

Tsan-Piao LIN

Institute of Plant Biology, National Taiwan University, 1 Roosevelt Rd., Section 4, Taipei 10617, Taiwan. *Corresponding author's email: tpl@ntu.edu.tw

(Manuscript received 16 October 2020; Accepted 8 December 2020; Online published 2 January 2021)

ABSTRACT: This report presents 2 new orchids from Taiwan, viz., *Goodyera similis* var. *similoides* T.P. Lin, and *Platanthera quadricalcarata* T.P. Lin, and 1 natural hybrid *Crepidium* \times *cordilabium* T.P. Lin. *Bulbophyllum maxi* W.M. Lin ex. T.P. Lin is emended with a new definition. *Nervilia taiwaniana* S.S. Ying was found to be synonymous with *N. taitoensis* Hayata.

KEY WORDS: Crepidium × cordilabium, Goodyera similis var. similoides, Platanthera quadrical carata, Bulbophyllum maxi, Nervilia taitoensis.

INTRODUCTION

Investigations of native plants including orchids in Taiwan began in the early 1850s by European visitors. Botanical studies intensified during the Japanese colonial period (1895–1945), which helped establish а comprehensive picture of Taiwan's flora. Plant resource surveys were interrupted during WWII, and did not resume for about 30 years. Then in the 1970s, Taiwanese scholars assumed that responsibility (Lin, 2019). The present number of published species, varieties, and natural hybrids of native orchids accumulated over the last 170 years has reached at least 465 belonging to 106 genera (Lin, 2019). The emergence of newly discovered orchids from different locations has continued due to ongoing orchid surveys by numerous amateur collectors. These fanatic amateurs are searching for and taking pictures of native orchids not for economic reasons, but they are driven by the attractive nature of orchids. These self-supported activities have resulted in an increase of 113 species of new orchids, including new species and new records, for Taiwan between 2000 and 2020 (Lin, 2019; 2020). This large number is about 24% of our total species of native orchids. The rate, however, of adding new orchids to the country's flora is gradually slowing. The present paper is a continuation of efforts to update the orchid flora of Taiwan. Explorers are now transferring their attention to morphological variations of known species. Thus, increasing reports of new natural hybrids and varieties are expected. A recent field trip resulted in the discovery of several new orchids in the genera Crepidium, Goodyera, and *Platanthera*, which are presented below.

TAXONOMIC TREATMENT

In the following, 2 new species (1 each in the genera *Goodyera* and *Platanthera*) are introduced first, followed by 1 new natural hybrid (*Crepidium*). Emendation of *Bulbophyllum maxi* is provided because of emerging new

information. Finally, Nervilia taiwaniana is reviewed.

Goodyera similis var. similoides T.P. Lin, var. nov.

葉氏斑葉蘭 Figs. 1A-C & 2

Type: Taiwan: Hsinchu Co., Chienshih Township, 1650 m, Sept. 25, 2020, *Michelle M.S. Yeh s.n.* (TAI289813!).

Plant ca. 22 cm tall above creeping base, with reddish-brown stem. Rhizome 3-3.5 mm in diam. Leaves 3-5, ovate-lanceolate or lanceolate, oblique, up to 6×2.6 cm, acute, rounded at base, green, with grayish-white net-like venation and a prominent grayishwhite stripe along midrib, grayish-green beneath; petiole ca. 0.5 cm long. Flowering stems (incl. rachis) 13 cm long, ca. 15-flowered, pubescent; peduncle shorter than rachis, ca. 5 cm long, with 2 sheath-bracts. Floral bracts lanceolate, light-reddish-brown, slightly longer than pedicel and ovary, acuminate, hairy outside. Ovary pedicellate, ca. 8.5 mm long, hairy, pale-greenish. Flowers widely opening, 1.6 cm across, more or less secund; upper sepals oblong, ca. 12×4.5 mm when spread out, obtuse, concave, light-pinkish, hirsute outside; lateral sepal obliquely ovate, ca. 11 × 4.7 mm when spread out, obtuse; petals rhomboid-spatulate, with a long claw, 11 × 4.6 mm, whitish, connivent with upper sepal forming a hood over column. Lip globose-saccate at base, tongue-shaped at apex, 7 mm long, white, tinged light-pinkish along midrib, recurved at apex, grooved along midrib or with 2 low ridges on disc, edge entire; sac filled with glandular hairs at base, wider than limb, whitish. Column ca. 6.2 mm long, clawed at base. Rostellum slender, whitish, deeply bifid, apex flattened and with a shape like a marking knife. Stigma orbicular, surrounded by a hood-like rim, rim protruding. Anthercap ovate, shorter than rostellar arm; pollinia 2, each with 2 subequal partitions, oblanceolate, 4 mm long, yellow, attached to a narrow translucent viscidium.

