# Newly Discovered Native Orchids of Taiwan (V)

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ABSTRACT: In this report, three new native orchids (*Bulbophyllum tenuislinguae*, *Epipogum kentingensis*, and *Neottia hohuanshanensis*) are reported. Another species previously reported under the name *Lecanorchis nigricans* was renamed *Lecanorchis bihuensis. Bulbophyllum hymenanthum* indeed occurs in Taiwan, but a detailed description requires further research.

KEY WORDS: Taiwan, native orchids, *Bulbophyllum tenuislinguae*, *Bulbophyllum hymenanthum, Epipogum kentingensis, Neottia hohuanshanensis, Lecanorchis bihuensis.*

## INTRODUCTION

Continuous efforts to search for native orchids in Taiwan have never stopped in recent years. Surprising discoveries unexpectedly appearing islandwide mean that nobody knows how long this adventure will last. In this paper, we present several new orchid species which were recently found.

## TAXONOMIC TREATMENTS

***Bulbophyllum tenuislinguae sp. nov.***
金枝雙花豆蘭　Figs. 1A & 2

Typus: Liang-Zu Chang *s.n.* (holo TAI281142, Mar. 22, 2012, Hakanni Mt., Miaoli Co.).

Plant identical to *B. drymoglossum* Maxim. ex Okubo. Rhizomes long creeping, slender. Pseudobulbs absent. Leaves solitary, arranged 0.7–1.0 cm apart, elliptic to circular, thick-coriacious, 0.6–1.1 cm long, 4.5–8.0 mm wide, obtuse. Inflorescences from node of rhizome, about 3 cm long, slender; with a few small sheath-bracts at base and one in middle of scape; the scape about 2 cm long. Flowers 1–3, mostly 2 in a very short raceme, 8 mm across; perianths yellow, with pink or red stripes, reflexed at tips; bracts ovate, acuminate, reddish-brown, pedicel and ovary about 3 mm long; upper sepals ovate, acute, with 3 reddish stripes, concave, 5.5 mm long, 3.0 mm wide, free of cilia on margins; lateral sepals concave, 6.5 mm long, 3.2 mm wide at base; petals much smaller than sepals, elliptical, 3.0 mm long, 1.3 mm wide, obtuse; lip attached to tip of column foot, scarlet but white on the front, 3.6 mm long, obtuse at apex, abruptly recurved at base, sometime slightly wavy on margins, disc not thick, grooved in the center but ridged on both sides; column semiterete, reddish, 2 mm tall, column-foot without appendage, upcurved. Stylids (stelidia) with very short tooth; anther operculate; pollinia 4, in 2 pairs on disc.

Flowering time: February and March similar to *B. drymoglossum*.

Ecology: This species grows in aggregations on trunks of broadleaf tree on the windy ridge of Hakanni Mt., Miaoli Co. at elevations of 1400–1700 m.

Notes: This species was originally discovered in February 2012 by Ms. King-Chi Wu on the way to climb Hakanni Mt., Miaoli Co. The name was coined because of the thin lip disc. *Bulbophyllum tenuislinguae* usually grows high on trunks at a distance of 3–5 m off the floor, while *B. drymoglossum* grows from very low to high positions. Our species is also similar to *B. hymenanthum* of Sikkim and Thailand. In *B. hymenanthum* the ratio of flower size to the plant size is smaller than in *B. tenuislinguae*, and the tips of perianths are never reflexed (Seidenfaden 1979, Seidenfaden 1992). Probably the most important difference is the lip morphology of these 2 species. We noted the thin lip disc, and abruptly reflexed lip at the base of *B. tenuislinguae* as being unique among species of *Bulbophyllum*.

