RESEARCH ARTICLE

Two New Species of *Liparis* (Orchidaceae) from Taiwan

Tian-Chuan Hsu

Institute of Molecular & Cellular Biology, National Tsing Hua University, No. 101, Section 2, Kuang-Fu Rd., Hsinchu 30013, Taiwan.
Email: lecanorchis@gmail.com

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ABSTRACT: Two new species of the genus *Liparis* (Orchidaceae), *L. reckoniana* and *L. rubrotincta*, are described and illustrated from Taiwan. *L. reckoniana*, found in a cloud forest in southern Taiwan, resembles *L. truncata* but distinctive in having shorter, quadrate-ovate, 5-veined lip and slightly longer column. *L. rubrotincta*, found in northern mid-altitudinal mountains of Taiwan, is closely related to *L. elongata* but distinguishable by having shorter sepals, a strongly deflexed lip, and a shorter column with a very short contracted part.

KEY WORDS: *Liparis reckoniana*, *Liparis rubrotincta*, new species, Orchidaceae, Taiwan, taxonomy.

INTRODUCTION

Liparis Rich. (Orchidaceae) is a cosmopolitan genus comprising ca. 320 species (Pridgeon et al., 2005; Chen et al., 2009). In the latest taxonomic treatment (Chen et al., 2009), 23 species were recorded from Taiwan. During my ongoing taxonomic revision of the Orchidaceae in Taiwan, two new species were recognized, which are described in the present paper as *L. reckoniana* and *L. rubrotincta*. A key to differentiate these two new species from related species in Taiwan is also given to aid identification.

Key to *Liparis reckoniana*, *L. rubrotincta* and related species in Taiwan:

1a. Rhizome conspicuous, pseudobulbs 2–5 cm apart; lip with 2 small calli at base …….. ***L. auriculata***
1b. Rhizome absent, pseudobulbs clustered; lip with 0–1 callus at base ……..… 2.
2a. Leaf solitary ……..… 3.
2b. Leaves 2 ……..… 4.
3a. Leaf rounded or cordate at base; inflorescence 10–20 cm, 10–40-flowered; lip uniformly green, without 2 crescent lamella on disc …… ***L. cordifolia***
3b. Leaf attenuate or cuneate at base; inflorescence 3–10 cm, 2–9-flowered; lip greenish or pink-reddish with red veination and 2 crescent lamella on disc ……..… ***L. amabilis***
4a. Lip with a prominent conical callus at base …….. 5.
4b. Lip without a conical callus at base ……..… 6.
5a. Leaves 3–8 × 2–3 cm; inflorescence 4–10 cm; sepals 10–12 mm; lip 10–12 × 7–10 mm, purple-red, margin conspicuously ciliate …….. ***L. sasakii***
5b. Leaves 1–4 × 0.5–1.8 cm; inflorescence 1.8–6 cm; sepals 6–7 mm; lip 4–5 × 3.5–4 mm, green with dark red stripes, margin entire ……..… ***L. reckoniana***
6a. Lip with 2 crescent lamellae on disc …… ***L. amabilis***
6b. Lip with 2 inconspicuous ridges aside the basal groove …….. 7.
7a. Sepals 5–7 mm; lip 5–7 × 4–5 mm, uniformly green …… ***L. campylostalix***
7b. Sepals 8–12 mm; lip 8–12 × 7–10 mm, ± reddish or red-tinged …….... 8.
8a. Leaf margin never crispate; pedicel and flower pink-reddish; lip smoothly arcuate …….. ***L. derchiensis***
8b. Leaf margin conspicuously crispate; pedicel and flower green tinged with red; lip abruptly deflexed near middle ……..… 9.
9a. Sepals 10–12 mm; lip moderately deflexed, apex right-angled with base; column 4–5 mm, contracted middle part 1.5–2.0 mm ……..… ***L. elongata***
9b. Sepals 9–10 mm; lip strongly deflexed, apex subparallel with base; column 3–4 mm, contracted middle part very short, less than 0.5 mm …… ***L. rubrotincta***

