



New addition of *Taeniophyllum* (Orchidaceae) in Taiwan

Tsan-Piao LIN^{1,*}, Geng-Xi ZHU²

1. Institute of Plant Biology, National Taiwan University, 1 Roosevelt Rd., Sec. 4, Taipei 106, Taiwan. 2. Department of Life Sciences, National Chung Hsing University, 145 Xingda Rd., South Dist., Taichung 402, Taiwan. *Corresponding author's email: tpl@ntu.edu.tw

(Manuscript received 20 May 2024; Accepted 14 July 2024; Online published 19 July 2024)

ABSTRACT: This report presents two new orchids of Taiwan, viz., *Taeniophyllum lishanianum* T.P. Lin & G.X. Zhu and *Taeniophyllum tumulusum* T.P. Lin & G.X. Zhu. We also describe *Taeniophyllum complanatum* Fukuy. which shows some differences from the counterpart native to the Ryukyu Islands.

KEY WORDS: *Taeniophyllum lishanianum*, *Taeniophyllum tumulusum*, *Taeniophyllum complanatum*, new species.

INTRODUCTION

According to the Plants of the World Online (POWO, 2024; <https://powo.science.kew.org/about>) the native range of *Taeniophyllum* Blume is Ghana to Zimbabwe, Australia, and tropical and subtropical Asia to the Pacific. It includes 247 accepted names. Based on eFloras (2008), the genus is characterized by small, leafless, indistinct stems with flattened to terete, fasciculate, chlorophyllous roots that grow on tree bark; a very short inflorescence with several tiny greenish-yellow flowers borne at the terminal part; the sepals and petals usually fused forming a perianth tube; and a lip with a reflexed tooth or bristle appendage at its terminal end. In East Asia, only a few species of *Taeniophyllum* are known to the world. There are only five species known in China (Zhou *et al.*, 2016; Li *et al.*, 2023), two species known from Japan (Suetsugu and Hsu, 2023b), and six species known from Taiwan, two of which were newly reported since the end of WWII. This is probably because they are rather insignificant plants, and many of them grow high on trunks, such that they may be overlooked by most taxonomists.

The following is a list of species in Taiwan.

Taeniophyllum aphyllum (Makino) Makino, Phan. Pter. Jpn. Icon. 1(3): t.11. 1899. **Type:** Japan: Tosa: Ikenouchi, Apr. 4, 1887, *T. Makino s.n.* (lectotype TNS01014224, designated by Suetsugu and Hsu (2023a); isolectotype TNS01014225). 蜘蛛蘭

Taeniophyllum glandulosum auct. non Blume: in Garay & Sweet, Orch. S. Ryukyu Isl. 159. 1974.

Note: *T. glandulosum* is excluded from the flora of Taiwan because no *Taeniophyllum* species of Taiwan fit the definition defined by the original paper and Suetsugu and Hsu (2023a).

Taeniophyllum chitouensis S.S. Ying, Coloured Ill. Fl. Taiwan 1: 799, ph.987. 1992. **Type:** Taiwan: Nantou: Chitou, Mar. 21, 1992, *S.S. Ying s.n.* (NTUF). Not found. 溪頭蜘蛛蘭

Taeniophyllum glandulosum auct. non Blume: in H.J. Su, Fl. Taiwan 2nd ed. 5: 753. pl.320. 2000.

Note: *T. chitouensis* is common in Chitou but was misidentified as *T. glandulosum* or *T. aphyllum* by H.J. Su in the Flora of Taiwan, 2nd edition (2000) and was followed by later authors. According to Suetsugu and Hsu (2023a), *T. glandulosum* is characterized by the laxly flower arrangement, inflorescence 2.5–7.2 cm long, root 3.2–12.7 cm long and 2–3 mm wide, and narrowly ellipsoid capsule. However, *T. chitouensis* is characterized by dense flower arrangement, short inflorescence about 1 cm long, root 2–3 cm long and 1–1.5 mm wide, and terete capsule.

Taeniophyllum compactum Ames, Orchidaceae 2: 247. 1908. **Type:** Philippines: Prov. Benguet, Baguio, Luzon Isl., Sept. 15, 1904, *R.S. Williams 1937* (holotype NY; isotype AMES00101780, illustration given). 假蜘蛛蘭

Taeniophyllum complanatum Fukuy., Bot. Mag. (Tokyo) 49(583): 443. 1935. **Type:** Taiwan: Pintung, prope Botansha, May 30, 1934, *N. Fukuyama 4551* (holotype KPM-NA0105578 without Fukuyama's no., photo T00041 in PoT). 扁蜘蛛蘭

