NOTE

Pycnolejeunea grandiocellata Steph. (Family Lejeuneaceae), a Generic and Species Record New to Liverwort Flora of Taiwan

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(Manuscript received 6 July October 2010; accepted 4 October 2010)

ABSTRACT: *Pycnolejeunea grandiocellata* Steph. is reported as new generic and species record for the liverwort flora of Taiwan. *Pycnolejeunea* (Spruce) Schiffn. is a tropical genus, comprised of nine species. The previously known northernmost locality for the genus *Pycnolejeunea* and for *P. grandiocellata* were Cuba and Hainan Island (China) respectively. The locality recorded here for Taiwan, Jingualiao Stream (ca. 24°54' N, 121°40' E), is the northernmost station for this genus and species. A morphological description, illustration, habitat and specimens examined of *P. grandiocellata* are provided, along with a distribution map of *Pycnolejeunea* and *P. grandiocellata*.

KEY WORDS: Lejeuneaceae, liverwort, *Pycnolejeunea*, Taiwan.

INTRODUCTION

Taiwan has a rich liverwort flora with about 487 species in 121 genera and 42 families of Hepaticae and Anthocerotae (Piippo, 1990; Lin, 2000). And the Lejeuneaceae, with 107 species and 22 genera, is the largest family (Yang, 2009). Our recent studies on the Lejeuneaceae of Taiwan have shown that *Pycnolejeunea* is a new genus record for Taiwan, represented by *Pycnolejeunea grandiocellata* Steph.

TAXONOMIC TREATMENTS

Pycnolejeunea grandiocellata Steph. in Schmidt, Fl. Koh Chang, Bot. Tidsskr. 24: 279 (1902).

巨胞密鱗蘚 Figs. 1 & 2

Description: Autoicous. Plants small to medium-sized, appressed on substrata, up to 2.1 cm long and 1.5 mm wide, yellowish to light green when fresh, olive green or light brown when dried, irregularly branched. Stem 90-140 μm in diameter, transverse section consisting of 7-9 cortical cells and 8-19 medullary cells, all with thick wall, the cortical cells larger than the medullary cells. Ventral merophytes of stem 2 cells wide. Leaves imbricate, widely spreading, lobe convex, ovate or oblong, 0.50-1.03 mm in length, 0.61-0.85 mm in width; apex rounded, margin entire, and dorsal margin broadly arched. Lobe cells convex; marginal cells rectangular, 12-22 × 9-14 μm; median cells 20-34 × 18-24 μm, trigones small to large, intermediate thickening slightly developed; basal cells 24-50 × 20-27 μm, trigones large, intermediate thickening well developed. Cuticle smooth. Oil bodies 2-6 per median cell of leaf lobe, 9-14 × 4-6 μm compound type, coarsely segmented. Ocelli 56-67 × 30-38 μm, 7-15 per leaf lobe, superbasal, aggregated. Lobule ovate or oblong, 0.16-0.20 mm in length, 0.09-0.11 mm in width, inflated, the free margin incurved; the first tooth 1-celled, obtuse slightly curved; the hyaline papilla on the proximal side of the first tooth. Underleaves contiguous to imbricate, sometime slightly remote, 0.19-0.23 mm in length, 0.20-0.25 mm in width, transversely inserted, narrowed toward the base, bilobed to 1/3-1/2 underleaves length, lobes triangular with nearly entire margin, sinus V-shaped. Rhizoids few to numerous at the underleaf base. Androecia on short or elongated branches, terminal or intercalary, inflated, bracts in 3-11 pairs, male bracteole 1, restricted to the base of spike. Gynoecia on short or elongated branches, with single or paired subfloral innovation; bract lobe ovate, 0.75-0.88 mm in length, 0.41-0.53 mm in width, apex rounded, margin nearly entire, ocelli numerous, aggregated from base to the middle of the lobe; bract lobules 1/3-1/2 the length of lobe, lingulate to narrowly oblong, margin entire, apex rounded or sometime emarginate, keel short; bracteole ovate to obovate 0.65-0.87 mm in length, 0.49-0.61 mm in width, slightly bifid, lobes acute, margin entire. Perianths obovate 0.95-1.08 mm long and 0.51-0.60 mm wide, inflated, 5-keeled.

Habitat: Epiphyte in lowland or submontane hardwoods forests, growing on tree trunk or branch in the filtered or shade environment.

