



## Newly Discovered Native Orchids of Taiwan (VIII)

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ABSTRACT: This report presents three new orchids in Taiwan, *i.e.*, *Epipactis fascicularis* T.P. Lin, *Neottia piluchiensis* T.P. Lin, and *Platanthera nantousylvatica* T.P. Lin.

KEY WORDS: Native orchids, *Epipactis fascicularis*, *Neottia piluchiensis*, *Platanthera nantousylvatica*, Taiwan.

### INTRODUCTION

The *Platanthera* genus, including *Tulotis* of Taiwan, was revised by Inoue and Lin (1980). Since then, four species have been reported: *P. taiwaniana* (S.S. Ying) S.S. Ying (Ying 1977), *P. peichiatieniana* S.S. Ying (Ying 1985), *P. mandarinorum* Rchb. f. subsp. *ophrydioides* (Fr. Schmidt) K. Inoue (Chung 2008) and *P. sonoharae* Masam. (Chung 2008). Many alpine peaks have never been explored by orchid specialists, so there is always the possibility of finding new plants. The *Neottia* genus has about ten species according to Chung (2008). However, this number is an underestimate, since new plants have occasionally been found by orchid amateurs in various alpine areas. *Epipactis* is another orchid growing in alpine regions; only *E. ohwii* was previously known to us. Here I present new plants from these three genera.

### TAXONOMIC TREATMENT

*Epipactis fascicularis* T.P. Lin, *sp. nov.*

余氏鈴蘭 Figs. 1 & 2A & B

Typus: **TAIWAN**: Taichung County: near Lishan, *Sheng-Kun Yu s.n.* (holotype TAI, TAI286042).

Rhizomatous, bearing 4–6 aerial stems. Stems angled, clustered, 30–60 cm tall, dark green and covered with whitish fine hairs. Leaves 5–7 including cauline leaves, dark green, arranged alternately in two vertical rows (distichous), spreading-erect; lower leaves smaller, median leaves larger, elliptic to ovate, 6–10 cm long, 3.5–5 cm wide; upper leaves bract-like. Inflorescence elongated, up to 25 cm in length, occupying up to half the stem, bearing 20–35 flowers. Bracts horizontal or pendant, the lower bracts much longer than the upper ones. Ovary and pedicel green, almost glabrous or covered with sparse, fine, short hairs, 7–8 mm long, far shorter than floral bract. Flowers about 1.6 cm across, not pendant, open and green with colored petals; sepals oval-acuminate, keeled and green, 1–1.2 cm × 4–6 mm, glabrous; petals elliptic to

elliptic-orbicular, 9–10 mm × 3.7–5 mm and slightly pinkish. Lip 7–8 mm long, connate with the base of column, junction of hypochile and epichile depressed; the hypochile cup-shaped, with reddish-brown markings inside the cup, bearing a small appendage in the back inside the sac; the epichile triangular, 4.0 mm × 4.5 mm, wrinkled on the surface, reddish-purple to magenta, with two well-developed wrinkled calli at the base, the tip turned down and back. Column short, 3 mm long, slightly distorted, with two round appendages (staminodes?) in the front, clinandrium not well developed, rostellum not well-defined. Anther yellow, flesh, pollinia cohesive, vicidium conspicuous.

Flowering time: July

Ecology: *E. fascicularis* grows along with herbs in sunny sites at the fringe of woods near Lishan, Taiwan, off the Central Cross-Island Highway at an elevation of about 1900 m.

Note: *E. fascicularis* can be distinguished from *E. ohwii* (Fig. 2 C & D) as shown in Table 1.

The specific epithet refers to a clustered stem. *E. fascicularis* exhibits villi on the stem but not the ovary and pedicel, slightly wrinkled calli on the epichile, and is greenish-yellow at the base of the pedicel, but not washed purple. According to the key provided by P. Delforge (2006), with such features, *E. fascicularis* seems to fall into the *E. leptochila* group.

*Neottia piluchiensis* T.P. Lin, *sp. nov.*

碧綠溪雙葉蘭 Figs. 3 & 4A

Typus: **TAIWAN**: Nantou County: Piluchi, 2400m. *Tsan-Piao Lin s.n.* Jun. 22, 2011 (holotype TAI, TAI277369).