Taeniophyllum crassipes Fukuy., Bot. Mag. (Tokyo) 52(617): 247. 1938. **Type:** Taiwan: Sintiku: Inoue, 600 m, collected on Jan. 1, 1936 & flowering May 1936, *N. Fukuyama 6396* (holotype KPM-NA0105579 without Fukuyama's no., photo T00007 in PoT). 厚腳蜘蛛蘭/長腳蜘蛛蘭

Taeniophyllum radiatum J.J. Sm., Bull. Jard. Bot. Buitenzorg II, 26: 127. 1918; W.M. Lin, Wild Orch. Taiwan, Ill. Guide 812 & photo 2014. **Type:** Java: Priangan, Tjisokan bei Tjibeber, 750 m. Oct. 1916, *R.C. Bakhuizen van den Brink s.n.* 大扁根蜘蛛蘭

Taeniophyllum sp. T.C. Hsu, Ill. Fl. Taiwan 2: 197 ph. 2016.

Taeniophyllum formosanum Hayata, Icon. Pl. Formosan. 6(Suppl.): 81. 1917. **nom nud.** **Specimen examined:** Banchoryo: Koryohei, Nov. 1907, *T. Kawakami et U. Mori 5505* (TI-photo T01196 in PoT). This was listed in the “Insufficiently known species” in Fl. Taiwan 2000.



Overarching surveys and discoveries of native orchids in Taiwan have been promoted by orchid hobbyists, and many website platforms were established using Facebook, a social medium and social networking service, such as the “Taiwan Native Orchids Ecological group”. This and other platforms have been publishing photos taken by hobbyists on a daily basis for years. Recently, we found some unknown *Taeniophyllum* from the websites and from our personal collections. Even now many unknown *Taeniophyllum* are likely waiting for further investigation; the three species introduced in this paper were recently collected and studied.

TAXONOMIC TREATMENTS

Taeniophyllum lishanianum T.P. Lin & G.X. Zhu, *sp. nov.* 玉蜘蛛蘭 Fig. 1

Type: Taiwan: Taichung Co., Lishan, 1945 m, May 6, 2024, G.X. Zhu 63 (TAI289916).

Diagnosis: Among the 7 species of *Taeniophyllum* in Taiwan, *T. lishanianum* is uniquely characterized by the longitudinal parallel linear cells on the root surface, hemispheric root cross-section, small flowers about 3 mm long, and terete capsules arranged on the same plane and curved towards the rachis axis. *T. lishanianum* is similar in some extent to *T. chitouensis* but can be distinguished by the hemispheric root cross-section (vs. rounded cross-section), capsules curved towards the rachis (vs. straight or curved away from the rachis) and glabrous peduncle and rachis covered with loose papillae (vs. dense papillate).

Description: Aphyllous and stemless epiphyte. **Roots** thick, hemispheric, or crescent-shaped in cross-section, loosely adpressed onto trunk surface, forming small clumps with 7 or more roots, surface flat and smooth, 2.2 cm long, up to 3.2 cm long, 1.2–1.9 mm across, dark-green. **Inflorescences** filiform, 1–1.3 cm long; peduncle with similar or shorter length as rachis, glabrous but covered with some loose papillae (Fig. 1M), with 1–3 bracts; rachis with also loose papillae, slightly zigzagged (Fig. 1B), slightly dilated, producing ca. 10 flowers but only 1 or 2 blossoms at a time. Floral bracts acute, alternate, 0.5–0.6 mm long, ca. 0.5 mm apart and all in 1 plane. **Flowers** green, facing upwards, ca. 3–3.2 mm long including the spur (Fig. 1D, E, H) and 1.3–1.5 mm across when open (Fig. 1C); sepals and petals connate at base into a tube ca. 58% of length of perianth tube (Fig. 1G); perianth tube 1.9–2 mm long; free part of sepals ovate-triangular, ca. 0.8 × 0.5 mm, obtuse; free part of petals wide-triangular, ca. 0.65–0.78 × 0.65 mm, apex acute. **Lip** oblong (Fig. 1H), ca. 1.8 × 0.5 mm, with low incurved lobes at base, apex acute with a whitish inflexed process ca. 0.4 mm long; spur conical, ca. 1.2 mm long (Fig. 1H). **Column** domed, with 2 arms facing forward, apex of arm rounded (Fig. 1J). Anther cap with 2 prominent humps with rounded apex (Fig. 1L). Pollinia 4 in 2 pairs, elliptic or oval, yellow, with white, triangular

viscidium. **Capsules** terete (Fig. 1I), 5.5 × 1.5 mm, usually many per plant, arranged on the same plane, curved towards the rachis axis (Fig. 1A and B), covered with loose papillae.

Flowering time: April–May.

Distribution: Endemic. Taiwan: It grows on tree trunks about 1 m above the ground in forests of Lishan at an elevation of 1945 m. It was accompanied by moss and lichens.

