

Cheilolejeunea nipponica (S. Hatt.) S. Hatt., a Newly
Recorded Liverwort in Taiwan

台灣新紀錄蘚類—日本唇鱗蘚

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Abstract

Thirteen species of the genus *Cheilolejeunea* (Lejeuneaceae) have been reported from Taiwan. This paper describes and illustrates *C. nipponica* (S. Hatt.) S. Hatt. as a new record in Taiwan, and provides with information on its habitats and distribution.

摘要

唇鱗蘚屬隸屬於細鱗蘚科，臺灣本屬原記載有 13 種。本文增加日本唇鱗蘚為新紀錄種，文中附有此新紀錄種之形態描述、圖片及棲地與分布等資料。

keywords : *Cheilolejeunea*, *C. nipponica*, liverworts, Taiwan

關鍵詞 : 唇鱗蘚屬、日本唇鱗蘚、蘚類、臺灣

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Introduction

The genus *Cheilolejeunea* is a large pantropical genus of the family Lejeuneaceae. Since 2008, three new records have been added to the Taiwanese *Cheilolejeunea* flora (Yang and Lin 2008; Yang and Lin 2012). Furthermore, *Leucolejeunea* was treated as a synonym of *Cheilolejeunea* (Ye and Zhu 2010). Thus a total of 13 species have been reported in Taiwan (Yang 2009; Yang and Lin 2012).

In our recent studies on *Cheilolejeunea* of Taiwan, we found a newly recorded species, *Cheilolejeunea nipponica* (S. Hatt.) S. Hatt., from Orchid Island. This paper briefly describes its characters with illustrations and provides information on its habitats and distribution.

Taxonomic Treatment

Cheilolejeunea nipponica (S. Hatt.) S. Hatt.,

Misc. Bryol. Lichenol. 1 (14): 1. 1957.

日本唇鱗蘚

Fig. 1

Description:

Plants minute, yellowish brown to dark

brown when dried. Stems up to 15 mm long, 51–74 μm in diameter, with leaves 0.43–0.68 mm wide, irregularly branched; ventral merophyte of the stem 2 cells wide; cross-section of the stem consisting of 7 epidermal cells and 8–9 much smaller medullary cells. Leaf-lobes imbricate, obliquely spreading, ovate, slightly falcate, 0.34–0.38 mm long, 0.23–0.26 mm wide, apex rounded, usually slightly incurved; margin entire. Cells of leaf lobes thick walled, trigones small to large and intermediate thickenings indistinct; marginal cells 11–16 \times 9–12 μm , median cells 18–22 \times 15–19 μm , basal cells 21–31 \times 16–19 μm . Cuticle smooth. Leaf lobule ovate to oblong-ovate, 1/2–2/3 as long as the lobe, inflated; free margin sometimes slightly incurved; apex constricted; the first tooth indistinct; the second tooth acute, 1–2 cells long, usually incurved; keel slightly arched. Underleaves distant, 2–3 times as wide as the stem, 0.17–0.20 mm long, 0.15–0.19 mm wide, bilobed to ca. 1/3 of the underleaf length, transversely to subtransversely inserted. Autoicous. Androecium usually terminal on long branches; bracts 3–8 pairs, closely imbricate; bracteole restricted to the base. Gynoecium

usually terminal on long branches, with 1–2 subfloral innovations; bract lobes oblong, ca. 0.6 mm long, 0.3 mm wide, with acute apex and entire margin; bract lobule sublinear, ca. 3/5 as long as bract lobe; bracteole oblong to ovate, ca. 0.5 mm long and 0.3 mm wide, with entire margin. Perianth obovate, inflated, with 4–5 smooth keels.