Terrestrial. Stems slender, arising from rhizome, angled, hairless, 12–20 cm long, green, but half of them embedded in the mossy floor. Roots many, filiform. Leaves 2, opposite, ovate-triangular, 1.8–3 cm long, 1.5–2.5 cm wide, acute, green, pale-green beneath, the second one smaller. Inflorescence terminal, 10–16 cm long; scape green, minutely hairy, 6–8 cm long; raceme has 7 to 10 well-spaced flowers. Bracts ovate-lanceolate, about 5 mm

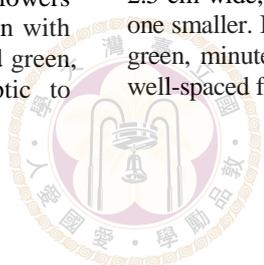


Table 1. Characters of *Epipactis ohwii* and *Epipactis fascicularis*

	<i>Epipactis ohwii</i>	<i>Epipactis fascicularis</i>
Plant height	40 cm	up to 60 cm
Stem	single, densely pubescent	4-6 stems in one cluster, pubescent
Plant height	40 cm	up to 60 cm
Leaf	4, spiral, light green	5-7, distichous, green
Inflorescence	< 15 flowers, laxly arranged	up to 35 flowers, densely arranged
Flower	not widely open	open
Sepals	yellowish-green	slightly pinkish
Lip hypochile	green inside cup	reddish-brown markings inside the cup
Lip epichile	flat on surface, yellowish-green, tip not turned down, 2 smooth orbicular calli at base	wrinkled on surface, reddish-purple to magenta, tip turned down and back, 2 wrinkled calli at base.
Altitude	2600 m	1900–2500 m
Ecology	slightly shaded	sunny site