Flowering time: September–October.

Distribution: Endemic. Taiwan: Only known from Chienshih Township at an elevation of 1650 m.





Fig. 1. Photos of *Goodyera similis* var. *similoides* T.P. Lin (A-C), *Platanthera quadricalcarata* T.P. Lin (D-E), *Crepidium xcordilabium* T.P. Lin (F-H) and *Bulbophyllum maxi* T.P. Lin (I-L). A: Habitat. B: Flowering plants of *G. similis* var. *similoides* (right) and *G. similis* (left). C: Flowers, view from below. D: Habitat. E: Flower, frontal view. F: Habitat. G: Inflorescence. H: Lip showing large central depression and markings inside. I: *Bulbophyllum maxi* from Tianchi, Southern Cross-island Highway in 2003. J: *Bulbophyllum maxi* from Jyunda trail, Noutou in 2020. K and L: Same as J showing the yellow cilia on the lower margin of the lateral sepals. A, Taken by Michelle M.S. Yeh; D, Taken by K.C. Yueh. I, Taken by W.M. Lin; J, Taken by B.N. Shen. Square = 1 cm²





Fig. 2. Goodyera similis var. similoides T.P. Lin. A: Flowering plant. B: Leaf. C: Leaf of G. similis. D: Flower, frontal/oblique view. E: Flower, view from below. F: Flower, side/oblique view. G: Floral bract. H: Upper sepal. I: Lateral sepal. J: Petal. K: Lip, view from above. L: Lip and column, side view. M: Lip and column with anther attached, view from above. N: Column, side view. O: Column, view from below. P: Anther-cap, view from above. Q: Anther-cap, view from below. R: Anther-cap, side view. S: Pollinarium, view from above. T: Pollinarium, view from below. U: Pollinarium, side view. p, pollinia; r, rostellum; s, stigma.

Etymology: The scientific name refers to the similarity of this species to *Goodyera similis*.

Note: Three individuals of Goodyera similis var. similoides were discovered by Michelle M.S. Yeh (葉美 邵) on Dec. 18, 2019. Nearby within a distance of 50 m, G. similis and G. kwangtungensis were also recorded and flowering. At 50–100 m away, G. daibuzanensis and G. foliosa were flowering, too. Goodyera similis var. similoides could be a natural hybrid between G. similis and G. kwangtungensis, but this cannot be confirmed at present, and I temporarily leave this new plant with a varietal status. It has identical flower morphology to that of G. similis except for being a larger size, but they differ by leaf surface markings. I found 1 minor difference in the flowers between these 2 species; the throat or the central part of the limb of the lip of G. similis is reddishbrown but light-pinkish in G. similis var. similoides.

Platanthera quadricalcarata T.P. Lin, sp. nov. 聖陵粉蝶蘭 Figs. 1D-E & 3

Type: Taiwan: Hsinchu Co., Chienshih Township, Takazin Creek, 2800 m, July 25, 2020, *K.C Yueh s.n.* (TAI289769!).

Rootstock stoloniferous, ca. $1.5-3 \times 0.3$ cm, horizontal, covered by fibrous roots, new shoot initiated from terminal part. Flowering plants 13-18 cm tall. Leaves 1 or 2, usu. basal one larger, green, whitish underneath, elliptic, up to 5×2.5 cm, obtuse, decurrent, upper surface along veins slightly elevated. Flowering stems 10-18 cm long; peduncle green, 7-9 cm long, ridged, with 2 sheath-bracts; sheath-bracts ovatelanceolate; rachis laxly many-flowered. Floral bracts lanceolate, ca. $3.5-4.8 \times 2.3$ mm, shorter than ovary and pedicel. Pedicel and ovary 5-6 mm long. Flowers greenish, ca. 4.6 mm across, triangular in profile; upper sepal broadly ovate, 1.8×1.8 mm, rounded or obtuse; lateral ones oblong, 2.3×1.2 mm, rounded, spreading; petals obliquely ovate, 2×1 mm, rounded or obtuse at apex, spreading, not connivent with upper sepal. Lip rhombus-shaped, ca. 2×1.6 mm, green, 3-lobed from middle, glabrous in and out; lateral lobes rounded, bent upwards; midlobe triangular, rounded, porrect; spur compressed, square-like or slightly rectangular, ca. 1.3 mm long, slightly curved and dilated at end. Column globose-like, ca. 0.7 mm long, with botryoidal auricles. Rostellum median lobe semiround; rostellar arm inconspicuous. Stigmatic surface bilobed, each lobe circular, flat but not protruding. Anther thecae approximate at their terminal part, lower part separated by rostellum; pollinarium yellowish, consisting of massulae, caudicles thick; viscidium round.