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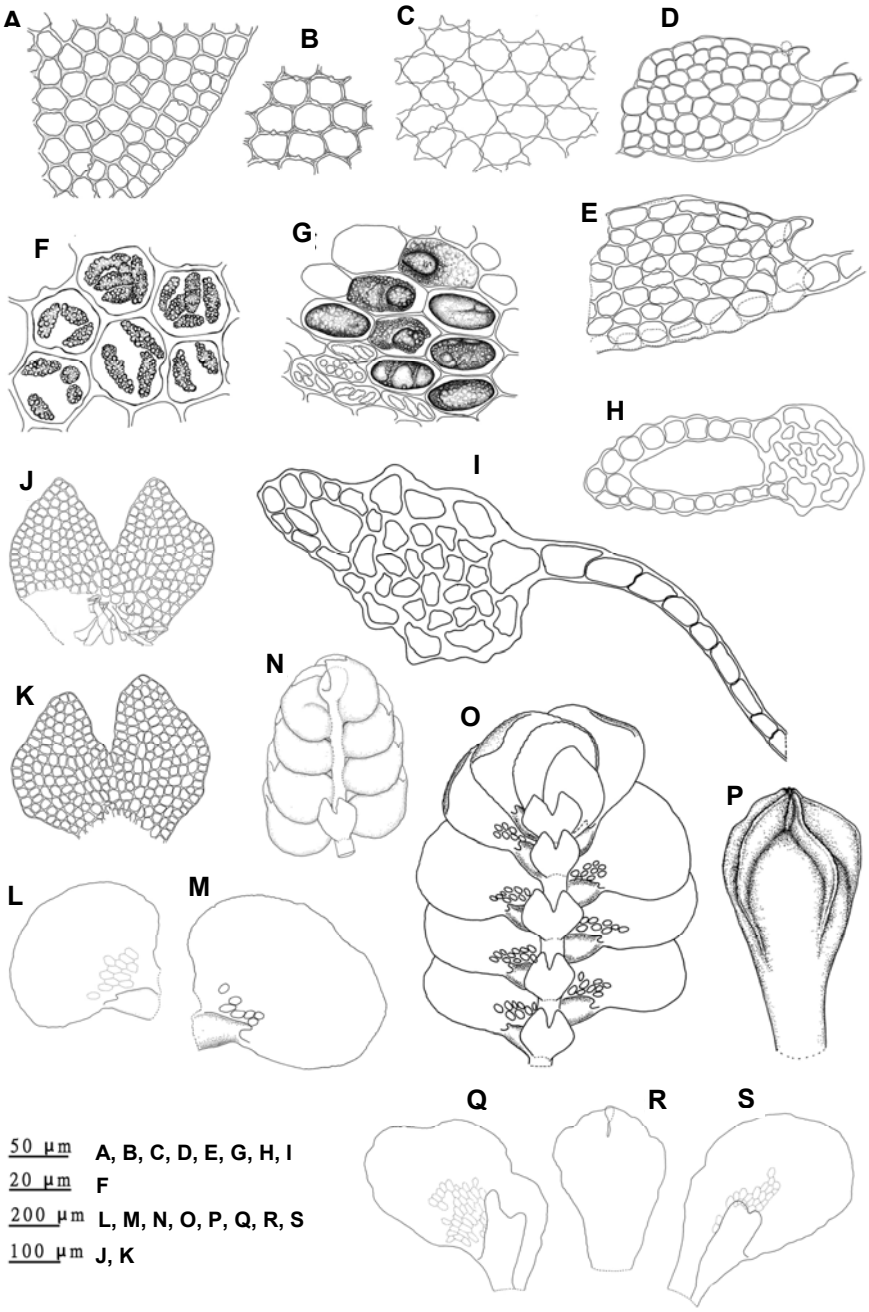


Fig. 1. *Pycnolejeunea grandiocellata* Steph. A: Marginal cells of leaf lobe. B: Median cells of leaf lobe. C: Basal cells of leaf lobe. D, E: Leaf lobules. F: Median cells of leaf lobe with oil bodies. G: Basal cells of leaf lobe with dissolved oilcelli. H, I: Transverse sections of stem. J, K: Underleaves. L, M: Leaf, ventral view. N: Male spike. O: Portion of sterile plant, ventral view. P: Perianth. Q, S: Female bracts. R: Female bracteole. (All drawn from *J.-D. Yang 3832*).

Specimens examined: Taipei County, Pinglin Township, along the Jingualiao stream, in mixed hardwood forest, on the tree trunk of *Elaeocarpus japonicus* Sieb. & Zucc. in filtered light. (ca. 24°54' N, 121°40' E), alt. 296 m, 19 Apr. 2007, *J. -D. Yang 3832* (TAIE).

Specimens examined for comparison: *Lepidolejeunea bidentula* (Steph.) R.M.Schust.: Taipei County, Fushan, Ha-pen Trail, alt. 690 m, 14 Sep. 2007, *J.-D. Yang 4362* (TAIE).