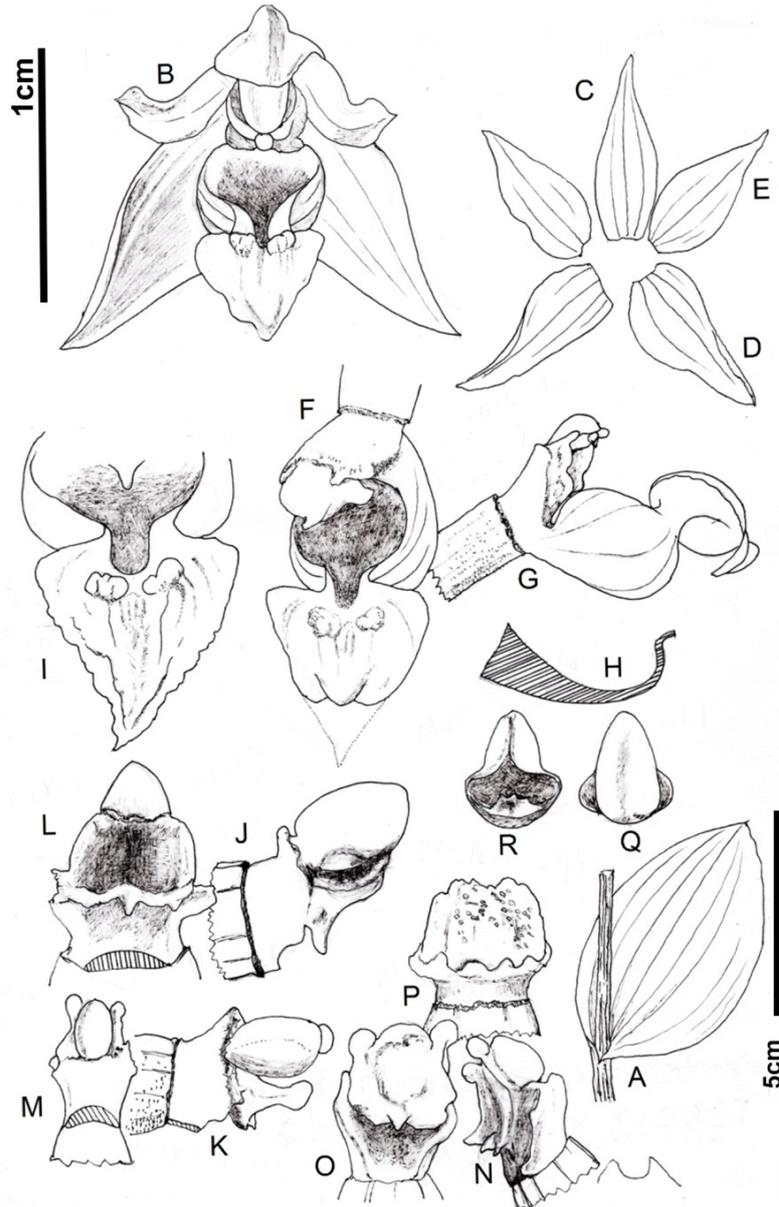


Fig. 1. *Epipactis fascicularis* T. P. Lin. A: angled stem and leaf. B: flower. C: upper sepal. D: lateral sepal. E: petal. F: top view of column and lip. G: side view of column and lip. H: longitudinal section of lip hypochile. I: lip with the epichile spread out. J and K: side view of column with anther attached. L: ventral view of column with anther attached. M: top view of column. N: side view of column with anther removed. O: ventral view of column with anther removed. P: top view of column with anther removed. Q: top view of anther. R: ventral view of anther.



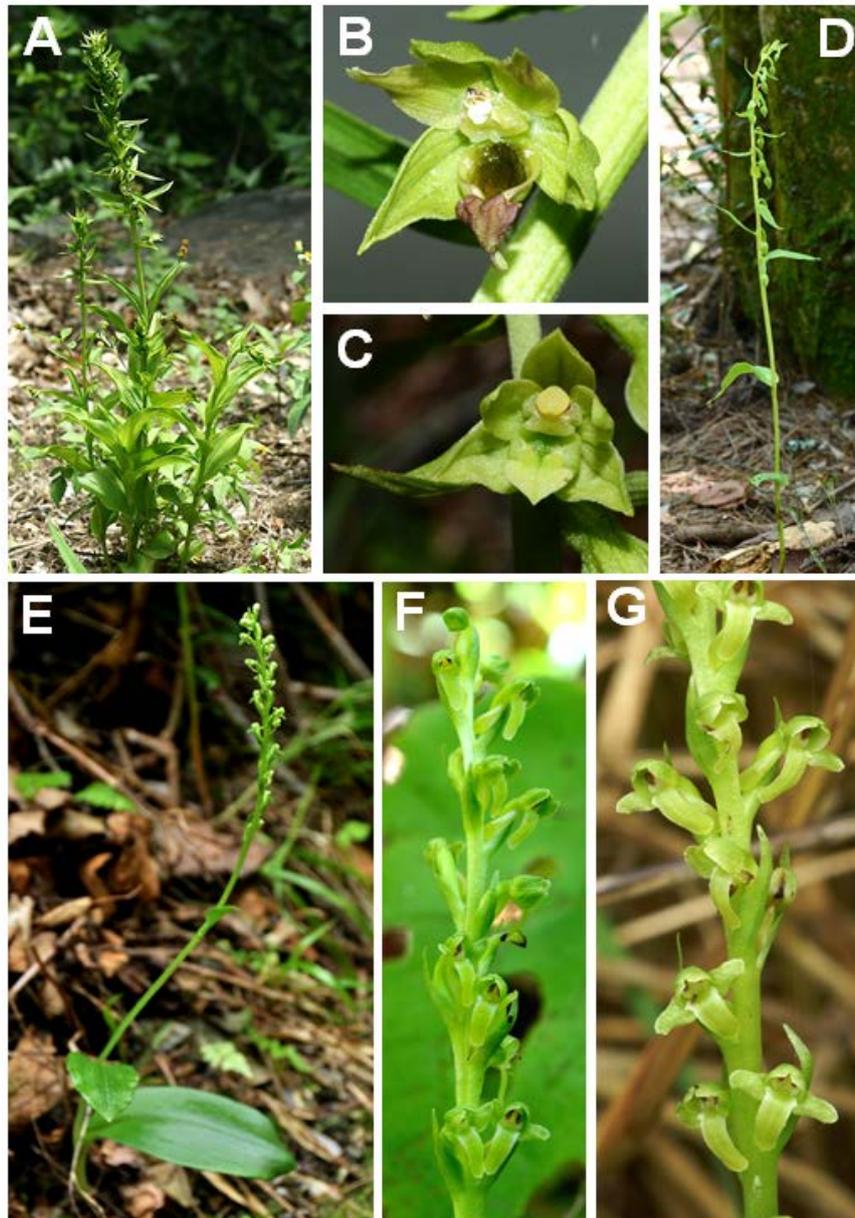


Fig. 2. *Epipactis fascicularis*, *Epipactis ohwii*, and *Platanthera nantousylvatica* in native habitat. A and B, plants and flower of *Epipactis fascicularis* from type locality. C and D, plants and flower of *Epipactis ohwii* from Fushoushan Farm, 2550 m. E, F, G, plant and inflorescence from two individuals of *P. nantousylvatica* from type locality. Photo taken by Po-Neng Shen (E and F) and Sheng-Kun Yu (A, B, C, D and G).