New species

Liparis reckoniana T. C. Hsu, ***sp. nov.***
雲頂羊耳蒜 Figs. 1A–C & 2

Herbs epiphytic, 5–10 cm tall. Pseudobulb ovoid, 5–10 × 3–5 mm, enclosed by sheaths. Leaves 2, membranous, elliptic or oblong-elliptic, often unequal in size, larger one 2–4 cm × 8–18 mm, smaller one 1–3 cm ×5–12 mm, base contracted into a 1–3 cm sheath, not articulate, apex obtuse, margin flat or slightly crispate. Inflorescence 1.8–6.0 cm; peduncle 1.5–4.0 cm; rachis 0.3–2.0 cm, laxly 2–7-flowered; floral bracts ovate-lanceolate, 1.5–2.0 mm, apex acute. Flowers greenish with dark red tinges and strips, ca. 8 mm wide; pedicel and ovary 5–6 mm. Sepals spreading, lateral margins strongly revolute; dorsal sepal linear-lanceolate, 6–7 × ca. 2 mm, 3-veined, apex subacute; lateral sepals linear, 6–7 × ca. 1.5 mm, 3-veined, apex subacute. Petals spreading, curved, linear-filiform, 6–7 × ca. 0.5 mm, 1-veined, apex subacute; lip quadrate-ovate, 5-veined, downward curved, 4–5 × 3.5–4.0 mm, pale yellowish green with dark purple-red stripes, margin entire, base with a callus, apex subtruncate and apiculate with a ca. 0.5 mm tip; callus fleshy, conical, dark purple-red, ca. 1

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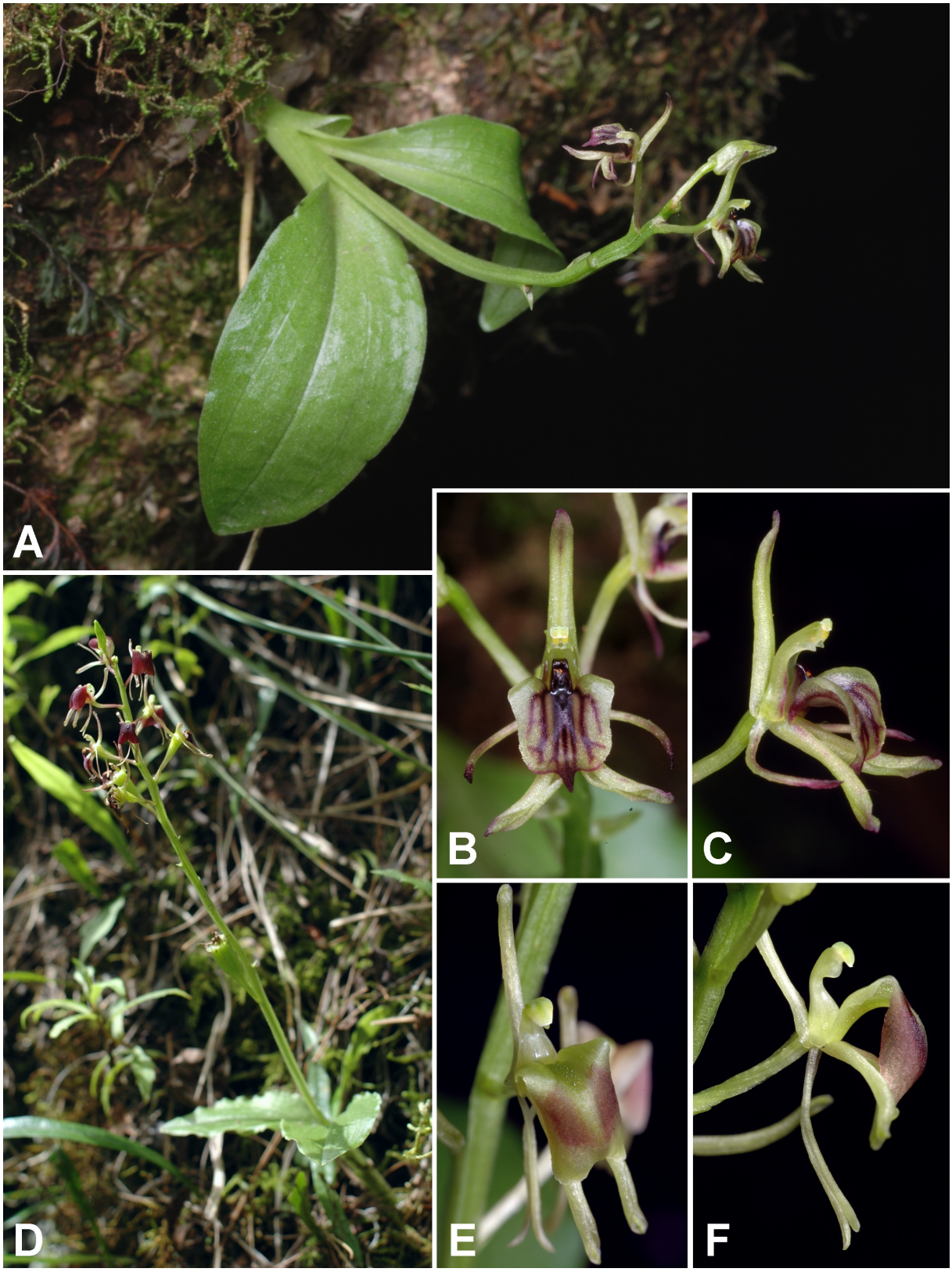


