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Supplements to the Orchid Flora of Taiwan (I)

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ABSTRACT: This paper focuses on taxonomy and diversity of the family *Orchidaceae* in Taiwan. Five species are reported as new records, including *Lecanorchis triloba*, *L. suginoana*, *L. virella*, *Odontochilus nanlingensis* and *Peristylus taipoensis*. New treatments are provided for *Eulophia pulchra* var. *actinomorpha*, *Vexillabium integrum*, *Listera kuanshanensis* and *L. meifongensis*. Among these species, *Kuhlhasseltia integrum*, *Neottia kuanshanensis*, *Neottia meifongensis* and *Peristylus taipoensis* are new combined names.

KEY WORDS: *Orchidaceae*, Taiwan, Taxonomy.

INTRODUCTION

In the past several years, our field investigations have revealed fruitful results regarding the biodiversity of Orchidaceae in Taiwan (Chung and Hsu, 2005; 2006a; 2006b; 2008; Chung et al., 2006; Hsu and Chung, 2007; 2008). After a broad survey of specimens and literature, it is convinced that there are still some problematic species and genera which need critical revising. In the present work, brief reports of several newly recorded species and nomenclature alterations of several known species are proposed. Among them, *Eulophia phlchra* var. *actinomorpha* were treated as a synonym of *E. pelorica*. *Listera kuanshanensis* along with *L. meifonensis* are transferred to *Neottia* and *Vexillabium integrum* to *Kuhlhasseltia*. *Peristylus spiranthes* var. *taipoensis* are combined as *Peristylus taipoensis*. *Lecanorchis triloba*, *L. suginoana*, *L. virella*, *Odontochilus nanlingensis*, and *Peristylus taipoensis* are newly recorded from Taiwan.

TAXONOMIC TREATMENTS

Eulophia R. Br.

Lin et al. (2006) described *Eulophia phlchra* var. *actinomorpha*, probably a peloric form of *E. pulchra*, from southern Taiwan. We propose a new treatment of this variety since it is identical to an earlier published species *E. pelorica* from Australia.

Eulophia pelorica D. L. Jones & M. A. Clem., Orchadian 14(8): sci. suppl. 9. 2004. ─TYPE: AUSTRALIA. Queensland: *Gray & Jones 9624* (holotype QRS). 輻射大芋蘭

Eulophia pulchra (Thouars) Lindl. var. *actinomorpha* W. M. Lin, L. L. Kuo Huang & T. P. Lin, Taiwania 51(3): 163, f. 2, 5B. 2006. *syn. nov.* ─TYPE: TAIWAN. Pingtung: Beyishan, *W. M. Lin s. n.* (holotype TAI).

Distribution: Australia (Queensland) and Taiwan.

Note: There is a great disjunction between the two known habitats of *Eulophia pelorica*. Since *E. pelorica* and *E. pulchra* can be separated only by the shape of lip (Jones and Clements, 2004), populations of *E. pelorica* may be easily misidentified as *E. pulchra* when no flower present. Therefore, we suppose that *E. pelorica* may be further discovered within the known distribution areas of *E. pulchra* between Taiwan and Australia.

Kuhlhasseltia J. J. Sm.

The genus *Vexillabium* was included in *Kuhlhasseltia* mainly due to their indistinguishable column structures (Ormerod, 2002; Pridgeon, 2003). Two *Vexillabium* species were previously recorded in Taiwan (Leou, 2000). One of them, *V. yakushimense*, has been transferred to *Kuhlhasseltia* by Ormerod (2002). However, he listed another species, *V. integrum,* as a synonym of *K. yakushimense*. Since *Vexillabium integrum* differs from *K. yakushimense* apparently by vegetative characters and habitats, we keep its independence as Leou (2000) did and propose a new combination to *Kuhlhasseltia*.

Kuhlhasseltia integra (Fukuy.) T. C. Hsu & S. W. Chung, *comb. nov.* ─ *Pristiglottis integra* Fukuy., Bot. Mag. (Tokyo) 50: 20. 1936. ─ *Vexillabium integrum* (Fukuy.) S. S. Ying, Col. Ill. Indig. Orch. Taiwan 1:509. 1977; Leou, Fl. Taiwan 2nd ed., pl. 458. 2000. ─TYPE: TAIWAN. Koto Is. (Lanyu): *Fukuyama 4779* (holotype KPM).