Etymology: The specific epithet “lishanianum” refers to the locality where this species was first found.

Notes: *Taeniophyllum lishanianum* was found in the Lishan, a scenic temperate area, by Ms. Yu-Hui Liao on Dec. 5, 2023. Under low magnification, the root surface is covered with parallel linear cells with tapering ends (Fig. 1N) which differ from the checker-like cells of *T. complanatum* and *T. tumulusum*. This provides a special surface characteristic even to the naked eye. *Taeniophyllum lishanianum* is also a species of this genus in Taiwan that can grow at elevations of around 2000 m. This should result in an expansion of the genus, because *Taeniophyllum* is currently known as tropical and subtropical epiphytes, only *T. aphyllum* can colonize to temperate climate area (Suetsugu and Hsu, 2023a).

The majority of *Taeniophyllum* are native to New Guinea and South-East Asia countries (Seidenfaden and Jeffrey, 1992). *Taeniophyllum pehangense* (Carr, 1932), native to the Indo-China to Peninsula Malaysia, may be similar to *T. lishanianum* in appearance but can be distinguished based on several characteristics, including cross-section of root (hemispheric or crescent-shaped in *T. lishanianum* vs. triangular in *T. pehangense*); root width (1.2–1.9 mm wide in *T. lishanianum* vs. 0.8 mm in *T. pehangense*); peduncle surface (covered with loose papillae in *T. lishanianum* vs. densely muricate in *T. pehangense*); shape of free part of upper sepal (ovate-triangular in *T. lishanianum* vs. elliptic in *T. pehangense*); spur (conical, glabrous inside in *T. lishanianum* vs. subglobose from beneath, papillose inside in *T. pehangense*), and elevation (2000 m above sea level in *T. lishanianum* vs. 100 m in *T. pehangense*).

Taeniophyllum tumulusum T.P. Lin & G.X. Zhu, *sp. nov.*

塔山蜘蛛蘭 Fig. 2

Type: Taiwan: Chiayi Co., Alishan Township, Shimeng Valley (石夢谷), 1300–1400 m, Mar. 20, 2024, G.X. Zhu 64 (TAI289917).

Diagnosis: *T. tumulusum* is uniquely characterized by a narrow and flattened root system forming a beard-like image and by the scrotiform spur on side view and round spur on bottom view. *T. tumulusum* is similar to *T. complanatum* in appearance but can be distinguished by narrower root width (vs. wider root width), flattened and smooth root (vs. rugous or longitudinal grooved), forming a mound near stem base (vs. not forming a mound near stem base).