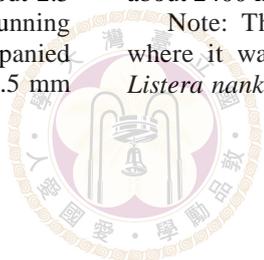
long. Pedicel and ovary 1.2 cm long. Flowers greenish, open, about 1.1 cm across; upper sepals linear, 4.5 mm long, 1 mm wide, obtuse; lateral sepals obliquely falcate, 5 mm long, 2 mm wide, acute or obtuse; petals linear, about 4.3 mm long, 0.7 mm wide. Lip elongate-triangular, elongate-cuneate or even linear-like and flat, 1.1 cm long, 3.7–5.0 mm wide, white with a tinge of green, deeply notched at the apex forming two lobes, obtuse or round at the apex, the notch about 2.5 mm deep; a linear dark-green thickened area running the entire length of the central disc, and is accompanied by two greenish parallel ridges. Column about 4.5 mm

long, semi-terete, bending downwards at almost a right angle, rostellum conspicuous. Stigma flat and wide. Anther cap yellowish brown at the margin and firmly unites with the column; pollinia 4, no disc attached. Capsules unknown.

Flowering time: late June

Ecology: This species grows along with herbs in moist forest in Piluchi area, Taiwan, at an elevation of about 2400 m.

Note: The specific epithet refers to the location where it was found. This species was identified as *Listera nankomontana* Fukuyama by W.M. Lin (2012),



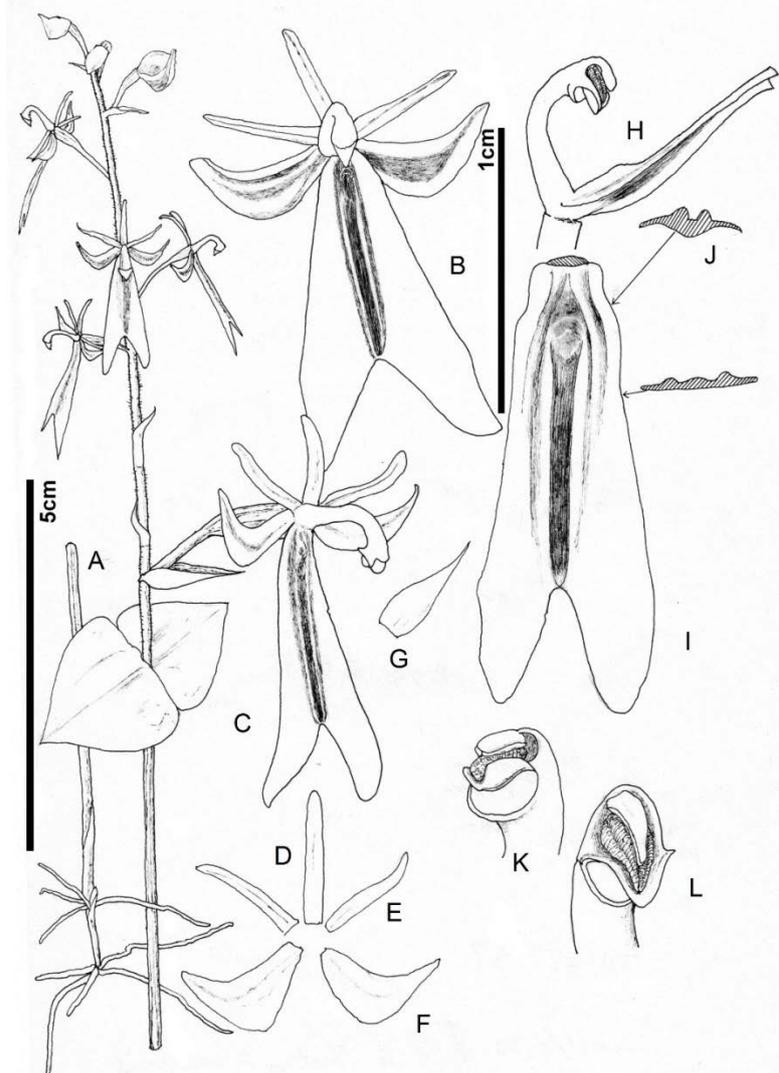


Fig. 3. *Neottia piluchiensis* T. P. Lin. A: plant body and inflorescence. B: front view of flower. C: oblique view of flower. D: upper sepal. E: petal. F: lateral sepal. G: floral bract. H: side view of column and lip. I: lip. J: cross section of lip. K: front view of column. L: oblique view of column.