Fig. 1. New species of *Liparis* sect. *Liparis* from Taiwan. A–C: *L. reckoniana*. A: Habit *in situ*. B: Flower, front view. C: Flower, side view. D–F: *L. rubrotincta*. D: Habit *in situ*. E: Flower, front view. F: Flower, side view.

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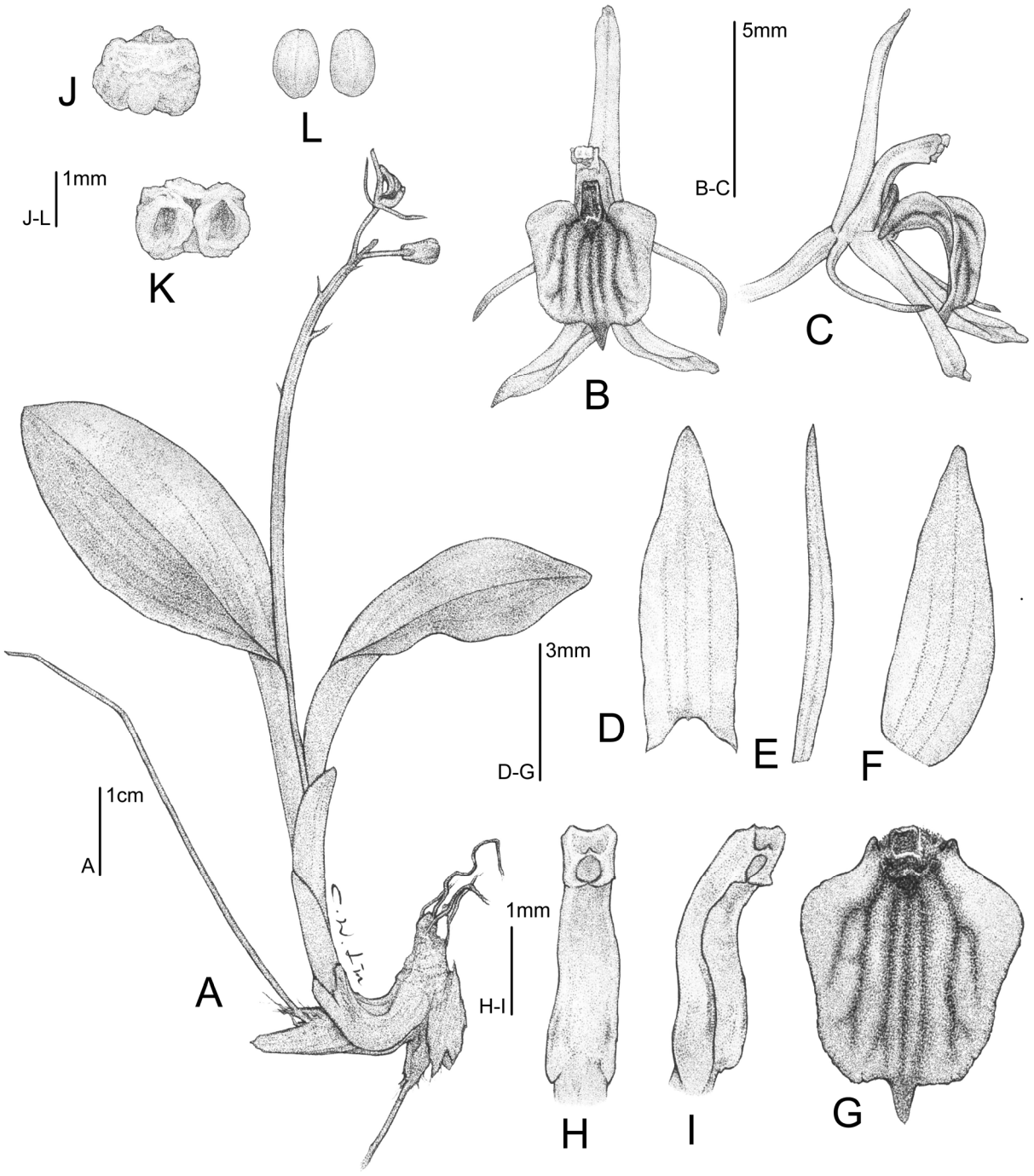