Flowering time: July.

Distribution: Endemic. Taiwan: Only known from Takazin Creek, Chienshih Township at elevations of 2800–3000 m. *Platanthera quadricalcarata* was found near the creek and growing on a fallen trunk which was 14 thought to be Tsuga chinensis var. formosana.

Etymology: The scientific name refers to the square-like spur of this species.

Note: Platanthera quadricalcarata was first discovered upstream on Takazin Creek by several students from Taiwan Normal University in July 2008. On August 6, 2008, Sheng-Kun Yu (余勝焜) revisited Takazin Creek and was accompanied by S.W. Chung and T.C. Hsu to confirm this new species of Platanthera of Taiwan. This new Platanthera was reported with photos and a short description by S.W. Chung and T.C. Hsu but without a scientific name in 2016 (Chung and Hsu, 2016). This is the smallest species of Platanthera in Taiwan with a flower only 4.6 mm in diameter, even much smaller than that of P. brevicalcarata. Platanthera quadricalcarata has a trilobed lip which can also be found in P. devolii, P. longicalcarata, P. nantousylvatica, and P. sonoharae. Most of them, however, have a narrow, linear lip but it is a rhombus in *P. quadricalcarata*. The square to slightly rectangular and compressed spur probably is the most unique feature of P. quadricalcarata, as they are usually cylindrical and long in other Platanthera species. So far I can find no similar species of Platanthera reported from Japan or China.

Crepidium × cordilabium T.P. Lin, hybrid nov. 心唇小柱蘭 Figs. 1F-H & 5

Type: Taiwan: Taoyuan City, Fuxing Township, July 6, 2020, *Jin-Yuan Wang s.n.*, 900 m (TAI289768!).

Terrestrial. Rhizome absent. Flowering plant ca. 38 cm tall. Stem green, purplish-green on basal part, fleshy, bearing ca. 4 leaves. Leaf-blade obliquely elliptic or ovate, plicate, crispate at edges, 13×8.5 cm, green, veins light-purplish, flushed with light-purple on back, base abruptly narrowing to a petiole ca. 2 cm long. Flowering stems slender, ca. 24 cm long, ridged; peduncle lightpurple or greenish-purple, ca. 16 cm long, laxly or subdensely many-flowered. Floral bracts green, 4.4×1 mm, reflexed, narrow-triangular, acuminate. Ovary and pedicel ca. 4.5 mm long, slightly arcuate. Flowers purple, ca. 6.4 mm across, non-resupinate; upper sepals oblong, 3.6×1.2 mm, convolute along margin, subacute; lateral sepals ovate, 3.1×1.6 mm, recurved to convolute; petals linear, 3.1×0.7 mm, convolute. Lip heart-shaped, $2.5 \times$ 2.5 mm, purple, porrect, not lobed or weakly 3-lobed; midlobe small, triangular, entire, ca. 0.5 × 1.4 mm, rounded at apex; side-lobes rounded, ca. 3 mm long, long-auriculate; auricles ca. 1/2 length of lip, extending but not meeting over column; central disc between lateral lobes approximate to column with a large, round, deep depression, inside depression forming an inverted U-shaped ridge just in front of fused column base, ridge opening toward midlobe of lip, convex abaxially. **Column** rectangular when viewed from above, ca. 1 mm long, gray-greenish. Rostellum flat and truncate, thin. Stigma bilobed. Anther-cap transversely broadly ovate,





Fig. 3. *Platanthera quadricalcarata* T.P. Lin. A: Flowering plant. B: Rootstock of 3-year-old plant. C: Leaf on stem. D: Flower, frontal view. E: Flower, view from rear. F: Flower, side view. G: Flower, view from below. H: Floral bract. I: Upper sepal. J: Lateral sepal. K: Petal. L: Lip. M: Lip, spread out. N: Lip, view from below. O: Column and lip, view from above. P: Lip and column, side view. Q: Column, frontal view. R: Pollinaria. *aur*, auricle; *p*, pollinium; *r*, rostellum; *s*, stigma; *v*, viscidium.