probably because *N. nankomontana* has a fork-like labellum. W.M. Lin (2012) also provided a good photo for reference. *N. piluchiensis* differs from *N. nankomontana* (Fig. 4B) in having larger flowers, while the latter has smaller flowers (upper sepal 2.5 mm long and 1 mm wide, the lateral sepal 3 mm long; labellum 7 mm long, 3.5 mm wide, bilobed, lobes attenuate and acute) according to the type specimen, Fukuyama 4139 in KPM-NA0105561 (Fukuyama, 1935) (Fig. 4A and B). Also the labellum of *N. piluchiensis* in general is narrower than that of the *N. nankomontana*. In fact, another three specimens of *Listera nankomontana* collected by N. Fukuyama (KPM-G00577, G00581, G00582) from Nanhutashan, Taiwan, at an elevation above 2000 m on Jul. 9, 1937 have even smaller flowers, especially the labellum, which are 0.5–0.6 cm long.



Fig. 4. A: *N. piluchiensis* from Type (T.P. Lin s.n., TAI277369) and B: *N. nankomontana* from Type (Fukuyama 4139, KPM-NA0105561).

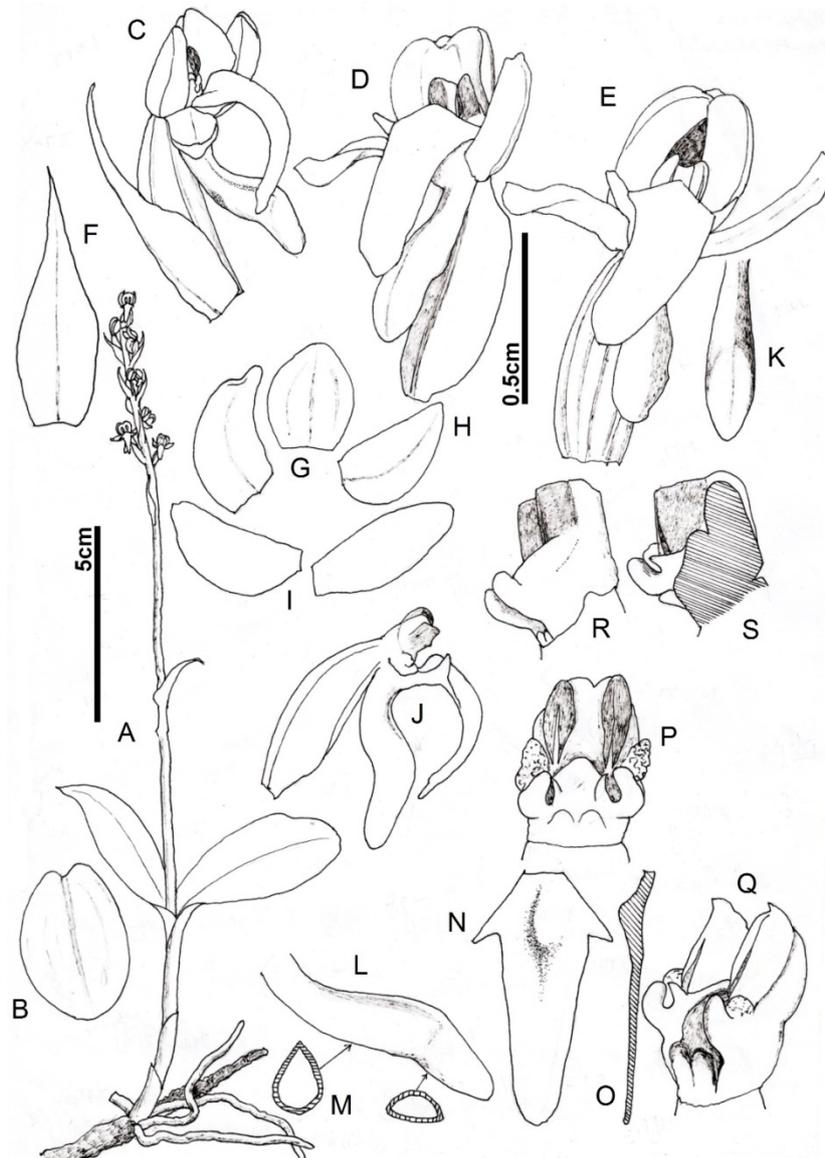


Fig. 5. *Platanthera nantousylvatica* T. P. Lin. A: plant body and inflorescence. B: leaf. C: oblique view of flower. D and E: front view of flower. F: floral bract. G: upper sepal. H: petal. I: lateral sepal. J: side view of column and lip. K: front view of spur. L: side view of spur. M: cross section of spur. N: lip. O: longitudinal section of lip. P: column. Q: oblique view of column. R: side view of column. S: longitudinal section of column.

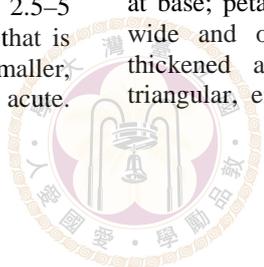
*Platanthera nantousylvatica* T.P. Lin, *sp. nov.*

南投蜻蛉蘭 Figs. 2 E, F, G & 5

Typus: **TAIWAN**: Nantou County, 2850 m. *Po-Neng Shen s.n.* Jul. 22, 2015 (holotype TAI, TAI285859).

Plants including inflorescence 18–35 cm tall. Rhizome stoloniform but not fusiform tuberoid, 5–8 mm thick, tapering, with bud near apex. Roots several. Stem cylindrical, about 3.5 cm long, at least 4 mm in diameter, usually with two bract-like leaf-sheaths. Leaves 2, green on the upper surface, pale green underneath, elliptic to oblong, 4.5–10 cm long, 2.5–5 cm wide, rounded at apex, with a central vein that is whitish and grooved; the second leaf is smaller, lanceolate, 4.5 cm long and 1.4 cm wide, acute.