Fig. 2. ***Liparis reckoniana*** **(from** ***T. C. Hsu 5600*****). A: Habit. B–C: Flower. B: Front view. C: Side view. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Lip, flattened. H–I: Column. H: Front view; I: Side view. J–K: Anther cap. J: Dorsal view. K: Ventral view. L: Pollinia. Illustrated by Che-Wei Lin.**

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mm tall, subtruncate at apex, canaliculate on front surface. Column arcuate, ca. 3 mm, base slightly dilated, ca. 1 mm wide, upper half narrowly winged, with triangular stelidia; anther broad ovate, ca. 0.3 × 0.5 mm; pollinia 4 in 2 pairs, waxy, ovoid.

Type: TAIWAN. Pingtung County: Chingshuiying, 1300–1600 m alt., 16 Apr 2012, *T. C. Hsu 5600* (holotype, TAIF), here designated.

Distribution: Taiwan.

Habitat and ecology: Epiphytic on mossy tree trunks in a broadleaved cloud forest at 1300–1600 m alt. Flowering in early April and leafing from April to October.

Vernacular name: "雲頂羊耳蒜".

Etymology: The specific epithet honors Mr. Reckon Yang, a plant amateur from Kaohsiung City who first discovered this fascinating orchid in 2010. The vernacular name is derived from its habitat, a frequently foggy mountain ridge.

Notes: This new species might be most similar to *Liparis truncata* F. Maek. ex T. Hashim. from Japan in sharing epiphytic lifestyle, small flowers and dark-red-striped lip (Hashimoto, 1987; Tsutsumi et al., 2007). However, the former is distinguished from the later by having shorter (4–5 vs ca. 5.5 mm), quadrate-ovate (vs obovate), 5-veined (vs 7-veined) lip and slightly longer column (ca. 3 vs ca. 2.5 mm).

Liparis rubrotincta T. C. Hsu, ***sp. nov.***

絳唇羊耳蒜 Fig 1D–F & 3

Herbs terrestrial or lithophytic, 15–40 cm tall. Pseudobulb ovoid, 15–30 × 15–25 mm, enclosed by sheaths. Leaves 2, membranous, ovate-elliptic or ovate-oblong, subequal in size, 3–8 × 2–5 cm, base contracted into a 2–7 cm sheath, not articulate, apex acute, margin conspicuously crispate. Inflorescence 10–35 cm; peduncle 7–15 cm; rachis 3–25 cm, laxly 3–30-flowered; floral bracts triangular, 1.5–3 mm, apex acute. Flowers greenish tinged with pinkish red, 15–20 mm wide; pedicel and ovary 9–13 mm. Sepals spreading, lateral margins strongly revolute; dorsal sepal linear-lanceolate, 9–10 × ca. 2.5 mm, 3-veined, apex obtuse; lateral sepals obliquely lanceolate-oblong, 9–10 × ca. 3 mm, 3-veined, apex obtuse. Petals spreading, curved, linear-filiform, 8–9 × ca. 1 mm, apex acute; lip obtriangular-oblong, strongly deflexed near middle, 8–11 × 7–8 mm, yellowish green at base, ± purplish-red-tinged from middle to apex, base grooved, with 2 inconspicuous ridges arising along the groove, apex truncate and mucronate, distal margin irregularly minutely toothed, lateral margin ± revolute. Column arcuate, 3–4 mm, base conspicuously dilated , ca. 1.5 mm wide, middle contracted, apex with 2 broad-ovate stelidia; anther broad ovate, ca. 1.3 × 1.2 mm; pollinia 4 in 2 pairs, waxy, ovoid.