Habitats:

Cheilolejeunea nipponica is usually found on rocks or on bark of trees, and sometimes on soil in lowland forests. In Japan, it is distributed from Honshu to Ryukyu at elevations of 60–400 m (Mizutani 1982). In China it is distributed in the southwest region below 800 m in elevations (Zhu *et al.* 2002). In Taiwan, the specimens were collected from soil, rocks and tree trunks in the tropical monsoon forests of Orchid Island at 20–200 m in elevations.

Distribution:

China and Japan (Mizutani 1961 and 1982, Zhu *et al.* 2002). New to Taiwan.

Specimens examined :

Taitung County: Orchid Island, near the Hsiaotienchih (小天池), on soil, mixed with *Frullania moniliata*, *Drepanolejeunea dactylophora*, *Radula apiculata*. and *Heteroscyphus planus*, ca. 200 m in elevation, 22°04'35" N, 121°30'34" E, 23 July 1997, *Chi-Da Wu et al. 1123a (TAIE, TUNG)*. Orchid Island, near the Hsiaotienchih (小天池), on rocks with thin layer of soil, ca. 200 m in elevation, 22°04'35" N, 121°30'34" E, 23 July 1997,

Chi-Da Wu et al. 1130 (TAIE, TUNG). Orchid Island, near the Chungai Large Bridge (忠愛大橋), on tree, at 20 m in elevation, 22°00'33"N, 121°34'14"E, 22 July 1997, *Chi-Da Wu et al. 1470 (TAIE, TUNG)*. Orchid Island, near the Hsiaotienchih (小天池), on stone, mixed with *Frullania moniliata*, ca. 200 m in elevation, 22°04'35"N, 121°30'34"E, 23 July 1997, *Chi-Da Wu et al. 1898a (TAIE, TUNG)*.

Remarks:

Cheilolejeunea nipponica is distinguishable from other species of *Cheilolejeunea* in Taiwan by having: 1) plants minute, with leaves usually less than 0.7 mm wide, 2) a large leaf lobule with strongly constricted apex, 3) apical tooth acute, 1–2-celled, 1–2 times as long as wide, usually incurved, 4) the bracteole of androecium restricted to the base. It is closely related to *Cheilolejeunea obtusifolia* (Steph.) S. Hatt.; however, the latter differs from *C. nipponica* by the unicellular, strongly elongated apical tooth, 3–6 times as long as wide, presence of male bracteoles throughout the androecium, and leaf lobes squarrose when moist. (Mizutani 1982; Yang and Lin 2012).

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Literature Cited

- Mizutani, M. 1961. A revision of Japanese Lejeuneaceae. *Journal of the Hattori Botanical Laboratory* 24: 115–302.
- Mizutani, M. 1982. Note on the Lejeuneaceae. 6. Japanese species of the genus *Cheilolejeunea*. *Journal of the Hattori Botanical Laboratory* 51: 151–173.
- Yang, J.-D. 2009. Liverworts and Hornworts of Taiwan I. Lejeuneaceae. Endemic Species Research Institute, Nantou, Taiwan.
- Yang, J.-D. and S.-H. Lin. 2008. *Cheilolejeunea falsinervis* (Marchantiophyta) newly recorded for Taiwan. *Bryological Research* 9(10): 319–321.
- Yang, J.-D. and S.-H. Lin. 2012. Two Species of *Cheilolejeunea* (Family Lejeuneaceae) Newly Recorded to Taiwan. *Taiwan Journal of Biodiversity* 14 (3–4): 63–73.
- Ye, W. and R.-L. Zhu. 2010. *Leucolejeunea*, a new synonym of *Cheilolejeunea* (Lejeuneaceae), with special reference to new combinations and nomenclature. *Journal of Bryology* 32: 279–282.
- Zhu, R.-L., M.L. So and Y.-F. Wang. 2002. The genus *Cheilolejeunea* (Hepaticae, Lejeuneaceae) in China. *Nova Hedwigia* 75: 387–408.