Inflorescence 14–25 cm long; inflorescence stem cylindrical, at least 1.8 mm in diameter, with two sheath-like leaves; raceme about 1/3 of the length of inflorescence, bearing 15 or more densely packed flowers. Floral bracts lanceolate, 5.5–8 mm long, 3 mm wide, acuminate. Pedicel and ovary 4.7–5 mm long. Flowers green, about 6 mm across; upper sepal concave, orbicular, 2.5 mm long, 2.3 mm wide, round at the apex, 3-nerved; lateral sepals spreading, obliquely oblong, 3.7 mm long, 1.7 mm wide, obtuse, slightly contracted at base; petals obliquely ovate, 3.3 mm long, 1.7 mm wide and obtuse. Lip 4.5–4.7 mm long, 3-lobed, thickened at the basal disc; lateral lobes small, triangular, entire, the notch about 0.5 mm deep; the





midlobe ligule-like, 1.7 mm wide at the base, tapering to form a round tip; spur cylindrical, crooked, 4.3 mm long. Column 1.3 mm tall, staminodes rugose, rostellum surrounding convex stigma. Anther cells 2, dark brown, widely separated and parallel; pollinia ovoid-ellipsoid, 0.8 mm long, viscidium oblong, with horseshoe-like pouches at the lower ends enclosing viscidium. Stigma protruding slightly. Fruit ellipsoid.

Flowering time: July

Ecology: Found growing in the valley at elevation of 2850 m, on open mossy slopes along roadsides receiving occasional sunlight with the *Tsuga* or *Abies* trees as canopy.

Note: Only a small population of about 10 individuals were found. In the *Platanthera* genus in Taiwan, the labella having sidelobes can only be found in three species: *P. devolii*, *P. sonoharae* and *P. nantousylvatica*. This species differs from the other two in having elliptic or oblong leaves, in contrast to linear ones. The specific epithet refers to the location where it was found.

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## 臺灣新發現的野生蘭 (VIII)

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摘要：本文介紹三種臺灣新發現的野生蘭（余氏鈴蘭、碧綠溪雙葉蘭、南投蜻蛉蘭）。

關鍵詞：野生蘭、余氏鈴蘭、碧綠溪雙葉蘭、南投蜻蛉蘭、臺灣。