For the first time *B. hymenanthum* Hk. F. (圓唇雙花豆蘭) as it is known to the public, appeared in the Chung's publication (2008) but was identified as *B. tokioi* Fuk. which was known as the smallest *Bulbophyllum* in Taiwan. The putative *B. humenanthum* occurs in northern Taiwan and flowers in April and May. Based on the photo presented (Chung, 2008), this entity is characterized as having an elliptic lip with a rounded apex, and was identical to that reported in the original publication (Hooker, 1890) and by Seidenfaden (1979). Detailed information of the plant native to



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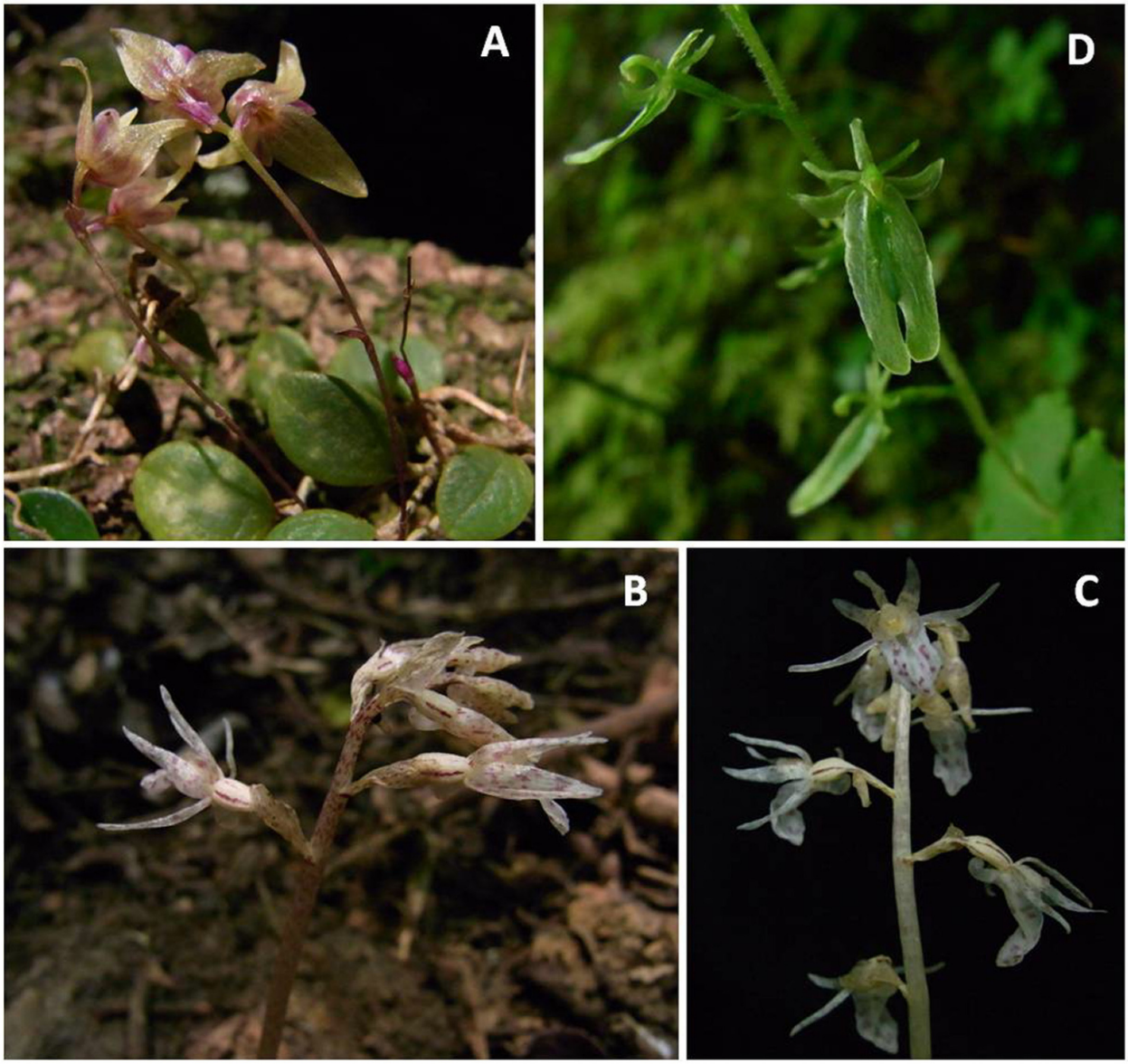



**Fig. 1. Image of the new orchids. A: *Bulbophyllum tenuislinguae* T.P. Lin & S.H. Wu. B and C: *Epipogum kentingensis* T.P. Lin & S.H. Wu. D: *Neottia hohuanshanensis* T.P. Lin & S.H. Wu.**

Taiwan is not clear.