綠葉旗唇蘭

Vexillabium yakushimense auct. non. (Yamam.) Maekawa: Lin, Native Orch. Taiwan 2: 332, f. 1978; Liu & Su, Fl. Taiwan 5: 1129, pl. 1652. 1978.; Lang *et al*., Fl. Reipubl. Popularis Sin. 17: 174. 1999. *pro. parte.*

Distribution: Taiwan (Lanyu).

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Additional specimens examined: TAIWAN. Taitung, Lanyu: Tienchih, 15 Apr 2006, *T.C.Hsu 476* (TAIF); 6 Oct 2007, *S. W.Chung et al. 9042* (TAIF); Hongtoushan, 8 Aug 2004, *S.W. Chung 7256* (TAIF); 3 Aug 2007, *S. W. Chung 8666* (TAIF).

Lecanorchis Bl.

Three additional *Lecanorchis* species have been recognized in Taiwan and we report here briefly. Detailed descriptions and illustrations will be included in a preparing paper regarding the taxonomy of *Lecanorchis* in Taiwan.

Lecanorchis triloba J. J. Sm., Bull. Dep. Agric. Indes Neerl. 19: 26. 1908. ─TYPE: NEW GUINEA. Irian Jaya: *Versteeg 1676* (holotype BO? n.v.).
三裂皿蘭

Distribution: The Ryukyus, Taiwan, the Philippines, Thailand, Malaysia and Indonesia.

Additional specimens examined: TAIWAN. Pingtung: Shouka, ca. 400 m alt., 5 Dec 2006, *T. C. Hsu 682, 684* (TAIF); same locality, 4 Jul 2008, *T. C. Hsu1437* (TAIF).

Note: This species is characterized by frequently branched inflorescences, smaller flowers and fruits, and a pair of calli on the disc of lip.

Lecanorchis suginoana (Tuyama) Serizawa, Bunrui 5(1): 38, 2005. ─*Lecanorchis japonica* Bl. var. *suginoana* Tuyama, J. Jap. Bot. 57(7): 211. 1982. ─TYPE: JAPAN. Houshu: Totomi, 8 Jun 1980, *Tuyama s.n.* (holotype TI). 杉野氏皿蘭

Distribution: Japan (Honshu) and Taiwan.

Additional specimens examined: TAIWAN. Nantou: Luqushan, ca. 1900 m alt., 12 May 2007, *T. C. Hsu 791, 792* (TAIF); Shanlinxi, ca. 1700 m alt., 20 Jul 2007, *T. C. Hsu 890* (TAIF).

Note: This species is unique in having unicellular papilla scattering on the multicellular hairs of lip disc.

Lecanorchis virella T. Hashim., Ann. Tsukuba Bot. Gard., 8: 1, 1989. ─TYPE: JAPAN. Kyushu: Yakushima, *Hanei s.n.* (holotype TNS 9504705).
綠皿蘭

Distribution: Japan (Kyushu) and Taiwan.

Additional specimens examined: TAIWAN. Taoyuan: Beichatianshan, ca. 1000 m alt., 4 May 2007, *T. C. Hsu 785* (TAIF).

Note: This species is characterized by greenish flowers and incurved, transversely rectangular midlobe of lip.

Neottia Guett.

Recent phylogeny analyses (Chase et al., 2003; Pridgeon et al., 2005) reveals that the saprophytic *Neottia s.l.* was nested within *Listera*, but the former name was published earlier. Since their floral characters were indistinguishable either, a broad sensed *Neottia* including *Listera* should be an appropriate taxonomic concept. Almost all nomenclature works had been done by Szlachetko (1995). Here we propose new combinations for the two recently published *Listera* species from Taiwan.

Neottia kuanshanensis (H. J. Su) T. C. Hsu & S. W. Chung, *comb. nov.* ─*Listera kuanshanensis* H. J. Su, J. Expt. Forest Natl. Taiwan Univ. 13(3): 206. 1999. ─TYPE: TAIWAN. Kaohsiung: Along the trail to Mt. Kuanshan, *C. C. Chen s.n.* (holotype HAST).
關山雙葉蘭

Distribution: Endemic to Taiwan.