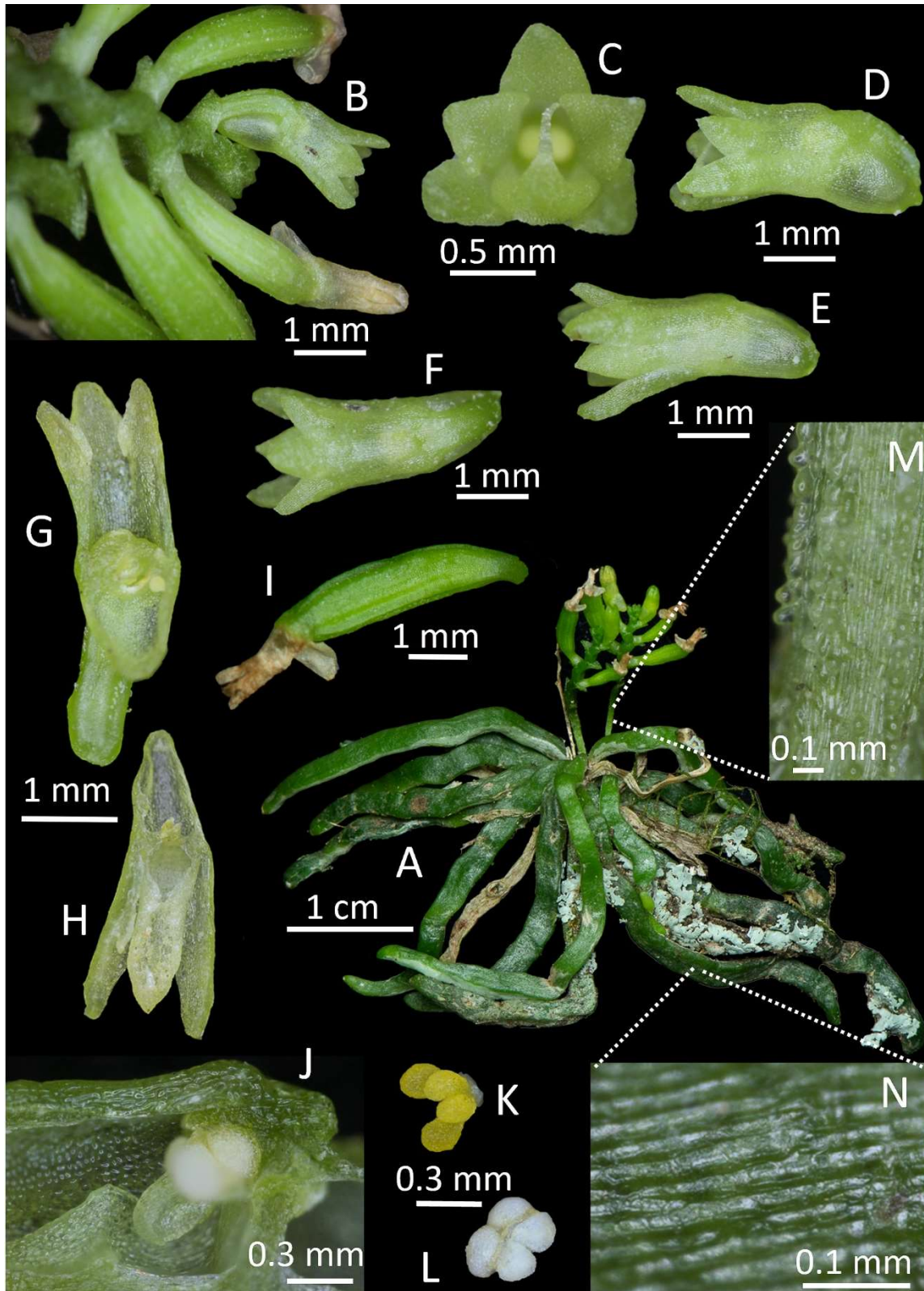


Fig. 1. *Taeniophyllum lishanianum* TP Lin & G.X. Zhu. **A.** Flowering and fruiting plants. **B.** Enlargement of the inflorescence. **C.** Frontal view of flower. **D.** Side view of flower. **E.** Bottom view of flower. **F.** Dorsal view of flower. **G.** Horizontal section of an individual flower, revealing the upper sepal, petal, and spur. **H.** Horizontal section of the same individual flower as G, revealing the lip, lateral sepal, and spur. **I.** Capsule. **J.** Enlargement of column, showing anther cap and column arm. **K.** Pollina with viscidium. **L.** Anther cap. **M.** Papilla cells of the peduncle surface. **N.** Parallel longitudinal linear cells on root surface.