Distribution: Vietnam, Darjeeling, Sikkim, Khasia, Thailand and Taiwan.

***Epipogum kentingensis sp. nov.***

墾丁上鬚蘭 Figs. 1B & C; Fig. 3

Typus: Shu-Hui Wu *s.n.* (holo TAI281012, Mar. 27, 2012, Kenting, Pingtung Co.).

Mycoheterotrophic or non-photosynthetic orchid. Plants 12–20 cm tall. Rhizomes tuberous, embedded only shallowly in topsoil, consisting of many closely packed internodes, ellipsoid, more or less flattened, about 2–3.5 cm long, dull brownish-yellow, with a cavity inside. Inflorescence nodding until flowers mature when it becomes erect, whitish with purple spots; peduncle remotely several-bracteolate; rachis bearing 5–10 flowers. Pedicel and ovary about 1.2 cm long. Flower bracts ovate, deciduous, 1 cm long, 5 mm wide. Flowers more or less perpendicular to the rachis, pale-yellow with purple markings, widely spreading, about 2 cm across; sepals linear, or elliptic-lanceolate, 1.1 cm long, 2.2 mm wide, acute; petal also linear, 1.1 cm long, 1.3 mm wide, acute; lip spurred, spur oblong, rounded at tip, directed to rear, sometimes twisted, entire length of lip including spur about 1.4 cm long; lip-blade not including spur cordate-ovate, 1–1.2 cm



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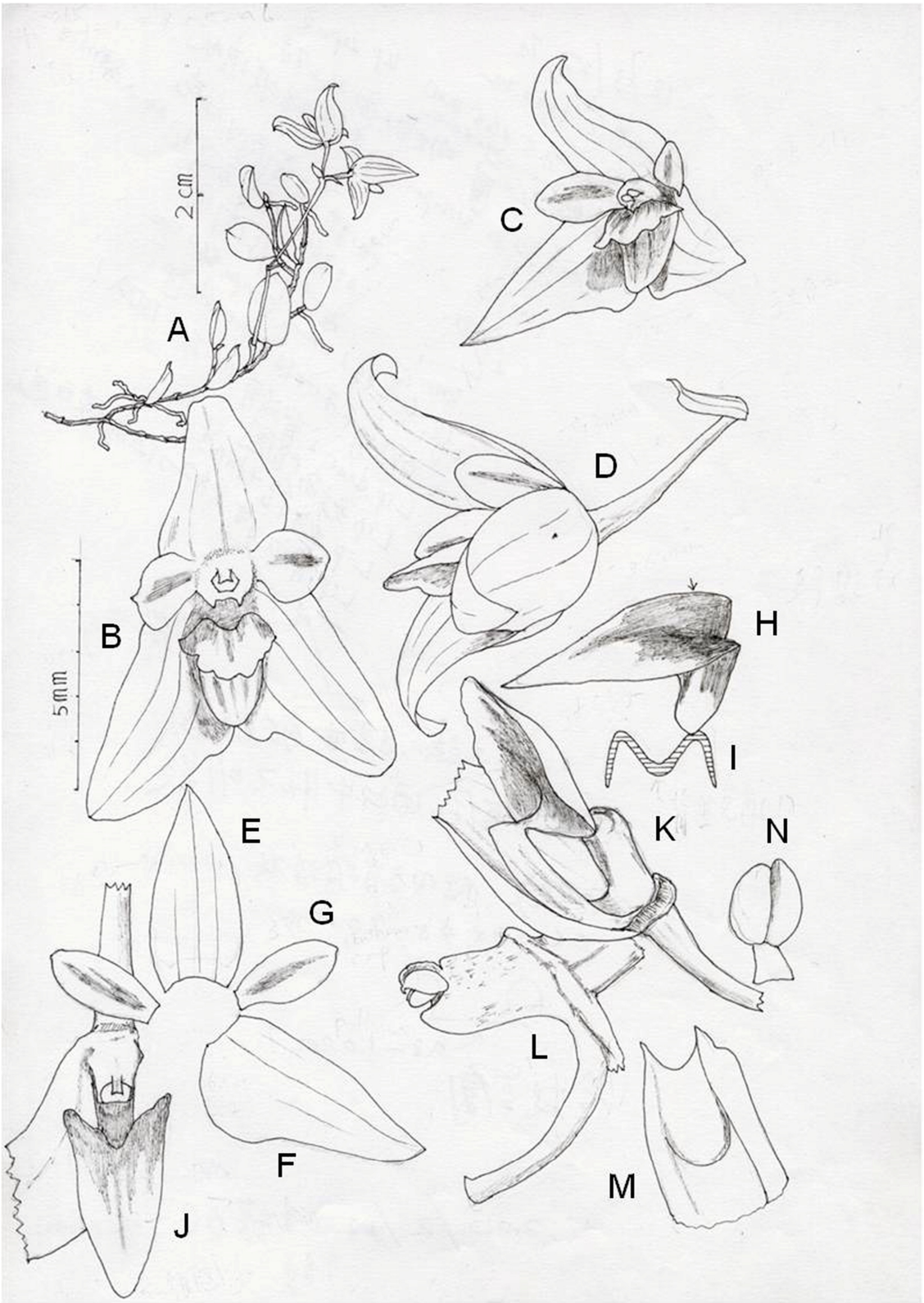