Type: TAIWAN. Taichung City: Heping District, Mt. Tochiatun, 2000–2500 m alt., 20 Jun 2006, *T. C. Hsu 527* (holotype: TAIF; isotype: HAST), here designated.

Distribution: Taiwan.

Habitat and ecology: Terrestrial under shrubs along mountain ridges or lithophytic on cliffs at 1800–2500 m alt.; slightly or moderately shaded. Flowering from May to July and leafing from April to October.

Vernacular name: "絳唇羊耳蒜".

Etymology: The specific epithet and vernacular name are both derived from the red-tinged lip of this new species.

Additional specimens examined: TAIWAN. Hsinchu: Mt. Chinachi, *T. C. Hsu 5864* (TAIF). Miaoli: Mt. Chiali, *T. C. Hsu 2514*, *2757* (TAIF); same loc., *C. K. Yang 1482* (SYSU). Ilan: Nanhutashan, 10 Jul 2005, *C. K. Yang s.n.* (SYSU).

Specimens of *Liparis elongata* examined for comparison: TAIWAN. Ilan: Between Chiliting and Nanhutashan, Jul 1933, *N. Fukuyama s.n.* (holotype, KPM, photo); Nanhutashan, 2 Jun 1938, *K. Segawa s.n.* (TAIF); same loc., *H. J. Su et al. 8317* (HAST); Ssuyuanyakou, *S. W. Chung et al. 9059* (TAIF). Hualien: Tayuling, *T. C. Hsu 1406* (TAIF); Tailukotashan, 12 Jun 1933, *S. Sasaki s.n.* (TAI); same loc., 14 Jun 1933, *S. Suzuki s.n.* (TAIF).

Notes: I disagree with Yang (2005) who identified some specimens of this taxon as *L. elongata* since they are reliably distinguishable by the characters mentioned in the key. A specimen list of true *L. elongata* is also provided as a supplement. The strongly deflexed lip and the very short "neck" of column of this new species are also suitable to distinguish it from another two similar species, *L. fujisanensis* F. Maek. *ex* Konta & S. Matsumoto and *L. purpureovittata* Tsutsumi, T. Yukawa & M. Kato, from Japan (Konta and Matsumoto, 1997; Tsutsumi et al., 2008).