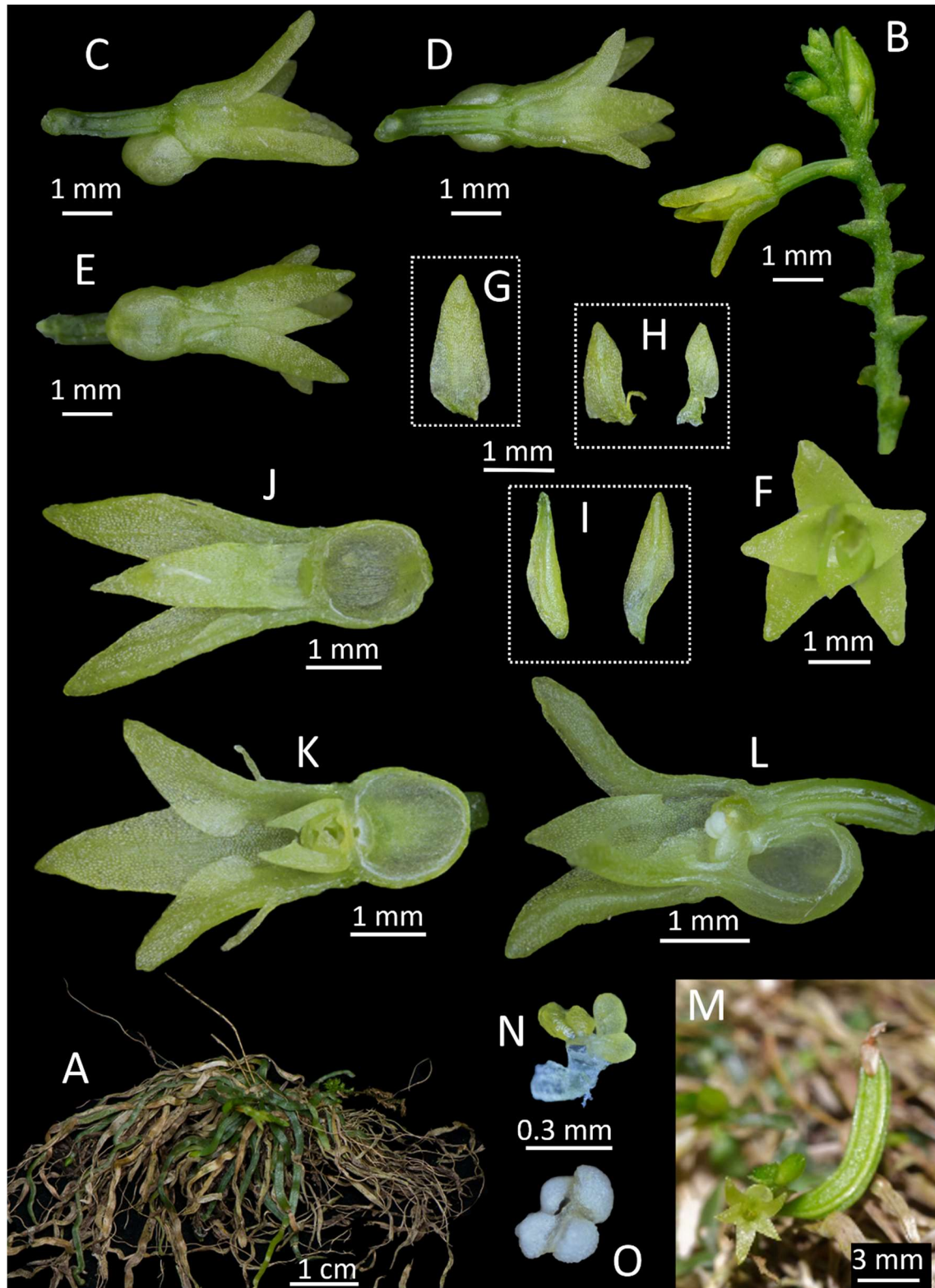


Fig. 2. *Taeniophyllum tumulosum* T.P. Lin & G.X. Zhu. **A.** Native condition adressed onto tree trunk. **B.** Enlargement of the inflorescence. **C.** Side view of flower. **D.** Dorsal view of flower. **E.** Bottom view of flower. **F.** Frontal view of flower. **G.** Dissected flower: free part of the upper sepal. **H.** Dissected flower: free part of the petals. **I.** Dissected flower: free part of the lateral sepals. **J.** Horizontal section of an individual flower, revealing the lip, lateral sepal, and spur. **K.** Horizontal section of the same individual flower as J, revealing the upper sepal, petal, column and spur. **L.** Longitudinal section of an individual flower. **M.** Capsule and flower. **N.** Pollinia with viscidium. **O.** Anther cap.



Description: Aphyllous and stemless epiphyte. **Roots** forming a mound-like bulge with numerous living and dried ones (Fig. 2A), highly flattened, tortuous, dense, beard-like, loosely attached to trunk surface, up to 9 cm long, ca. 1–1.5 mm but rarely up to 2.3 mm across, dark-green, surface smooth. **Inflorescences** short, filiform, 1.3–1.8 cm long, up to 2.2 cm long (Fig. 2B); peduncle with similar length as or shorter than rachis, covered with dense papillae, < 1 cm long, with 1–3 bracts; rachis \geq 1 cm long, slightly dilated, straight, covered with dense mini-papillae (Fig. 2B), carrying 8–12 flowers, usually only 1 or 2 blossoms at a time. Floral bracts ovate-triangular, cymbiform, acute, alternate, about 1 mm long, ca. 0.5–1 mm apart, ca. 40% of the length of pedicel and ovary. Pedicel and ovary ca. 2.8 mm long, stout. **Flowers** light-green, ca. 5–5.4 mm long (Fig. 2C–E), widely open, ca. 3.2 mm across (Fig. 2F); sepals ca. 3.4–3.9 mm, joined at ca. 1/3 of their length into a tube (Fig. 2K); free parts of sepals spreading, elongate-triangular, acute, ca. 2.5–2.8 mm long (Fig. 2G, I, J, K); free part of petals ovate, 2×0.75 mm, acute (Fig. 2H, K). **Lip** linear-lanceolate, ca. 2.8×0.8 mm (Fig. 2J), faintly 3-lobed; side-lobe erect; midlobe lanceolate, acuminate, at apex with an inflexed process (Fig. 2J), process whitish, ca. 0.7 mm long, basally with a scrotiform spur (Fig. 2L), spur ca. 1.4 mm in diameter, much wider than lip (Fig. 2J); disc with 2 septa; basal one located between lip and spur, 3-lobed; middle one near base of lip, bilobed. **Column** rounded in outline, with 2 arms on front, apex of arm rounded. Rostellum wide-triangular. Anther-cap bilobed, lobes rounded, with another 2 prominent humps or round appendages (Fig. 2O); pollinia 4, elongate-ovate, yellow, in 2 pairs (Fig. 2N), attached to a triangular viscidium. **Capsules** terete, curved (Fig. 2M), 1 cm long, 1.6 mm in diameter, surface covered with dense mini-papillae, usually only 1 fruit and rarely 2 per plant.

