

Heteropolygonatum altelobatum (Asparagaceae), *comb. nova*

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Heteropolygonatum has been considered endemic to China, where most of the species are distributed in the SW region of the country. The genus is characterized by having both terminal and axillary inflorescences, inner and outer stamens of different lengths, and an epiphytic existence. Formerly, a number of the species were included in *Polygonatum* or *Smilacina*. *Polygonatum altelobatum* Hayata is an endemic of Taiwan; however, a review of the literature and field observations confirmed that it should be placed in *Heteropolygonatum*. Thus, we propose the new combination *Heteropolygonatum altelobatum* (Hayata) Y.H. Tseng, H.Y. Tzeng & C.T. Chao.

Heteropolygonatum was first described by Tamura *et al.* (1997). The genus is characterized by an epiphytic existence, short outer stamens and long inner ones, imbricate tepals, and by the presence of both terminal and axillary inflorescences. A number of the *Heteropolygonatum* species were formerly placed in *Polygonatum* or *Smilacina*.

A number of species have been described since the genus *Heteropolygonatum* was established, e.g. *H. xui* (Bao *et al.* 1998) and *H. ogisui* (Tamura & Xu 2001). After the present report six species are included in this genus (Fig. 1; cf. Chen *et al.* 2000) and they can be identified by the key below.

Key to the species of *Heteropolygonatum*

1. Stem pendulous; leaves falcate *H. pendulum*
1. Stem erect or ascendant 2
2. Inflorescences with a peduncle 3
2. Inflorescences without a peduncle 4

3. Leaves 2; inflorescence a raceme, with 2–4 flowers
..... *H. ginfushanicum*
3. Leaves 6–9; inflorescence a subumbel, with 1–2 flowers
..... *H. roseolum*
4. Leaf 1; inflorescences solitary *H. xui*
4. Leaves 3–9; inflorescences solitary or fascicled 5
5. Rhizome 0.8–1.4 cm in diam.; leaves 3–5; flowers pink
..... *H. ogisui*
5. Rhizome 1–2 cm in diam.; leaves 5–9; flowers pale green
..... *H. altelobatum*

***Heteropolygonatum altelobatum* (Hayata) Y.H. Tseng, H.Y. Tzeng & C.T. Chao, *comb. nova* (Figs. 2–4).**

Polygonatum altelobatum Hayata, *Icones Plantarum Formosanarum* 5: 229, 1915 *syn. nov.* (“*alte-lobatum*”).

Perennial epiphytic herbs. Rhizome moniliform, 1–2 cm thick, with many fibrous roots with root hairs. Stem ascendant, 20–60 cm long, simple, glabrous, ca. 2–5 mm in diam., cov-

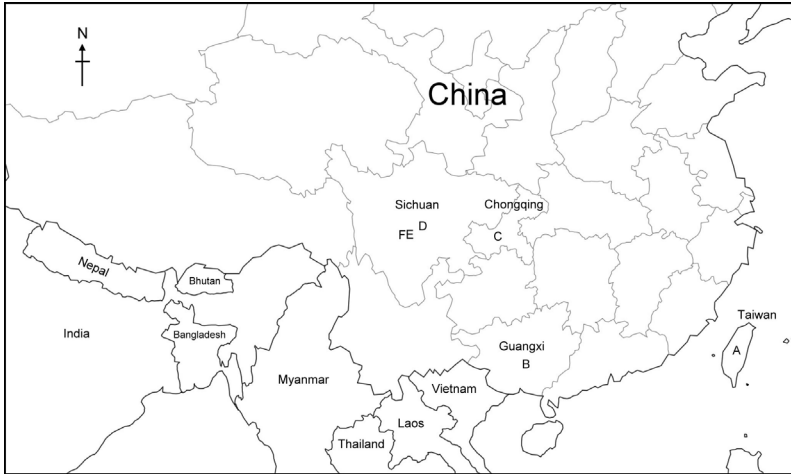


Fig. 1. Distribution map of species of *Heteropolygonatum*. A = *H. altelobatum*, B = *H. roseolum*, C = *H. ginfushanicum*, D = *H. pendulum*, FE = *H. ogisui* and *H. xui*.