Neottia meifongensis (H. J. Su & C. Y. Hu) T. C. Hsu & S. W. Chung, *comb. nov.* ─*Listera meifongensis* H. J. Su & C. Y. Hu, Taiwania 45(3): 240. 2000. ─TYPE: TAIWAN. Nantou: Meifong, *C. Y. Hu 226* (holotype HAST). 梅峰雙葉蘭

Distribution: Endemic to Taiwan.

Odontochilus Bl.

Four *Odontochilus* species were previously recorded in Taiwan (Su, 2000). A newly recorded species, *O. nanlingensis*, was collected from northern mountainous region. This tiny species may belong to Sect. *Evrardia* according to the subdivision proposed by Ormerod (2002). However, its taxonomic position is worthy of further study since it has several unique vegetative and floral characters among the genus *Odontochilus*.

Odontochilus nanlingensis (L. P. Siu & K. Y. Lang) Ormerod, Taiwania 48(2): 91. 2003. ─*Anoectochilus nanlingensis* L. P. Siu & K. Y. Lang, Acta. Phytotax. Sin. 40(2): 164, f. 2002. ─TYPE: CHINA. Guangdong: Nanling National Nature Reserve, Tianjing Mt., *L. P. Siu GS-16-2000* (holotype PE).
南嶺齒唇蘭 Figs. 1 & 2

Distribution: China (Guandong) and Taiwan.

Additional specimens examined: TAIWAN. Taipei: Dadaoshan, ca. 600 m alt., 6 Apr 2002, *T. C. Hsu 69* (TAIF); Lapushan, ca. 600 m alt., 3 May 2006, *T. C. Hsu s.n.* (TAIF); Badaoershan, ca. 900 m alt., 5 May 2007, *T. C. Hsu 1370* (TAIF).

Note: Examinations of the type specimen and fresh materials reveal that some morphological characters described by Siu & Lang (2002) need to be corrected and modified as follows: "Plants without normal root. Rhizome creeping, internodes slender or reduced, bearing unicellular hairs near nodes. Lip contracted at mouth of the basal sac. Column with a lanceolate, transversely flattened ventral appendage just below stigma; stigma fused to a single structure, frontally faced."

