

Lejeunea bidentula Herz. a Newly Recorded
Liverwort to Taiwan

台灣新紀錄蘚類—雙齒細鱗蘚

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Abstract

This paper describes *Lejeunea bidentula* Herz. as a newly recorded species of liverwort to Taiwan. It is easily distinguishable from other congeners on the island by having distinctly bidentate leaf-lobule. The occurrence of this species reported herein provides an evidence of the phytogeographic affinity of the bryoflora in Taiwan with those in the Southeast Himalayas and Yunnan of China.

摘要

本文描述台灣新紀錄蘚類-雙齒細鱗蘚。本種可藉由腹瓣具明顯的雙齒與台灣其他同屬物種區別之。本種的發現為台灣與喜馬拉雅山東南段及中國雲南地區之苔蘚植物地理親緣性提供佐證。

Key words: *Lejeunea bidentula*, liverwort, new record, Taiwan

關鍵詞：雙齒細鱗蘚、蘚類、新紀錄、台灣

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Introduction

Lejeunea is the largest genus of the family Lejeuneaceae, comprising about 200 species worldwide. It is notable for its complexity in classification and species identification (Schuster 1980). In Taiwan, there were 19 species of *Lejeunea* that have been reported so far (Piippo 1990; Lin 2000).

In our recent plant inventory survey of Taiwan, *Lejeunea bidentula* Herz. was collected from two areas in the central Taiwan. The specimens have been deposited at the Herbarium of Endemic Species Research Institute (TAIE). This paper describes *L. bidentula* Herz. as a newly recorded species of liverwort to Taiwan.

***Lejeunea bidentula* Herz.** in Mazzetti, Symb. Sin. 5: 51, f. 19 (1930).

雙齒細鱗蘚

Fig. 1

Small plant, up to 12 mm in length, with leaves 0.8-1.1 mm in width, light yellow to yellowish green when fresh, yellowish brown when dried, irregularly branched. Stem 82-102 μm in diameter, transverse section consisting of 7 cortical cells and 6-9 medullary cells, all with thin-wall: the former larger than the latter. Ventral merophytes of stem 2 cells wide. Leaves imbricate;

lobe flat, asymmetric ovate, 0.50-0.73 mm in length, 0.31-0.43 mm in width; apex rounded, margin entire, and dorsal margin slightly arched. Lobe cells thin-walled, trigones minute, intermediate thickening absent, marginal cells 15-22 \times 12-21 μm , median cells 22-33 \times 13-25 μm , basal cells similar to median ones but larger, 29-45 \times 19-31 μm . Cuticle smooth. Oil bodies 9-15 per median cell of leaf lobe, compound type. Ocelli and vitta absent. Lobule 1/3-1/2 the length of the lobe, nearly ovate, inflated; the first tooth large, acute, 2-3 cells long, 1-2 cells wide at base, with hyaline papilla on the proximal base; the second tooth consisting of a projecting cell, occasionally indistinct. Underleaves 0.17-0.37 mm in length, 0.21-0.39 mm in width, distant, transversely inserted, bilobed to 1/3-1/2 underleaves length, lobes triangular with nearly entire margin. Androecia absent. Gynoecia terminal on short or elongate lateral branch, with one subfloral innovation; bract lobe ovate, 0.33-0.38 mm in length, 0.19-0.30 mm in width, apex rounded, margin entire; bract lobule 1/2-3/5 the length of lobe, elliptical to lanceolate, apex rounded; bracteole oblong ca. 0.32 mm in length, ca. 0.33 mm in width, bilobed to ca. 1/2 the length, lobes triangular, acute, sinus acute, margin entire.