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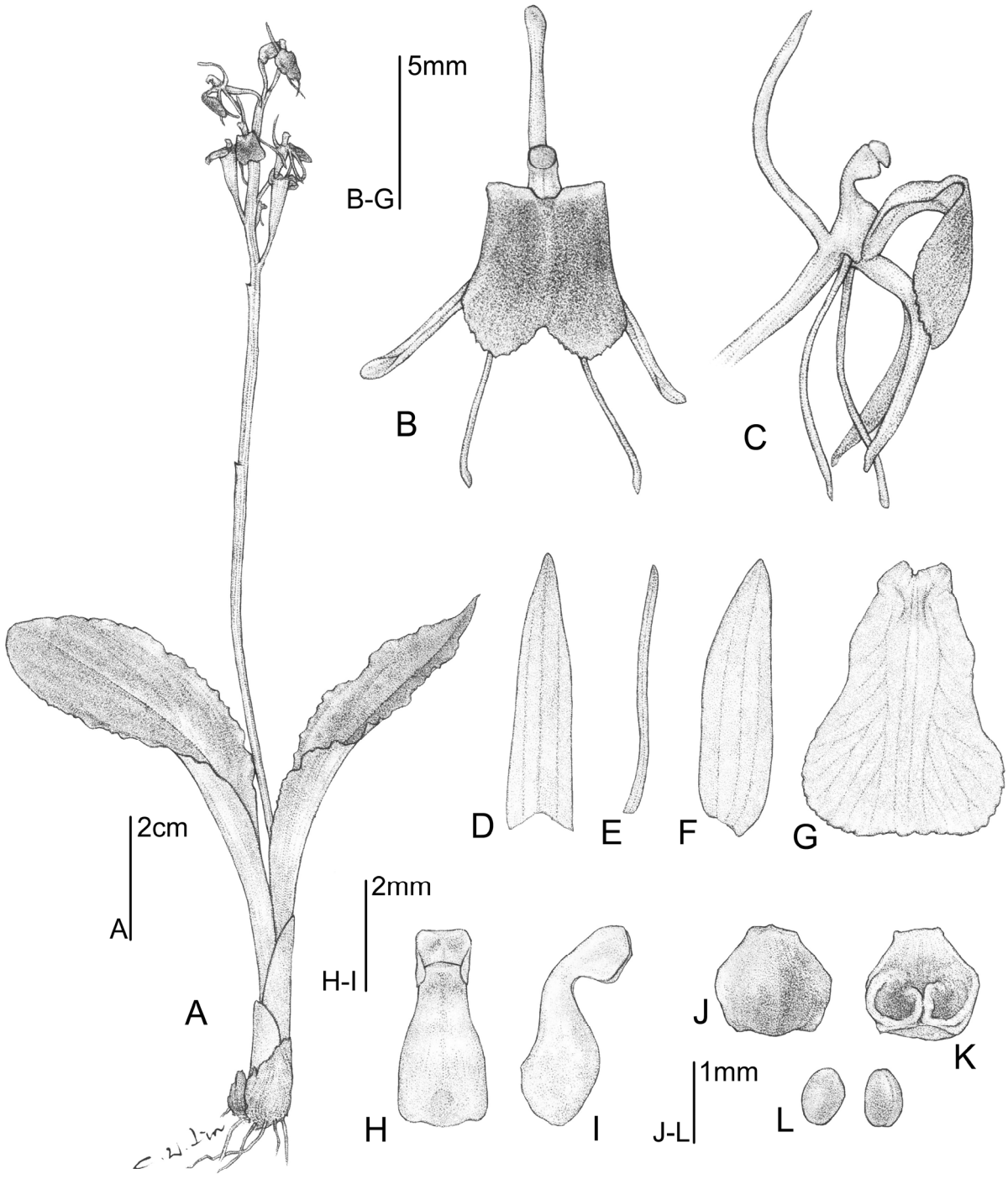


Fig. 3. ***Liparis rubrotincta*** **(from** ***T. C. Hsu 527*****). A: Habit. B–C: Flower. B: Front view. C: Side view. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Lip, flattened. H–I: Column. H: Front view. I: Side view. J–K: Anther cap. J: Dorsal view. K: Ventral view. L: Pollinia. Illustrated by Che-Wei Lin.**

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臺灣羊耳蒜屬（蘭科）二新種

許天銓

國立清華大學分子與細胞生物研究所。30013 新竹市光復路二段 101 號，台灣。
Email: lecanorchis@gmail.com

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摘要：本文記述臺灣羊耳蒜屬（蘭科）的兩個新種，雲頂羊耳蒜（*Liparis reckoniana*）及絳唇羊耳蒜（*L. rubrotincta*）。雲頂羊耳蒜發現於台灣南部之霧林帶，形態接近*L. truncata*，但唇瓣較短，卵狀方形，具5脈，且蕊柱稍長。絳唇羊耳蒜發現於北部山區，與長穗羊耳蒜（*L. elongate*）十分接近，區別特徵為萼片較短，唇瓣強烈反摺，蕊柱較短，且蕊柱中段之頸部極短。

關鍵詞：雲頂羊耳蒜、絳唇羊耳蒜、新種、蘭科、臺灣、分類學。

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