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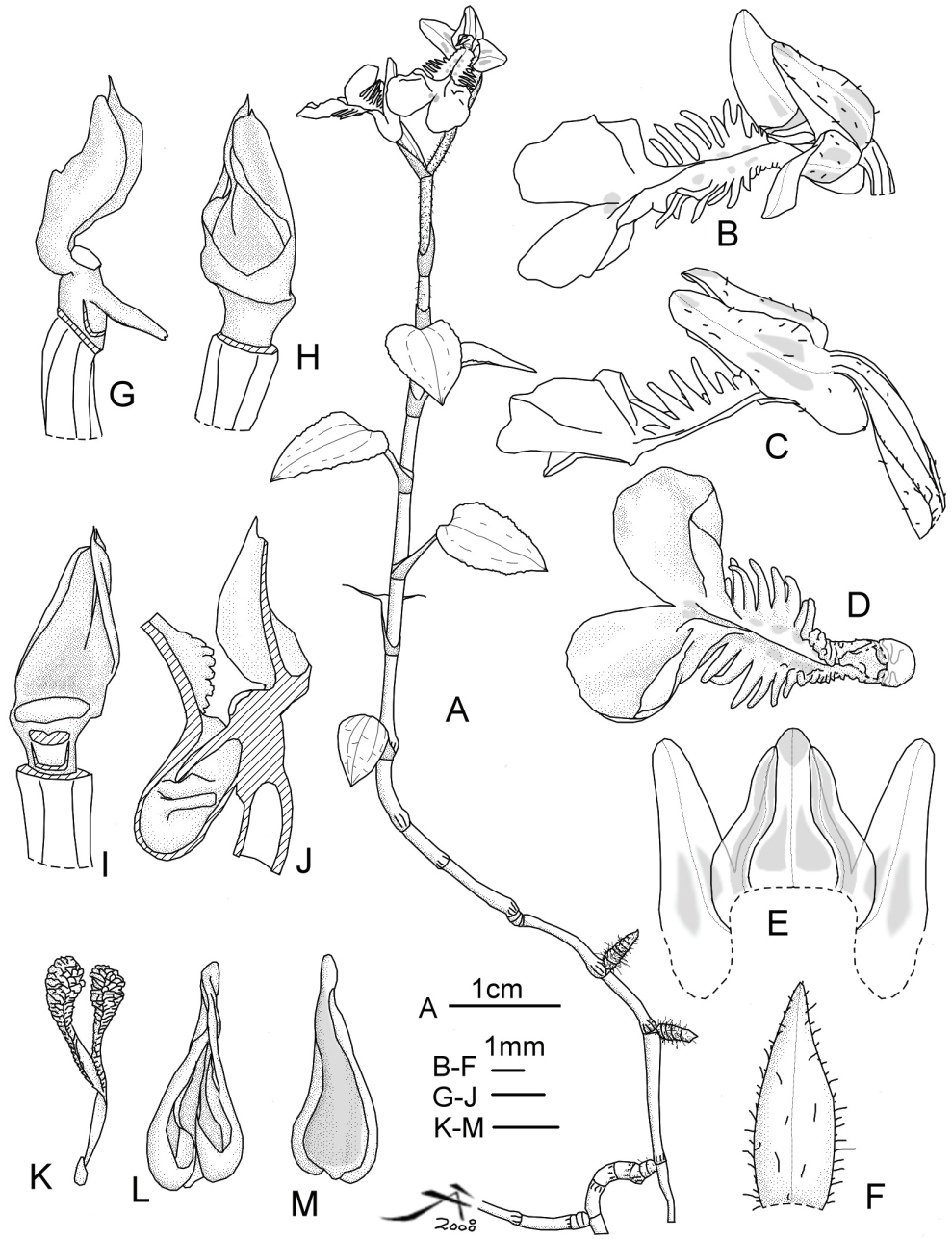


Fig. 1. *Odontochilus nanlingensis* (L. P. Siu & K. Y. Lang) Ormerod. A: Habit. B-C: Flower, oblique view (B) and lateral view (C). D: Lip, dorsal view. E: Floral tube, expanded. F: Floral bract, dorsal view. G-I: Column, lateral view (G), dorsal view (H) and ventral view (I). J: Column and lip hypochile, vertical section. K: Pollinia. L-M: Anther cap, ventral view (L) and dorsal view (M).

Peristylus Bl.

Four *Peristylus* species were reported in Taiwan (Su, 2000) before. Two additional species were collected recently, including *P. gracilis* Bl. from Lanyu (Hsu et al., in reviewing) and *P. taipoensis* from central Taiwan. Here we propose a brief report for the later species.

Peristylus taipoensis (S. Y. Hu & G. Barretto) T. C. Hsu & S. W. Chung *comb. nov. & stat. nov.* ─ *Peristylus spiranthes* (Schauer) S. Y. Hu var. *taipoensis* S. Y. Hu & G. Barretto, Chung Chi J. 13(2): 2, f. 1. 1976. ─Type: HONG KONG: *Hu & Barretto 10944* (holotype K n.v., isotype A).

短裂闊蕊蘭 Figs. 3 & 4

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Fig. 2. *Odontochilus nanlingensis* (L. P. Siu & K. Y. Lang) Ormerod.



Fig. 3. *Peristylus taipoensis* (S. Y. Hu & Barretto) T. C. Hsu & S. W. Chung.

Peristylus lacertiferus auct. non. (Lindl.) J. J. Sm.: Lang et al. Fl. Reipubl. Popularis Sin. 17: 419. *pro. parte.*

Distribution: Taiwan and Hong Kong.

Additional specimens examined: TAIWAN. Nantou: Sun Moon Lake, ca. 800 m alt., 15 Aug 2007, *T. C. Hsu 925* (TAIF).

Note: *Peristylus taipoensis* is newly recorded from Taiwan. It was first described as a variety of *Peristylus spiranthes*, which was later treated as a synonym of *P. lacertiferus* (Lindl.) J. J. Sm. (Seidenfaden, 1977; Lang, 1999). A new status of this variety was proposed because it differs from *P. lacertiferus* clearly in having almost entirely white flowers, shorter lips, and lip bearing triangular lateral lobes which are shorter than the central lobes.