Fig. 5. *Crepidium* × *cordilabium* T.P. Lin. **A**: Flowering plant. **B**: Leaf. **C**: Flower, frontal view. **D**: Flower, view from above. **E**: Flower, view from rear. **F**: Floral bract. **G**: Upper sepal. **H**: Lateral sepal. **I**: Petal. **J**: Lip and column, frontal view. **K**, Lip, showing a large cavity on the upper surface approximate to column. **L**: Column, view from below. **M**: Column, view from above. **N**: Anther-cap, frontal view. **O**: Anther-cap, view from below. **P**: Pollinia. *c*, clinandrium; *ca*, column cavity; *l*, lip; *r*, rostellum; *s*, stigma.



whitish-yellow; pollinia 2, each with 2 subequal partitions, yellow.

Flowering time: June–July.

Distribution: Endemic. Taiwan: Only known from a bamboo forest in Fuxing Township, Taoyuan City at an elevation of ca. 900 m.

Etymology: The scientific name refers to the heart-shaped lip of *Crepidium* ×*cordilabium*.

Note: Crepidium × cordilabium was discovered by Ms. Chiou-Mei Lin (林秋玫) in July 15, 2018. It is not clear how many individuals were at that specific locality because some are very small. After several visits, it is clear only 1 individual was in blossom in 2020. Crepidium × cordilabium is supposedly a natural hybrid between C. ophrydis and C. matsudae, as these 2 species are also found in the same bamboo forest. Indeed, most of the characteristics observed in C. × cordilabium are intermediate between the 2 parental species; for example, the leaf size and plant height. The end of 1 curved pollinium subtending the end of the other one was observed in C. ophrydis and C. matsudae. However, no such curved end was observed in C. ×cordilabium. It is conceivable that a natural hybrid would have only 1 or a few individuals because fertile hybrid seeds must be few. Crepidium ophrydis and C. matsudae occur at the same site, which is not uncommon in Taiwan, but a hybrid of these two has never been reported before. Habenaria tsaiana T.P. Lin, a hybrid origin between H. delessertiana and H. polytricha, is similar to Crepidium ×cordilabium in that only 1 individual existed in a bamboo stand (Lin 2014). The hybrid no longer exists for unknown reasons. It is a good idea to keep a record of Crepidium × cordilabium because we are unsure what will happen in the future.

Emendation of Bulbophyllum maxi W.M. Lin ex. T.P. Lin

Bulbophyllum maxi W.M. Lin ex. T.P. Lin, Orch. Flora Taiwan 359. 2019. Bulbophyllum maxii W.M. Lin, Wild Orch. Taiwan 162–163. 2014. nom. nud. Bulbophyllum sp. Field Guide Wild Orchids Taiwan 3: 26. 2006. nom. nud. 天池捲辦蘭 Figs. 11-L & 6

Type: Taiwan: Kaohsiung, Tienchih, Southern Cross-island Highway, 2000–2100 m. Apr. 1, 2008, *W.M. Lin s.n.* cultivated (holo TAI268962!).

Bulbophyllum maxi was discovered by Mr. Hong-Wen Liu (劉鴻文) in 2002 growing on a giant fallen trunk of Taiwania cryptomerioides at Tianchi Station, Southern Cross-island Highway. Mr. H.W. Liu brought back a large clump in 2003 from the fallen trunk, and later the same year, some of the clump was transferred to Mr. Yi-Fu Wang. This species was introduced by Wei-Min Lin in his book entitled A Field Guide to Wild Orchids of Taiwan (Lin, W.M., 2006) but without a scientific name. In the 2006 Chinese description, this species is characterized as follows: rhizome conspicuous, with a distance 0.5-1 cm between pseudobulbs; pseudobulbs ovoid; leaf elliptic to oblong, $1.5-3 \times 1-1.4$ cm; flowering stem 4 cm long, umbel carrying 4 flowers; flowers 2 cm long, 4 mm across, pale-green, with reddish lip. Photos that W.M. Lin presents in his book were taken 4 months after cultivation by Mr. H.W. Liu in 2003. W.M. Lin and Y.F. Wang (2014) later published Bulbophyllum maxi in their work and presented several photos taken on June 5, 2007 after cultivation for 4 years. In 2008, I obtained this plant (TAI268962) from Mr. W.M. Lin after 5 years of cultivation in Y.F. Wang's garden. I formally published Bulbophyllum maxi in 2019 (Lin, 2019) according to the plant I received in 2008. Recently, we realized that the photos of 2003 and 2007 look different. Not only did the flower color change, but the leaf, flower, flowering stem, and pseudobulb were also longer in the plant of 2007-2008 than that of 2003. I talked to Y.F. Wang and found that this could be because of different growth conditions. Herein, I must emend the definition of Bulbophyllum maxi with the plant obtained from the wild.