**Fig. 2.** ***Bulbophyllum tenuislinguae*** **T.P. Lin & S.H. Wu. A: Plant body and inflorescence. B and C: Front view of flower. D: Side view of flower. E: Upper sepal. F: Lateral sepal. G: Petal. H: Side view of lip. I: Cross-section of lip at the position indicated by the arrow in H. J: Top view of column, lip, and ovary. K: Side view of column, lip, and ovary. L: Side view of column and column-foot. M: Ventral view of column showing the stigma. N: Pollinia on viscidium.**



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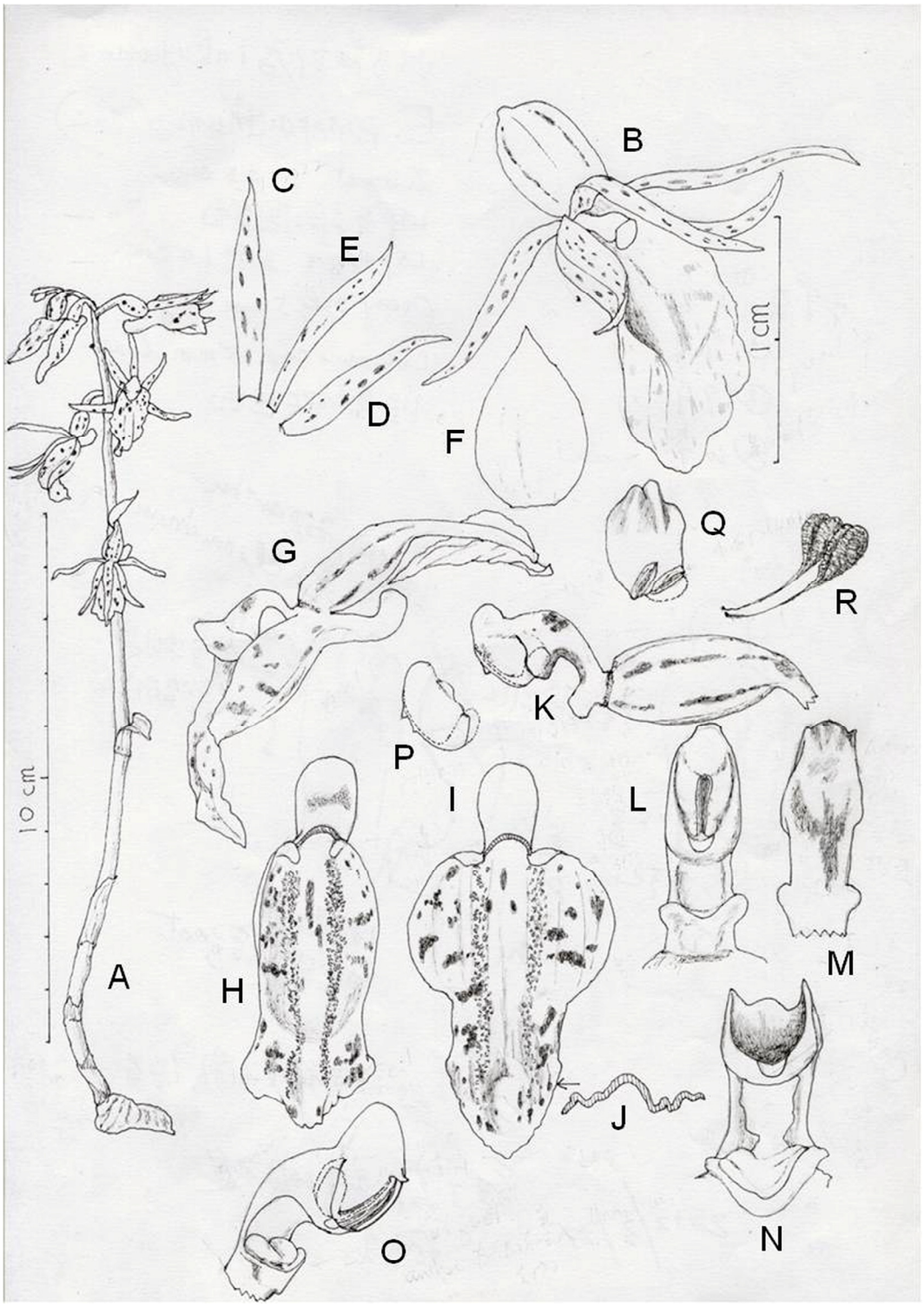



**Fig. 3.** ***Epipogum kentingensis*** **T.P. Lin & S.H. Wu. A: Plant body and inflorescence. B: Front view of flower. C: Upper sepal. D: Lateral sepal. E: Petal. F: Floral bract. G: Side view of column, lip and ovary. H: Top view of lip and spur in natural state. I: Top view of lip and spur after being spread out. J: Cross-section of lip at the position indicated by the arrow in I. K: Side view of column and ovary, with the position of the pollinia indicated by the dashed line. L: Ventral view of column. M: Dorsal view of column showing the firmly attached anther. N: Ventral view of column after removing the anther to show the stigma and round rostellum. O: Side view of column, with the position of the pollinia indicated by the dashed line. P: Side view of anther with the position of the pollinia shown by the dashed line. Q: Ventral view of the fleshy anther showing the location of the attached pollinia. R: Pollinia with a slender stipe on a small viscidium.**



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long, 5 mm wide, becoming 8–9 mm when spread out, with upcurved sides, lip reflexed in front; disc with many purple spots and markings, papillose, especially dense in two linear stripes running entire length. Column including anther 5 mm long, curved, narrowing down to base, base seemingly bearing very short column-foot; column holding both lower sides of anther; rostellum short, rounded. Anther thick and fleshy, completely connected to column; pollinia 4, powdery, yellowish-white, with slender stipes and small disc, stipe strongly curved.

Flowering time: March and April.

Ecology: This species grows only in one location in the Kenting area, Pingtung Co. with low light penetration on the floor of a broadleaf forest at elevation about 280 m. Uplifted coral-reef is prominent in this environment.