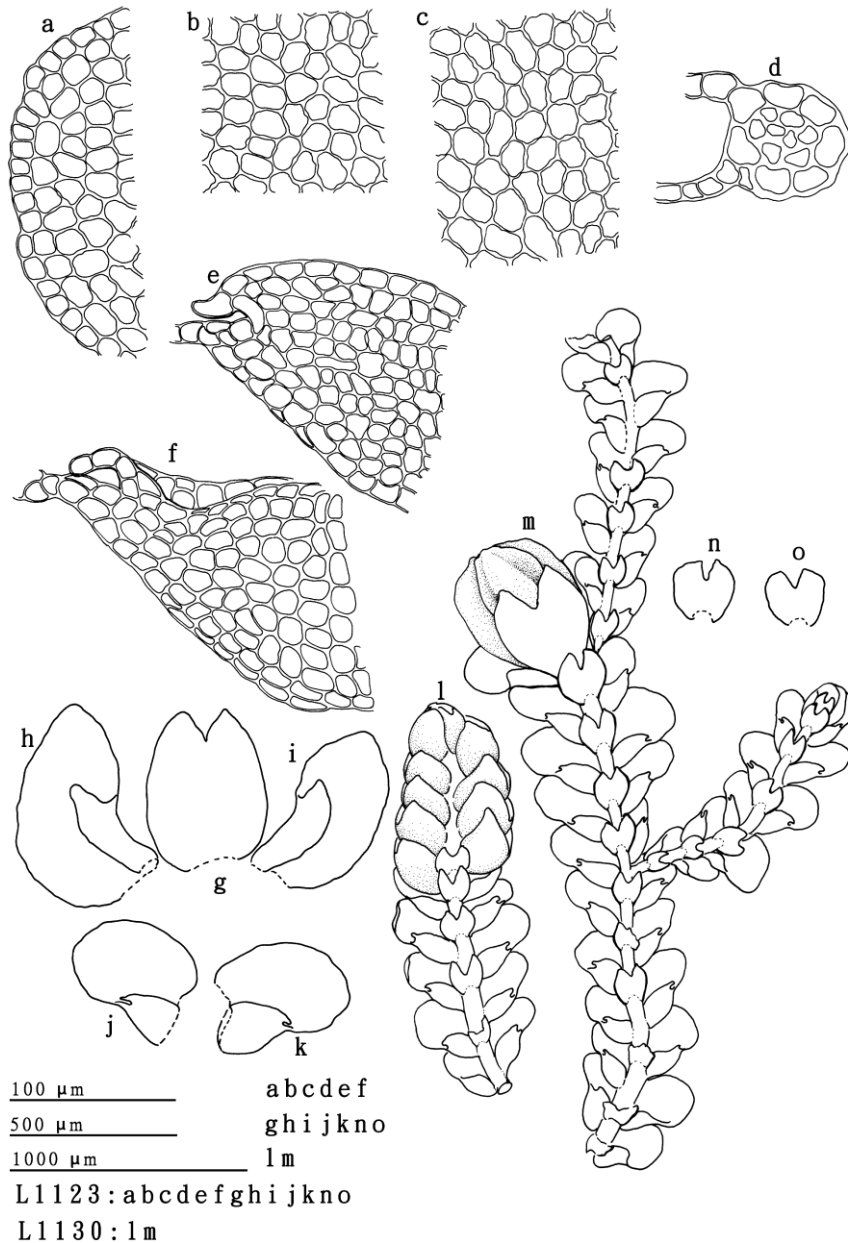


Fig. 1. *Cheilolejeunea nipponica* (S. Hatt.) S. Hatt. a, cells near the leaf apex; b, median cells of leaf lobe; c, cells near the leaf base; d, cross-section of stem; e–f, leaf-lobules; g, female bracteole; h–i, female bracts, j–k, leaf lobules; l, ventral view of male branches; m, ventral view of a portion of plant, with female branch and perianth; n–o, underleaves (Drawn from *Chi-Da Wu et al. 1123a, 1130*).

