J.J. Wood.

Pinalia salwinensis (Handel-Mazzetti) Ormerod, *comb. nov.*

Basionym: *Eria salwinensis* Handel-Mazzetti, Symb. Sinicae 7:1352, t.42, f.8-9, 1936.
Type: China – Yunnan, near the bridge from Sitjitong (Xiqitong) on the Salween River above Tschamutang (Gongshan), 1725 m, 13 July 1916, *F. Handel-Mazzetti 9566* (Holotype: W).

Distribution: China (Yunnan).

Notes: This species differs from *P. spicata* in having a narrower tricarinate (vs. ecarinate) labellum with a circular (vs. subquadrate) epichile. It is much more closely related to *Eria connata* Joseph et al. (transfer in press) from Arunachal Pradesh, India. The latter species shares with *P. salwinensis* a narrow tricarinate labellum with a circular midlobe. The with a circular (vs. subquadrate) epichile. It is much more closely related to *Eria connata* Joseph et al. (transfer in press) from Arunachal Pradesh, India. The latter species shares with *P. salwinensis* a narrow tricarinate labellum with a circular midlobe. The differences between the two are not entirely certain but *Eria connata* seems to

臺灣大學學術期刊資料庫

have subglobose inflorescences and a wholly verrucose labellum epichile whilst *Pinalia salwinensis* has ovoid-fusiform inflorescences and a medially callose labellum epichile.

Ponerorchis Rchb.f.

Chen et al. (in Wu et al., 2009) recorded 14 species (11 endemic) as occurring in China and Taiwan. One of these taxa (*P. exilis*) was listed as an incompletely known species and transferred from *Orchis* L. to *Ponerorchis.* Since there is type material at AMES of *Orchis exilis* it was possible to make some studies of this plant and clear up its identity.

Ponerorchis exilis (Ames & Schltr.) S.C. Chen, Cribb & Gale, Fl. China 25:97, 2009. Fig. 5

Orchis exilis Ames & Schltr., Repert. Sp. Nov. Regni Veg., Beih. 4:40, 1919.

Type: China – Yunnan, *E.E. Maire 1662* (Lectotype, here designated: AMES!); Yunnan, *E.E. Maire 1671* (Syntype: AMES!).

Distribution: China (Yunnan). Habitat: Swampy meadow (*Rock 10626*).

Specimens examined: China – Yunnan, *E.E. Maire 3415* (AMES); *F. Ducloux 519 (873)* (AMES); Yangtze Watershed, E slopes of Likiang Snow Range, Chu Hyin Ko, near Nguluke, 3050 m, September 1923, *J.F. Rock 10626* (AMES).

Notes: This species is probably most closely related to *P. pugeensis* (K.Y. Lang) S.C. Chen et al. since it shares with it such characters as ciliate-margined petals and a trilobed labellum. However *P. pugeensis* differs in having broader (2.0-2.7 vs. 0.5-2.2 cm) leaves and foliaceous floral bracts.

Amongst the material seen of *P. exilis* some variability can be observed. The leaves are generally less than 1 cm wide but can reach 2.2 cm wide; the petals are usually elliptic and about 2.2 mm wide but can be oblong and about 1.75 mm wide (*Ducloux 519*); and the spur varies from 7-10 mm long.

The collection made by Joseph Rock is so far the only one seen that gives precise locality, altitude, flowering time and flower colour (purple).

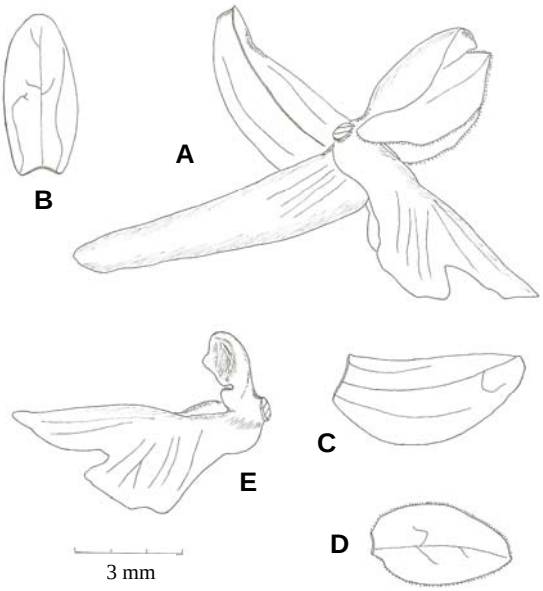


Fig. 5. *Ponerorchis exlilis*. A: Flower (minus lateral sepal). B: Dorsal sepal. C: Lateral sepal. D: Petal. E: Column and labellum (minus spur). A-E to indicated scale. Drawn from lectotype.

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中國蘭科植物誌新見

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摘要：經由檢視標本與文獻回顧發現中國原生蘭的一種新雜交種，三新種與二新學名組合。新種（包含雜交種）為 *Coelogyne ruidianensis*、*Habenaria wangii*、*Hemipilia mixta* 與 *Monomeria fengiana*。新組合為 *Peristylus intrudens* 與 *Pinalia salwinensis*。*Peristylus tentaculatus* 與 *P. tipulifer* 這二種則加以釐清。指定 *Ponerorchis exilis* 之模式標本並予繪圖。*Habenaria hystrix* 與 *Oberonia recurva* 二種則並未出現於中國。

關鍵詞：中國、蘭花、新見、*Coelogyne*、 *Habenaria*、*Hemipilia*、*Monomeria*。

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