Flowering time: March–April.

Distribution: Endemic. Taiwan: originally found on branches of a fallen tree in a forest of Shimeng Valley at elevations of 1300 to 1400 m. It grows about 5–7 m above the ground.

Etymology: The specific epithet “tumulusum” refers to the mound-like root system at the stem base.

Note: *Taeniophyllum tumulusum* has only been found at the type locality by Mr. Kuo-Chu Yueh before 2017. It is rare to see a flourishing root like that of *T. tumulusum* on other species of *Taeniophyllum*. The largest flower was also recorded among our *Taeniophyllum*, exceeding 5 mm long and 3.2 mm across.

Again, among the majority of *Taeniophyllum* which are native to New Guinea and South-East Asia, *T. tumulusum* may be similar to *T. culiciferum* (Ridley 1920, synonym of *T. gracillimum* Schltr.) in appearance but the former differs from the latter (according to the Ridley’s original prologue) in several aspects: flower light-green (vs. pale yellow), flower 5–5.4 mm long (vs. 3 mm long),

free parts of sepals and petals elongate-triangular (vs. linear acuminate); spur scrotiform (vs. spur flask-shaped, narrowed at base, then ellipsoid, as long as the pedicel).

Notes on *Taeniophyllum complanatum* Fukuy. (扁蜘蛛蘭, Fig. 3)

Taeniophyllum complanatum Fukuy. was also reported from the Ryukyu Islands (Suetsugu and Hsu, 2023b). It differs from Fukuyama’s original protologue (1935) in the scrotiform spur and the narrowly ovate lip which is not subglobose and oblong, respectively. We recently found “*T. complanatum*” from Shipan Valley (or Shipangu), Alishan Township central Taiwan which basically agrees with the description of Fukuyama. Plants from Shipan Valley, however, have slightly larger flowers than Fukuyama’s (4–4.3 mm vs. 3.3 mm), but they have an elliptical spur and oblong lip (Fig. 3D, H) similar to the protologue. Sepals and petals are joined at 55%–60% of their length into a tube of the Shipangu’ plants (Fig. 3F) in contrast to 33%–50% of those from the Ryukyus. Unfortunately, no plants of Botansha, southern Taiwan of *T. complanatum* were reported since its publication. All these differences are probably because of natural variations. Here we give a description of *T. complanatum* according to plants from Shipangu.

Description: Aphyllous and stemless epiphyte. **Roots** radiating from base of stem, tortuous, dense, adpressed tightly onto trunk surface, highly flattened (Fig. 3A, J) and crescent-like in cross-section, ca. 3 cm, up to 4.3 cm long, ca. 1.5–2.8 mm wide but up to 3.8 mm across, dark-green, surface wrinkled or grooved. **Inflorescences** short, ca. 1.9 cm long, up to 3 cm long (Fig. 3B); peduncle of similar or longer length to rachis, covered with dense papillae, peduncle with 1–3 bracts; rachis slightly zigzagged, somewhat dilated, straight, covered with dense mini-papillae, carrying ca. 7–10 flowers, usually only 1 or 2 flowers blossoming at a time, internode between flowers 1–2 mm long. Floral bracts ovate-triangular, cymbiform, acute, alternate, about 1×0.8 mm, ca. 1–1.5 mm apart, ca. 20% of length of pedicel and ovary. Pedicel and ovary ca. 3 mm long, stout. **Flowers** light-green, ca. 4–4.3 mm long (Fig. 3D–F), widely open, ca. 3 mm across (Fig. 3C); sepals ca. 3–3.3 mm long, joined ca. 55%–60% of their length into a tube (Fig. 3F); free parts of sepals spreading, slightly reflexed (Fig. 3D), ca. 1.5×0.6 –0.7 mm, ovate-triangular, acute; free part of petals ovate-triangular, acute. **Lip** oblong (Fig. 3G, H), ca. 1.8–2 mm long, 0.8–1 mm wide, slightly narrower than spur, faintly 3-lobed; side-lobe erect; midlobe oblong, acute, at apex with an inflexed process, basally with an elliptical spur (on side view, Fig. 3D), spur ca. 1.5×1 mm long, but conical from bottom view (Fig. 3E, H), lip and spur ca. 3.6 mm long; disc with 2 septa (Fig. 3G); basal one located between lip and spur, 3-lobed; middle one near base of lip, bilobed. **Column** round in outline, with 2 arms on front, apex of arm rounded. Anther-cap