Notes: Flowers of the two species, *E. roseum* and *E. kentingensis* are similar. The latter is characterized by a smaller plant size, much lower flower number, purple markings everywhere, flower relatively perpendicular to the scape (not pendent), flower spreading when blossoming, reflexed lip and column morphology. The column including the anther is very complicated in these two *Epipogium* species which is not easy to describe. *Epipogum roseum* has a much shorter column, and the anther is connected to the column only through a thin bridge, while *E. kentingensis* has a long, curved column which narrows toward the base, and its column and anther are connected. The very special *E. kentingensis* was originally found by the junior author in 2009. *Epipogum roseum* also occurs at the same location, with flowering time in April and May, somewhat overlapping that of *E. kentingensis*. A putative natural hybrid was found which shared many characters of *E. roseum* and *E. kentingensis*.

***Neottia hohuanshanensis sp. nov.***

合歡山雙葉蘭 Figs. 1D and 4

Typus: Tsan-Piao Lin *s.n.* (holo TAI281320, Jul. 23, 2012, Hohuan Mt., Nanto Co.)

Terrestrial. Stems slender, arising from rhizome, angled, 10 cm long but half of them embedded in the mossy floor, green. Roots many, filiform. Leaves 2, opposite, ovate-triangular, 1.5–2 cm long, 2–2.2 cm wide, acute, green, pale-green beneath. Inflorescence terminal, 4–6 cm long; scape green, minutely hairy, 2–2.5 cm long; raceme with 5 or 6 flowers. Bracts ovate-lanceolate, about 3 mm long. Pedicel and ovary 6–7 mm long, with sparse hairs on the pedicel. Flowers greenish, open, about 1 cm long; upper sepals linear, 3.8 mm long, 0.9 mm wide, obtuse; lateral sepals obliquely falcate, 3.8 mm long, 1.5 mm width, acute; petals linear, about 3.6 mm long, 0.7 mm wide. Lip oblong, flat, 1–1.1 cm long, 4.3 mm wide, deeply notched at apex forming 2 lobes, lobes about 4 mm long; central disc with linear dark-green thickened area, situated between 2 lustrous ridges running entire length of disc. Column about 3.2 mm long, semi-terete; Stigma flat and wide. Anther firmly attached to column but abscission zone exists, brown on the margin. Pollinia 4, no disc attached. Capsules obovoid, 6 mm long, 4 mm wide.

Flowering time: late July.

Ecology: This species grows along with *N. micrantha* Fuk. and *N. meifongensis* H.J. Su & C.Y. Hu under an *Abies* forest at Hohuan Mt. at an elevation of about 3000 m.

Note: The specific epithet refers to the location it was found. This new plant was diagnosed as a new species 3 years ago by the senior author; however, only recently did we collect enough information to make this report. Like *N. meifongensis*, many aspects of the flower qualities of *N. hohuanshan*ensis are similar, especially, the margin of the lip has a layer of specialized cells which reflect light in the daytime thus forming a white outline.

***Lecanorchis bihuensis sp nov.***

全唇皿柱蘭

*Lecanorchis nigrican auct. non* Honda: T.P. Lin in Native Orchid of Taiwan 3: 150-152. 1987.

Typus: Tsan-Piao Lin 455 (holo TAIF, Feb. 17, 1980, Pinglin, Hsinbei City.)

This species was originally described by the senior author in 1987. In fact this is a peloric form of an unknown species of *Lecanorchis*, we thus give a new name to this species.