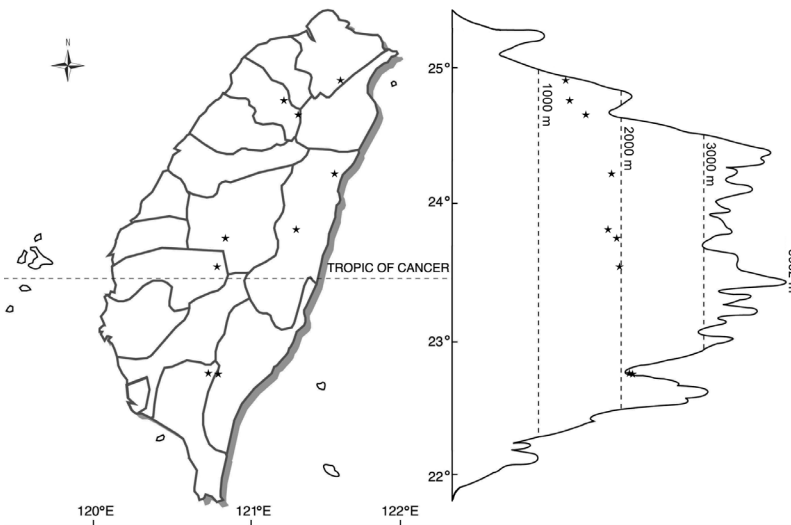


Fig. 2. Distribution map of *Heteropolygonatum altelobatum* in Taiwan.

ered with scale leaves at base. Leaves deciduous, simple, alternate, ovate or lanceolate, chartaceous, 1 main nerve, apex attenuated, base obtuse, margin entire, glabrous, 6–10 cm long, 2–4 cm wide, petiole 1–2 mm long, glabrous. Inflorescences axillary and terminal, solitary or fascicled, glabrous, peduncles and bracts absent. Flowers bisexual, actinomorphic, pendulous, pedicels 1–2 cm long, slender, glabrous; perianth campanulate, pale green, tube 1–2 mm long, segments 6, oblong, arranged into 2 whorls of 3 segments, 5–7 mm long, 2–3 mm wide, slightly pubescent at apex, apex acute to obtuse. Stamens 6, adnated with perianth lobes, arranged into 2 whorls, inner filaments ca. 1 mm long, outer ones ca. 0.5 mm long, anthers lanceolate,

1.5 mm long, 0.6 mm wide, apex acute, 2-lobed, longitudinally dehiscent, introrse. Ovary ovate, sessile, 2.5 mm long, 1.5 mm in diam., glabrous, style 1 mm long, stigma pubescent. Fruit a berry, red when mature. Seeds numerous.

Polygonatum altelobatum was described by Hayata (1911), who in a lengthy discussion stated that he was uncertain whether it should be placed in *Polygonatum*.

Heteropolygonatum altelobatum is an endemic of Taiwan. It is found in the mountains at 1500–2500 m a.s.l., often in forests with a predominately foggy climate. According to the classification of vegetation zones in the Taiwanese forests (Su 1984), the 1500–2500-m range is the *Quercus* zone. The vegetation in this zone is