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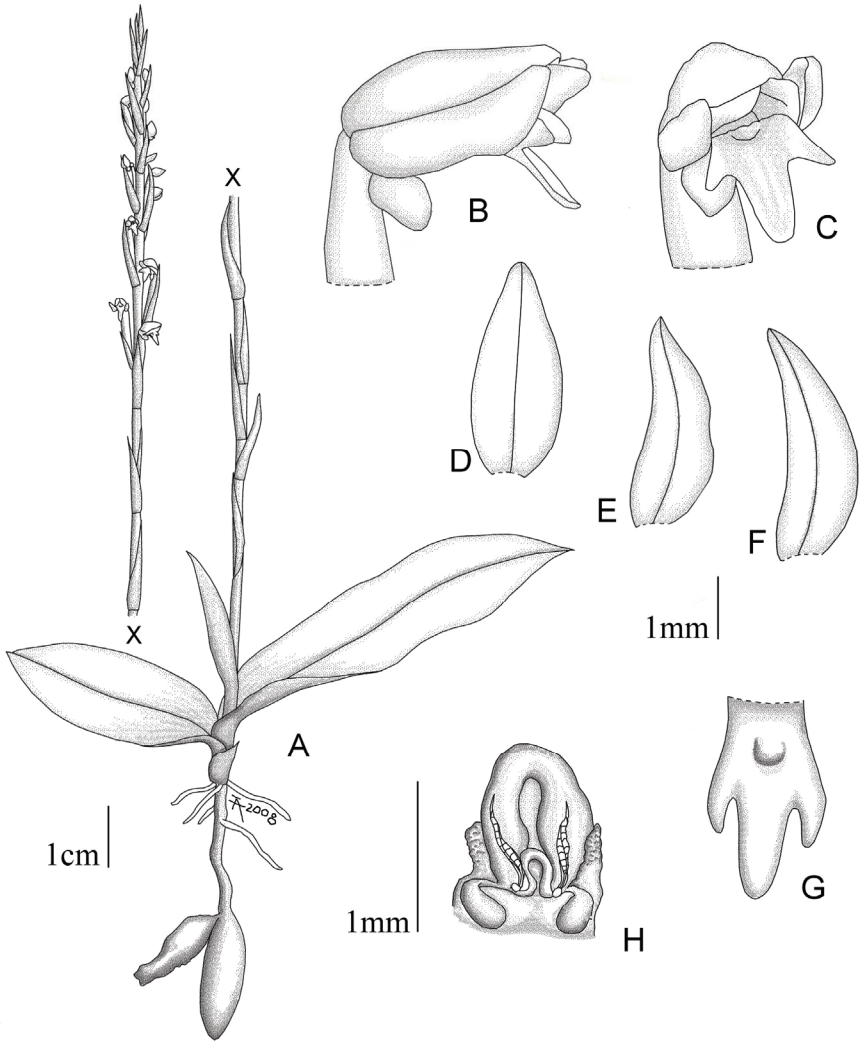


Fig. 4. ***Peristylus taipoensis*** **(S. Y. Hu & Barretto) T. C. Hsu & S. W. Chung. A: Habit. B: Flower, lateral view. C: Flower, front view. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Lip. H: Column.**

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臺灣蘭科植物誌補註(一)

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摘要：本文為臺灣蘭科植物分類及多樣性之增補與註記。文中報導五新紀錄種：三裂皿蘭、杉野氏皿蘭、綠皿蘭、南嶺齒唇蘭以及短裂闊蕊蘭；並提出輻射大芋蘭、綠葉旗唇蘭、關山雙葉蘭與梅峰雙葉蘭之新分類處理。其中綠葉旗唇蘭 (*Kuhlhasseltia integrum*)，關山雙葉蘭 (*Neottia kuanshanensis*)，梅峰雙葉蘭 (*Neottia meifongensis*) 與短裂闊蕊蘭 (*Peristylus taipoensis*) 為新組合名。

關鍵詞：蘭科、分類、臺灣。

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