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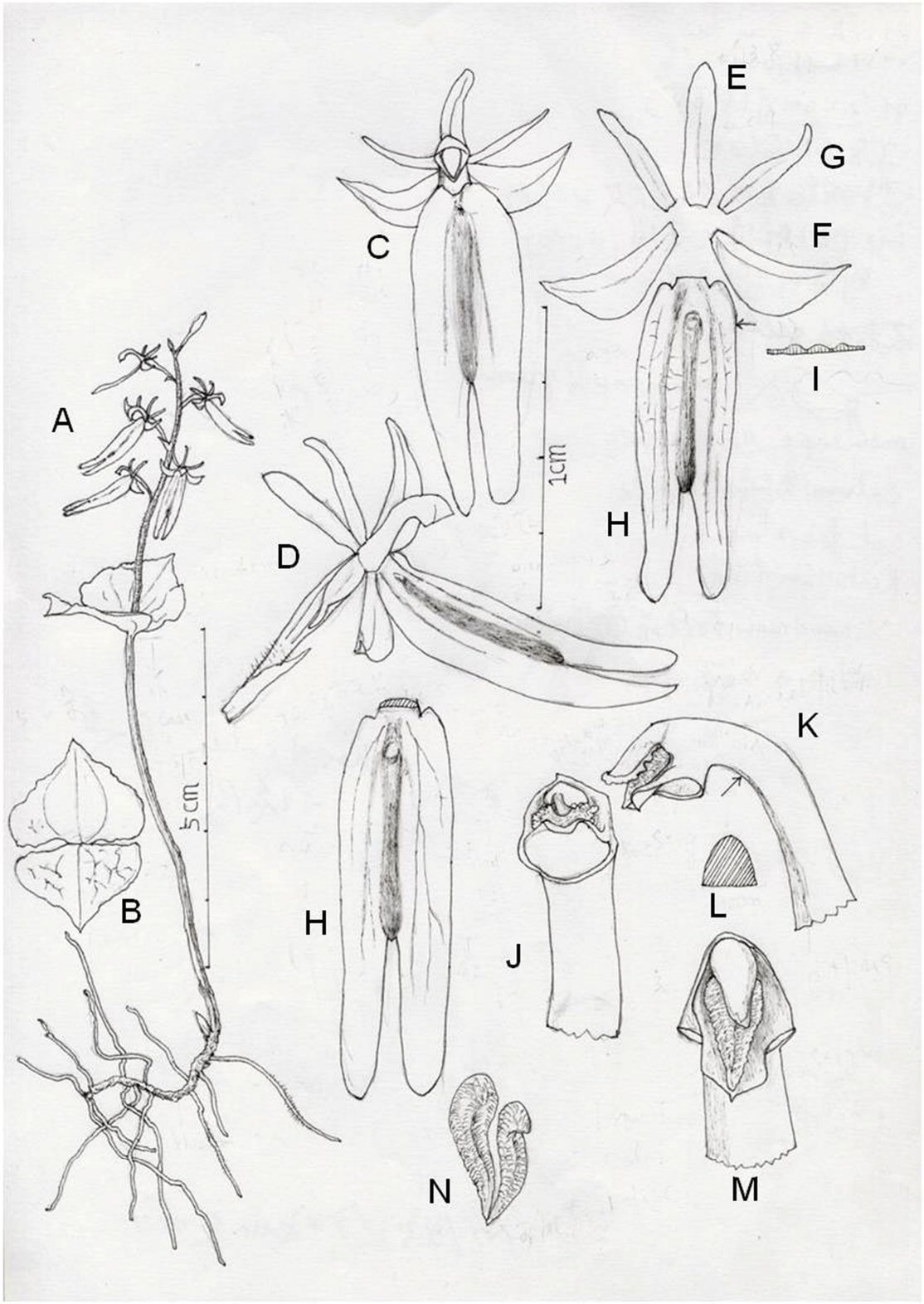



**Fig. 4.** ***Neottia hohuanshanensis*** **T.P. Lin & S.H. Wu. A: Plant body and inflorescence. B: Leaf. C: Front view of flower. D: Side view of flower. E: Upper sepal. F: Lateral sepal. G: Petal. H: Lip showing the central dark-green band. I: Cross-section of lip at the position indicated in H. J: Ventral view of column showing stigma and pollinia. K: Side view of column. L: Cross-section of column at the position indicated in K. M: Top view of column showing the anther cap, pollinia and acute rostellum. N: Pollinia.**



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# 臺灣新發現的野生蘭（五）

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摘要：本文介紹三種臺灣新發現的野生蘭（金枝雙花豆蘭、墾丁上鬚蘭、合歡山雙葉蘭）。圓唇雙花豆蘭亦原生於台灣但細部持徵有待研究。另外一種之前曾報導過的全唇皿柱蘭，給予新的學名。

關鍵詞：野生蘭、金枝雙花豆蘭、圓唇雙花豆蘭、墾丁上鬚蘭、合歡山雙葉蘭、全唇皿柱蘭。



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