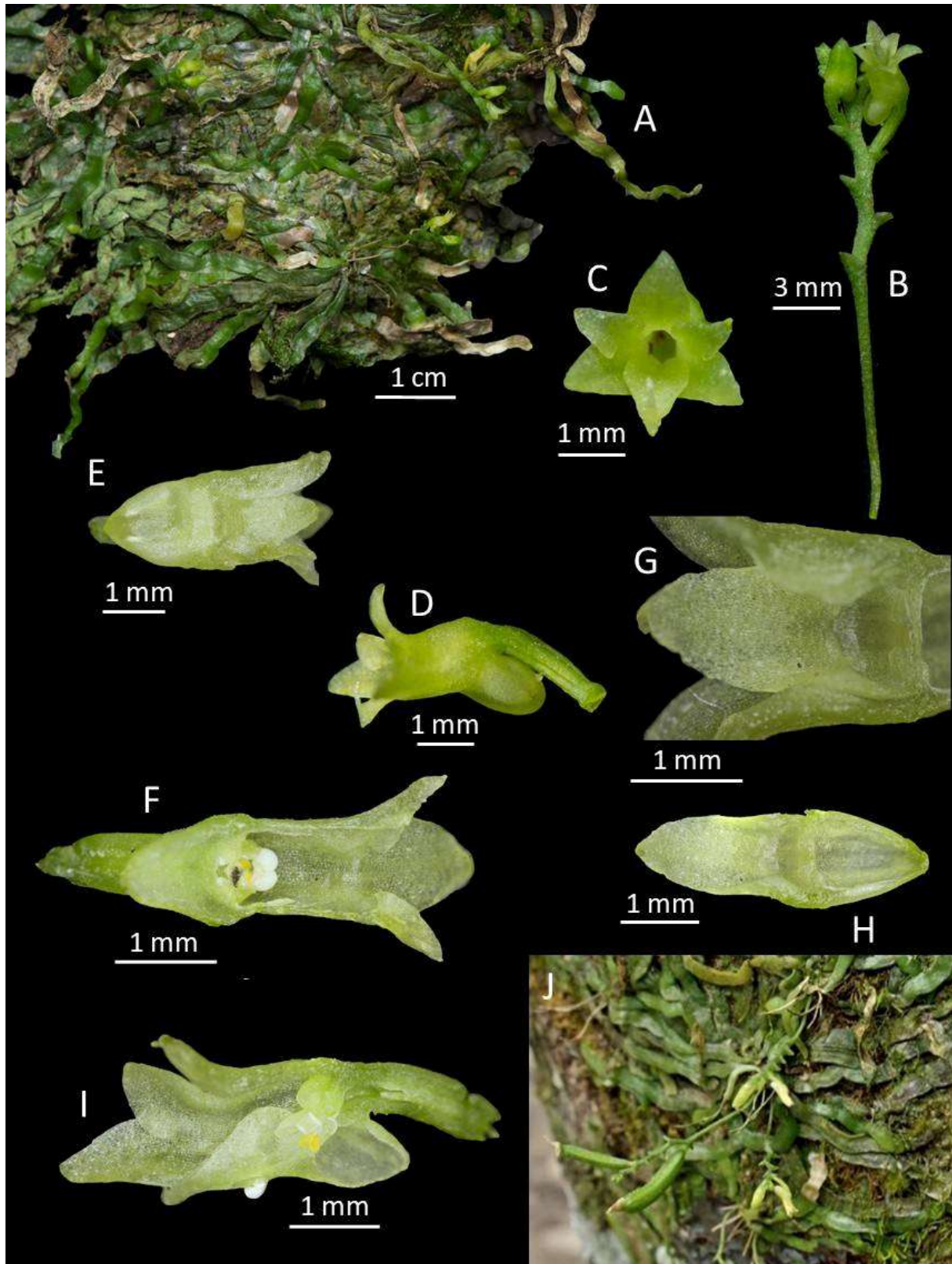


Fig. 3. *Taeniophyllum complanatum* Fukuy. **A.** Flowering plants. **B.** Enlargement of the inflorescence. **C.** Frontal view of flower. **D.** Side view of flower. **E.** Bottom view of flower. **F.** Horizontal section of an individual flower, revealing the upper sepal, petal, column and spur. **G.** Horizontal section of the same individual flower as F, revealing the lip. **H.** Lip and spur, revealing the 2 septa on lip disc. **I.** Longitudinal section of an individual flower, showing anther cap, pollinarium and column arm. **J.** Capsules on the inflorescence.



bilobed, lobes rounded (Fig. 3F), with another 2 prominent humps or rounded appendages; pollinia 4, elongate-ovate, yellow, in 2 pairs, attached to a square viscidium (Fig. 2I). **Capsules** terete, 1 cm long, 1.6 mm in diameter, straight or slightly curved (Fig. 3J), surface covered with dense mini-papillae, usually only 1 fruit or rarely 2 per plant.