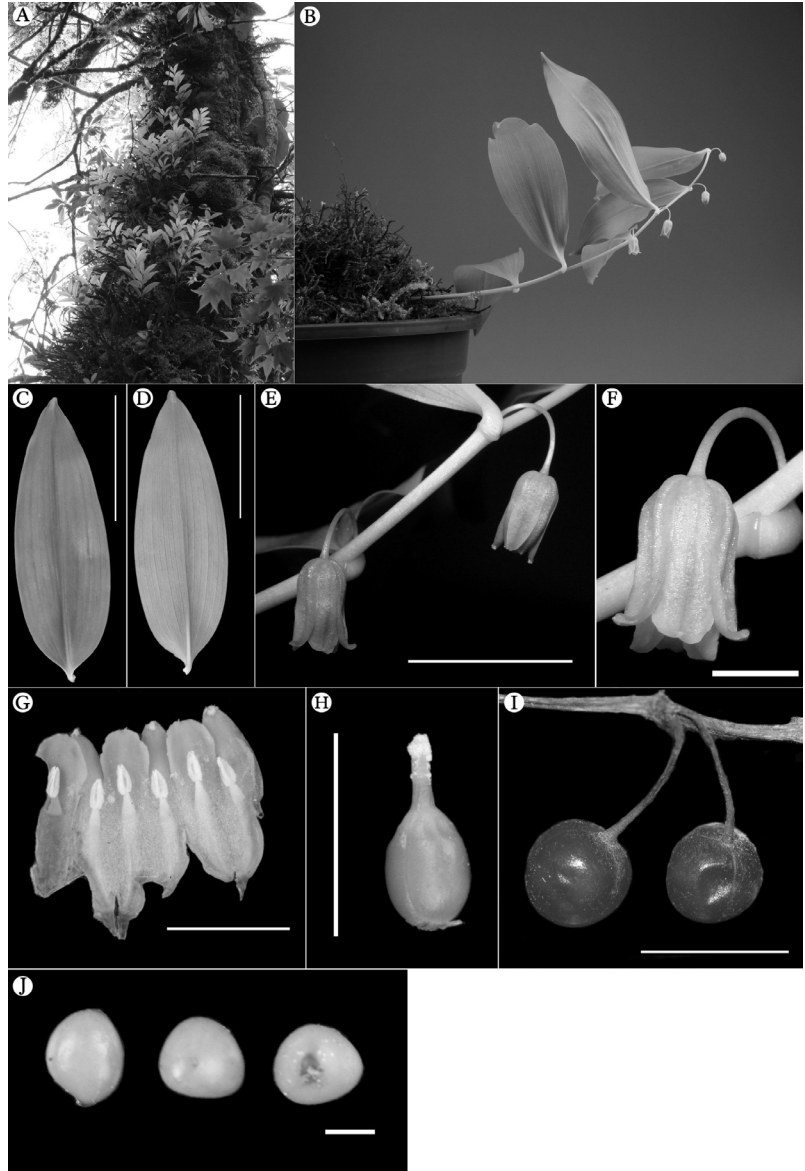


Fig. 3. *Heteropolygonatum altelobatum*. — **A:** Habitat. — **B:** Habit. — **C:** Adaxial leaf surface. — **D:** Abaxial leaf surface. — **E:** Inflorescence. — **F:** Flower. — **G:** Inside of flower (pistil removed). — **H:** Fruit. — **I:** Pistil. — **J:** Seeds. Scale bars: **C** and **D** = 5 cm, **G** and **H** = 5 mm, **E** and **I** = 1 cm, **F** = 3 mm, **J** = 1 mm.

dominated by Fagaceae, such as *Cyclobalanopsis stenophylloides*, *C. morii* and *Castanopsis carlesii*. Most of the *H. altelobatum* individuals were found on the trunks or branches of those trees, which were also moss-covered. *Heteropolygonatum altelobatum* often co-occurred with other epiphytes such as *Araiostegia perdurans* and *Vaccinium emarginatum*.