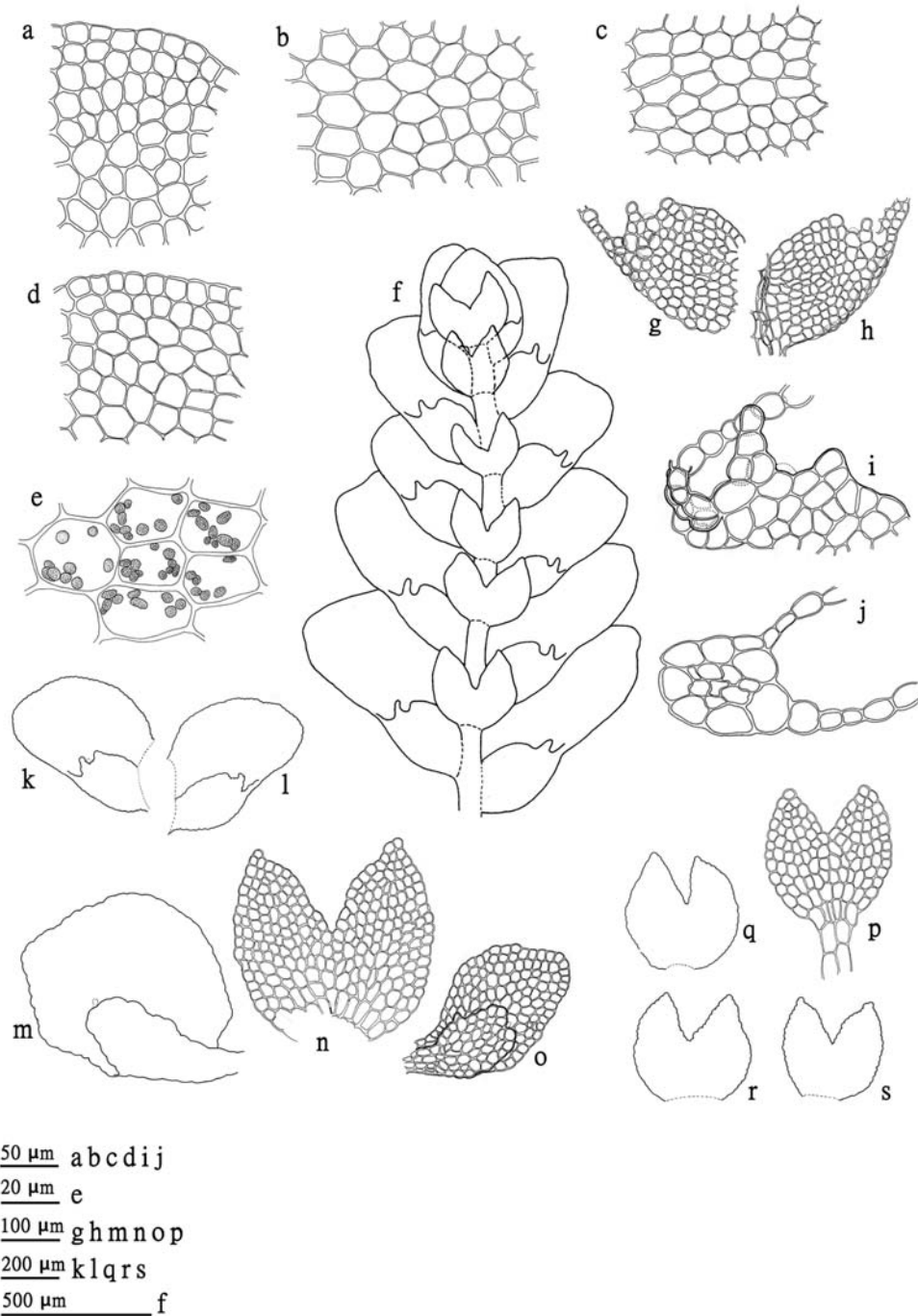


Fig. 1. *Lejeunea bidentula* Herz. a and d, marginal cells of leaf lobe; b, median cells of leaf lobe; c, basal cells of leaf lobe; e, oil bodies in the median cells of leaf lobe; f, ventral view of a portion of sterile plant; g-i, leaf lobule; j, transverse section of stem; k and l, ventral view of leaves; m and o, female bracts; n, female bracteole; p-s, underleaves. All drawn from *J. D. Yang 4123i*.

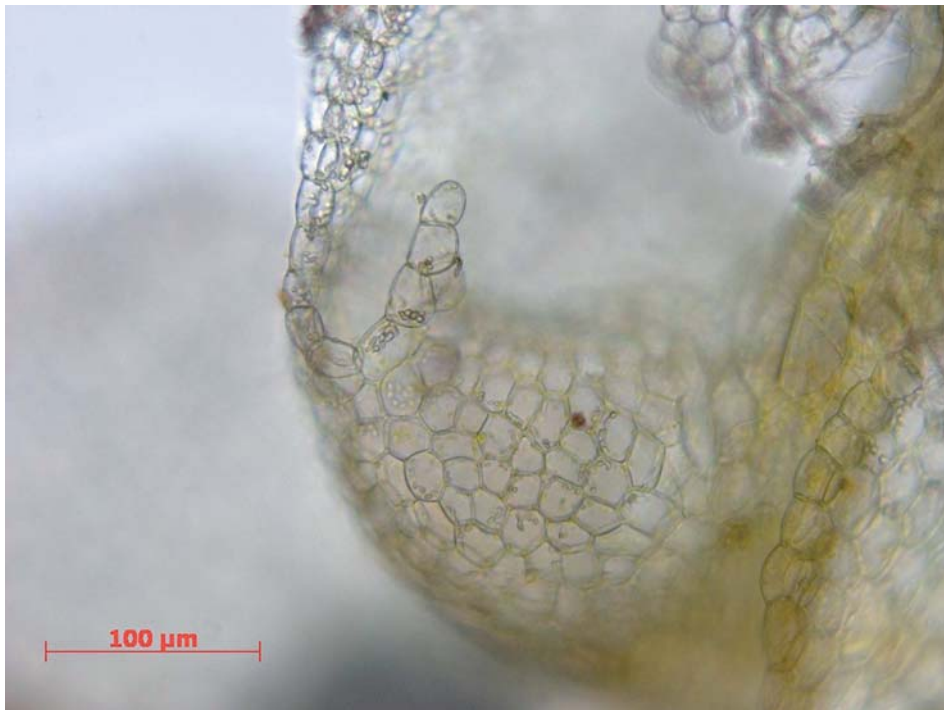


Fig. 2. The first tooth of leaf lobule. (from *J. D. Yang 4123i*)