Flowering time: It may blossom erratically but mainly in March to June. According to K.C. Yuen, plants in Shipangu blossom even at the end of July and bear fruit and flowering buds in December.

Specimen examined: Taiwan: Chiayi Co., Alishan Township, Shipangu, 1100 m, Mar. 20, 2024, *G.X. Zhu 61* (TAI 289918).

Note: *Taeniophyllum complanatum* grows on tree trunks about 1–2 m above the ground in forests of the Shipan Valley. This location is close to the Shimeng Valley where *T. tumulusum* was found. Both locations are in the northern part of the Alishan Township. It may have a wider distribution in Taiwan because the same flower morphology and measurements were also reported from southern Taiwan by T.C. Hsu (2016). Fukuyama (1935) call *Taeniophyllum complanatum* Fukuy. as "ashinaga kumoran" which was translated to "腳長蜘蛛蘭" in Chinese, and the commonly used name is "扁蜘蛛蘭" in Taiwan which appeared in the Flora of Taiwan, 1st edition (1978). Thus, this plant has 2 common names, one in Japanese and one in Chinese.

Key to *Taeniophyllum* species of Taiwan

1. Leafy plant; floral bract large, longer than pedicellate ovary *T. compactum*
1. Leafless plant; floral bract small, shorter than pedicellate ovary 2
2. Root rounded, hemispheric or thick in cross-section, ≤ 1.5 mm wide 3
2. Root flattened, 1–4 mm broad 6
3. Fruit ellipsoid *T. aphyllum*
3. Fruit terete 4
4. Rachis loose; root polygonal in cross-section; inflorescence 1.2–3.7 cm long *T. crassipes*
4. Rachis dense; root rounded or hemispheric in cross-section; inflorescence ≤ 1.5 mm long 5
5. Capsules terete, straight or curved facing away from the rachis; free part of upper sepal elongate ovate *T. chitouensis*
5. Capsules terete, curved towards rachis axis; free part of upper sepal ovate *T. lishanianum*
6. Root 4 mm wide; inflorescence 4–5 cm long; free part of upper sepal triangular-lanceolate *T. radiatum*
6. Root < 2.5 mm wide; inflorescence < 3 cm long; free part of upper sepal ovate to elongate triangular 7
7. Root ≤ 1.5 mm wide, flattened, surface smooth, forming a mound near stem base; free part of upper sepal elongate triangular *T. tumulusum*
7. Root 2.3 mm wide, rugous or longitudinal grooved, not forming a mound near stem base; free part of upper sepal ovate *T. complanatum*

ACKNOWLEDGMENTS

I would like to thank Kuo-Hsiung Wang for his critical reading of my manuscript and constructive comments.

LITERATURE CITED

- Carr, C.E. 1932 The genus *Taeniophyllum* in the Malay Peninsula. Gard. Straits Settlem. 7: 65.
- eFloras 2008 Published on the Internet 1. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA.
- Fukuyama, N. 1935 *Studia orchidacearum Japonicarum* V. Bot. Mag. (Tokyo) 49(583): 438–444.
- Hsu, T.C. 2016 *Taeniophyllum complanatum*. In Chung, S.W., Hsu, T.C. Illustration of the Flora of Taiwan 2: 195, f.
- Li, M., Pang, S., Deng, J., Chen, X., Wang, W., Tang, L., Luo, Y., Xing, Z. 2023 Additions to the orchid flora of China and taxonomic notes on orchids of Eastern Himalaya region. *Taiwania* 68(1): 106–115.
- POWO 2024 Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://www.plantsoftheworldonline.org/> Retrieved 20 May 2024."
- Ridley, H.N. 1920 New and rare Malayan plants. J. Fed. Malay States Mus. 10: 153.
- Seidenfaden, G., Jeffrey, J.W. 1992 The Orchids of Peninsular Malaysia and Singapore. Olsen & Olsen, Fredensborg, Denmark. 779 pages.
- Suetsugu, K., Hsu, T.C. 2023a Resurrection and lectotypification of *Taeniophyllum aphyllum* (Orchidaceae). *Acta Phytotax. Geobot.* 74(1): 39–45.
- Suetsugu, K., Hsu, T.C. 2023b First Record of *Taeniophyllum complanatum* (Orchidaceae) from Ryukyu Islands, Japan. *Acta Phytotax. Geobot.* 74(3): 177–182.
- Zhou, X., Cheng, Z., Liu, Q., Zhang, J., Hu, A., Huang, M., Hu, C., Tian, H. 2016 An updated checklist of Orchidaceae for China, with two new national records. *Phytotaxa* 276(1): 1–148.