ADDITIONAL TAIWANESE SPECIMENS EXAMINED: — Ilan County, Datong Township, Mt. Taiheishan, 8 May 1932, *S.*

Sasaki s.n. (TAI). Taoyuan County, Fushing Township, Mt. Taman to Taipei County Mt. Meikueihsimo, *T. C. Hsu* 488 (TAIF). Hsinchu County, Chienshih Township, Yuanyanghu, *W. L. Chiou* 14165 (TAIF). Nantou County, Luku Township, Shanlinshih recreation area, *C. T. Chao* 1024, 1025, 1410 (TCF). Chiayi County, Alishan Township, Mt. Lo-Lin, *J. M. Chao & M. T. Kao* 6256 (TAI); Alishan, *S. Sasaki* 11 (holotype of *Polygonatum altelobatum*, TAI). Pingtung County, Wutai Township, Hsiaokueihu, *S. Z.* 10517 (PPI). Taitung County, Beinan Township, Chipenchushan, *S. Z. Yang* 7272 (PPI). Hualien County, Wanjung Township, Wanjung logging trail, *Y. P. Cheng* 5058 (TAIF); Wanjung Township, near Fong-Shan branch station, *Liu et al.* 18 (TAI).

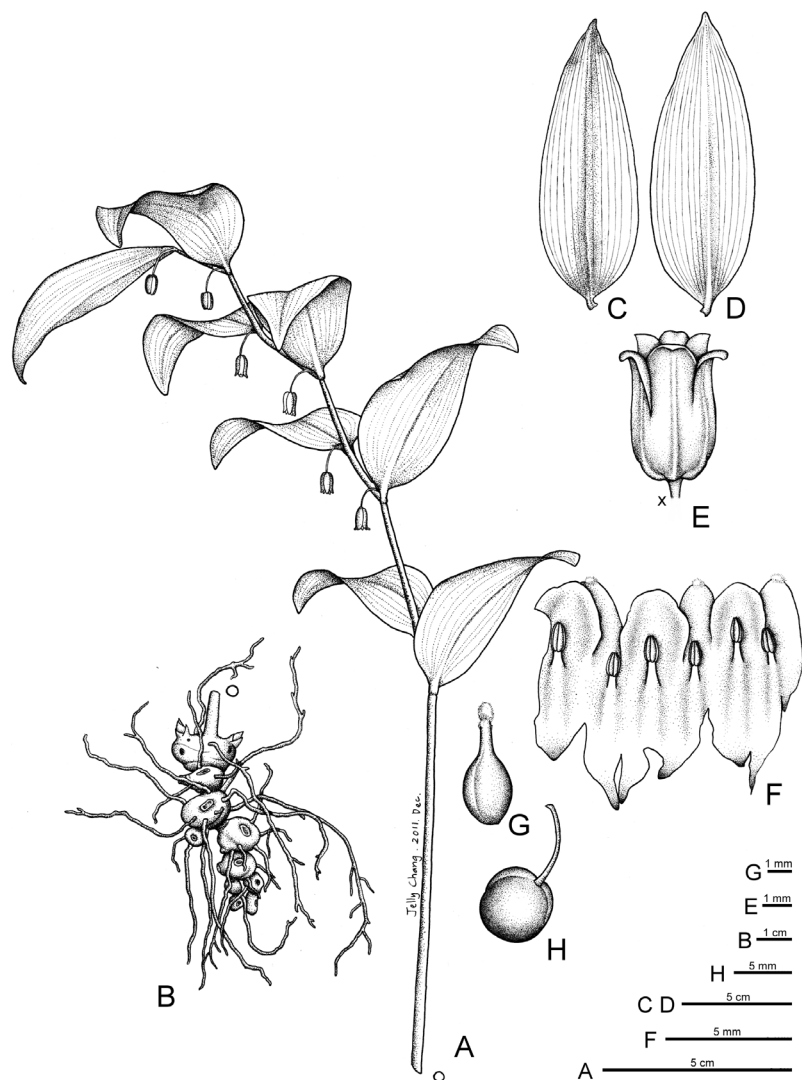


Fig. 4. *Heteropolygonatum altelobatum* (from C. T. Chao 1410). — **A:** Habit. — **B:** Rhizome. — **C:** Adaxial leaf surface. — **D:** Abaxial leaf surface. — **E:** Flower. — **F:** Inside of flower (pistil removed). — **G:** Pistil. — **H:** Fruit.

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