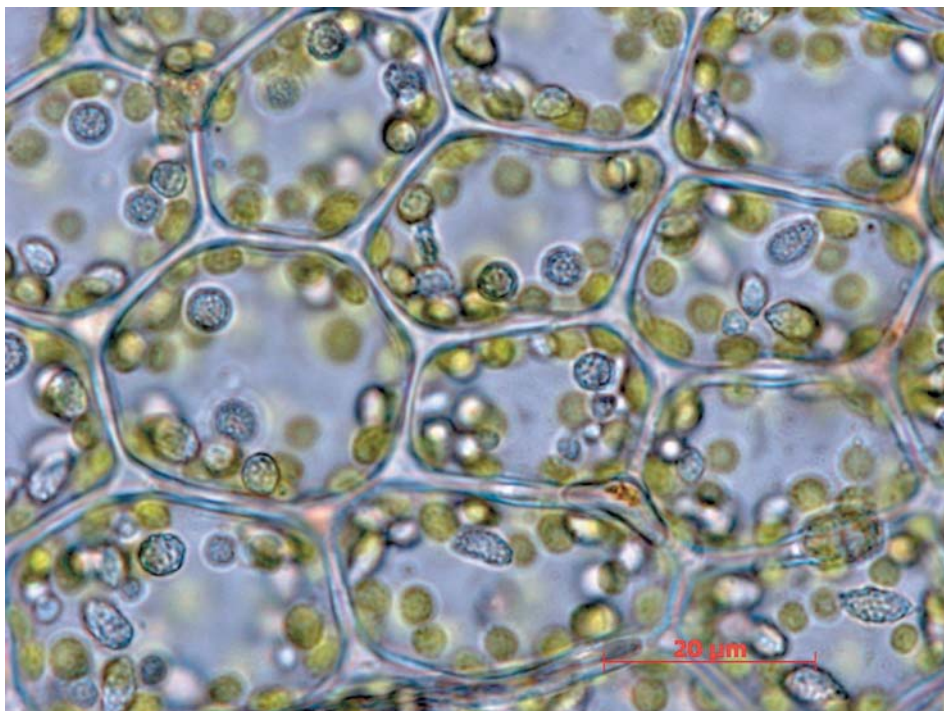


Fig. 3. The median cells of leaf lobe with oil bodies and chloroplasts. (from *J. D. Yang 4123i*)

Specimens examined: Hualian: Sioulin, near the Dayuling, 820 Forest Trail, Trail mark 0 km +100m, epiphyllous on dried fern [*Diplazium glaucum* (Houtt.) Nakai] frond surface, ca. 2,500m alt., 121°18' 30.4" E, 24°11' 0.2" N, Aug. 16, 2007, *J. D. Yang 4123i* (TAIE); **Chiayi:** Alishan, Alishan railroad Mian-yue branch 8 km, epiphyllous on fern (*Thelypteris* sp.) leaves, ca. 2,300m alt., 120°48' 51.7" E, 23°33' 35.2" N, Mar. 11, 2008, *J. D. Yang 4964g* (TAIE).

Remark: *Lejeunea bidentula* is easily distinguishable from other congeners in Taiwan by having distinctly bidentate leaf-lobule. It was first described by Herzog (1930) based on the specimens collected by Handel-Mazzetti from Yunnan (2,050m in elevation) of China. Later Mizutani (1971) reported it from Uttar Pradesh of India (2,287-2,440m) and Dhankuta of Nepal (1,200m). The occurrence of this species reported herein provides an evidence of the phytogeographic affinity of the bryoflora in Taiwan with those in the Southeast Himalayas and Yunnan of China (Lin 2000).

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Literature Cited

- Herzog, T. 1930. Lejeuneaceae. pp. 43-57. *In*: H. Mazzetti (ed.). *Symbolae Sinciae* 5. Julius Springer, Vienna, Austria.
- Lin, S. H. 2000. The liverwort flora of Taiwan. The Council of Agriculture, Taipei, Taiwan, Republic of China. (In Chinese)
- Mizutani, M. 1971. *Lejeunea* from the Himalayan Region. *Journal of the Hattori Botanical Laboratory* 34: 445-457.
- Piippo, S. 1990. Annotated catalogue of Chinese Hepaticae and Anthocerotae. *Journal of the Hattori Botanical Laboratory* 68: 1-192.
- Schuster, R. M. 1980. The Hepaticae and Anthocerotae of North America. IV. Columbia University Press, New York.