In August 2020, Mr. Po-Neng Shen collected a rare flowering bulbophyllum from Jyunda trail, Nantou at 2300 m. Initially, I thought this was a new bulbophyllum which had never been reported in Taiwan because it differed from the *B. maxi* I had obtained in 2008. However, when I compared this plant with *B. maxi* in the photo W.M. Lin had taken in 2003, I realized these 2 must be conspecific even though with some differences in flower color and flowering season. To reduce confusion, I decided to call this plant from Jyunda trail *B. maxi*. Characteristics of plants from Jyunda trail were also incorporated in this new definition of *B. maxi*.

Emended description: Epiphytic. Rhizome creeping, stiff, ca. 1.5 mm in diam. Plant 2-3 cm tall. Pseudobulbs mainly ovoid, 5-8 mm long, 4-6 mm in diameter, ca. 0.5-1 cm apart. Leaves elliptic, oblong to linear-oblong, to 2.2×1.1 cm, obtuse or retuse, green, pale-green underneath, coriaceous. Flowering stems to 4.5 cm long including flowers; peduncle to 2.2 cm long; rachis very short, inflorescence umbellate, bearing 2-4 flowers. Pedicel and ovary 9 mm long, orangish. Floral bracts lanceolate, 3 mm long. Flowers 2-2.5 cm long, 4 mm across, orange or pale-green with slight orange tint near apical part of flower; upper sepal ovate, concave, 5.5- $6.5 \times 3-3.5$ mm, acuminate, with long white cilia especially towards apex; lateral sepals, obliquely lanceolate, $20-26 \times 3$ mm, acuminate, folded longitudinally, meeting along their length of upper margins except on terminal part, with short cilia on upper and lower margins; cilia thicker and shorter along lower margin than those of upper sepal and petal; petals obliquely ovate, 4×1.7 –2.5 mm, acute, with long white cilia. Lip orangish, thickly hornlike, 2.3-2.8 mm long, disc shallowly grooved, with a low keel running along midrib, deeper groove on lower side. Column whitish to



Fig. 6. *Bulbophyllum maxi* W.M. Lin ex. T.P. Lin. **A**: Flowering plant. **B**: Flower, view from rear. **C**: Upper sepal. **D**: Lateral sepal. **E**: Apex of lateral sepal. **F**: Cilia along lower margin of lateral sepal. **G**: Petal. **H**, **I**: Lip, view from above. **J**: Lip, side view. **K**: Lip, view from below. **L**: Column, view from below. **M**: Lip and column-foot, side view. **N**: Column with anther attached, view from above. **O**: Column, frontal view. **P**: Anther, view from below. **Q**: Anther-cap, frontal view. **R**: Anther-cap, view from below. **S**: Pollinia. *a*, anthercap; *p*, pollinia; *r*, rostellum; *s*, stigma; *st*, stelidium.



orangish, 2 mm long, with 2 pointed stelidia. Rostellum bilobed. Anther-cap semiglobose or square-like, yellowish; pollinia 2, each with unequal connate partitions.

Flowering time: May–August.

Distribution: Endemic. Taiwan: Only known from Tianchi Station, Southern Cross-island Highway at an elevation of 2100 m and Jyunda trail, Nantou Co. at 2300 m.

Additonal specimen examined: Taiwan: Noutou: Jyunda trail, 2300 m. Aug. 25, 2020, P.N. Shen s.n. (TAI289776!).

Note: Bulbophyllum maxi was found growing on a giant tree trunk which was thought to be *Taiwania* cryptomerioides in the south and on a broadleaf tree in central Taiwan.

The following key is limited to *Bulbophyllum* species of Taiwan with characteristics of a pseudobulb present, with umbel-like inflorescence, a peduncle longer than 2 cm, and lateral sepal with dense cilia along its lower margin.

1. Cilia white, dense along lower margin of lateral sepal B. maxi

3. Upper sepal oblong, rounded at apex *B. fimbriperianthium*

Nervilia taitoensis (Hayata) Schltr., Repert. Spec. Nov. Regni Veg. 10: 6. 1911. *Pogonia taitoensis* Hayata, J. Coll. Sci. Imp. Univ. Tokyo **30**(1): 346. 1911. *Type*: Taito: Rino, *T. Kawakami s.n.* (TI T01158).

單花脈葉蘭 Fig. 7

Nervilia taiwaniana S.S. Ying, Q. J. Chin. For. 11(2): 104. 1978. syn. nov. Type: Taiwan: Nantou: Tungpu, Yuan-lung Falls, July 5, 1973, S.S. Ying 1915 (holo. NTUF, photo F00006905 in PoT).

Nervilia tahanshanensis T.P. Lin & W.M. Lin, Taiwania 54: 329–330, f.2H. 2009. **Type**: Taiwan: Pingtung: Mt. Tahan, 1000 m, July 20, 2009, *Weimin Lin s.n.* (holo. TAI269081).

Nervilia taitoensis is an unclear species since its publication. In the original description, Havata (1911) mentioned "Taito. Rino, leg. T. Kawakami". Specimen for Nervilia taitoensis (Fig. 7) was found deposited in TI (herbarium at Tokyo University). The label of this voucher is very simple without a date or collection information, but with a red stamp of T. Kawakami, and habitat information: Taito, Rino in Chinese. Based on Hayata (1911), this species is characterized by a leafless slender scape 1.3 cm long, with a raceme producing 2 or 3 flowers; floral bract linear, 1 cm long; flower purple, 15 mm long; upper sepal linear, 1.5 × 1.2 mm; lateral sepal narrow, 1.8×1 mm wide; petal similar to upper sepal, 1.2mm wide, acute; lip obovate, 18 × 10 mm, acute, hairy on surface, 3-lobed; midlobe larger, oblong-triangular, somewhat toothed; lateral lobe short, obliquely triangular, acute, margin entire; column 7 mm long.

This description basically agrees quite well with the characteristics of *Nervilia taiwaniana* S.S. Ying except for 2 points. The slender scape should be 13 cm long (Fig. 7); "1.3 cm long" must be a typographical error, and "Scape with a raceme producing 2–3 flowers" must be wrong because T01158 has a solitary flower. Judging from the

flower and lip morphology and measurement from T01158, it is unmistakably *Nervilia taiwaniana*. Also it is not rare to see *N. taiwaniana* because many specimens in TAIF were collected from Taitung Co. So here, I decided to synonymize *Nervilia taiwaniana* with *N. taitoensis*.



Fig. 7. Type of *Nervilia taitoensis* Hayata (T01158, From Plants of Taiwan: https://tai2.ntu.edu.tw).

ACKNOWLEDGMENTS

I thank Dr. Ho-Yi Liu for critical comments on the new scientific names. I also thanks Dr. Petr Efimov for his comment on the *Platanthera quadricalcarata*.

LITERATURE CITED

- Chung, S.W. and T.C. Hsu. 2016. Orchidaceae. In: Chung, S.W. and T.C. Hsu (eds.), Illustrated Flora of Taiwan 1: 348. Owl Publishing House Co., ltd. Taipei, Taiwan. (In Chinese).
- Hayata, J. 1911. Materials for a Flora of Formosa. Coll. Sci. Imp. Univ. Tokyo 30(1): 346.
- Lin, T.P. 2014. Newly Discovered Native Orchids of Taiwan (VII). Taiwania 59(4): 360–367.
- Lin, T.P. 2019. The Orchid Flora of Taiwan, a collection of line drawings. NTU Press, Taipei. 1012 pages.
- Lin, T.P. 2020. New additions of *Oreorchis*, *Cheirostylis*, and *Cymbidium* (Orchidaceae) from Taiwan. Taiwania **65(4)**: 463–472.
- Lin, T.P., H.Y. Liu, C.F. Hsieh, and K.H. Wang. 2016. Complete list of the native orchids of Taiwan and their type information. Taiwania 61(2): 78–126.
- Lin, W.M. and Y.F. Wang. 2014. The Wild Orchids of Taiwan, An Illustrated Guide. 2014. p. 624.
- Lin, W.M. 2006. A Field Guide to Wild Orchids of Taiwan 3. Global views Co., Taipei. 239 pages.