DISCUSSION

Pycno-Lejeunea was first described by Spruce (1884) as s subgenus of *Lejeunea*. In 1893, Schiffner

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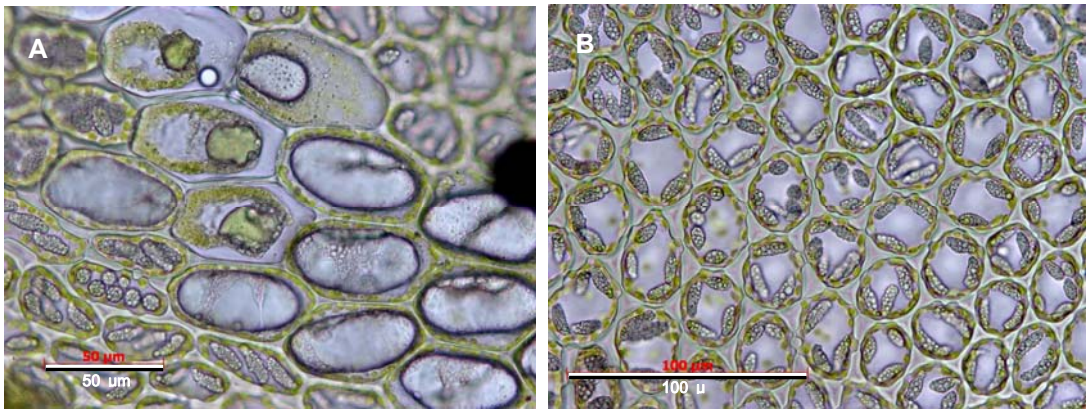


Fig. 2. *Pycnolejeunea grandiocellata* Steph. A: Basal part of leaf lobe showing the dissolved ocelli. B: Median cells of leaf lobe showing the compound type oil-bodies with coarsely segmented.

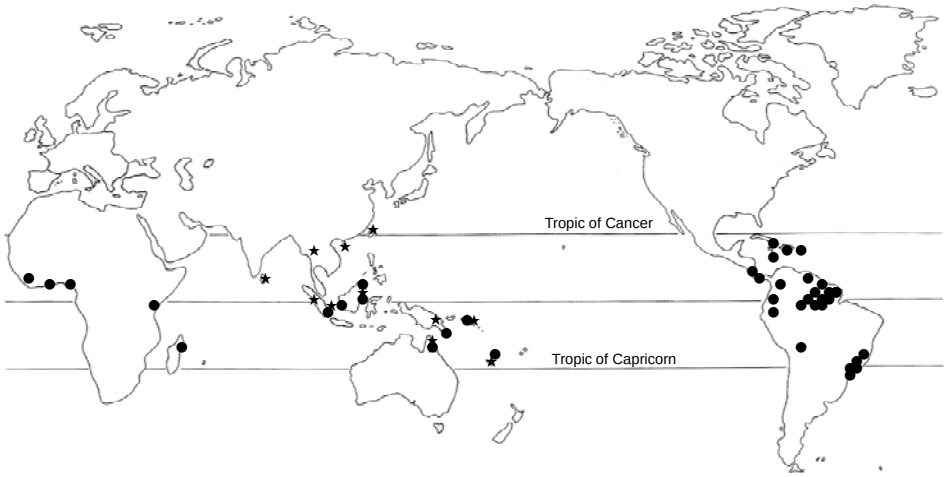


Fig. 3. Distribution of the genus *Pycnolejeunea* (Spruce) Schiffn. (●) and *Pycnolejeunea grandiocellata* Steph. (★).

elevated the Sprucean subgenera to generic rank, and *Pycno-Lejeunea* raised as *Pycnolejeunea* (Spruce) Schiffn. The first comprehensive and monographic revision of *Pycnolejeunea* was by He (1999) entitled "A taxonomic monograph of the genus *Pychnolejeunea*". In her study, nine species are recognized in this genus. The main characteristic features of *Pycnolejeunea* are (1) closely imbricate and convex leaf lobes, (2) the presence of ocelli in leaf lobes, (3) the inflated, short or cylindrical lobules, (4) the reniform 2-lobed underleaves, (5) 1-2 pycnolejeuneoid innovations, (6) 5-keeled perianth. The genus is closely related to *Lepidolejeunea* R. M. Schust., represented in Taiwan by *L. bidentula* (Steph.) Schust.. Both species have closely imbricate leaves, short inflated lobules and pycnolejeuneoid innovations. However, *Lepidolejeunea* can be easily recognized by the scattered ocelli in leaf lobes and underleaves.

According to He (1999), *Pycnolejeunea* is distributed throughout the tropics, mainly between the Tropic of Cancer and the Tropic of Capricorn. *Pycnolejeunea grandiocellata* has previously been known from China, Sri Lanka, Thailand, Indonesia, Papua New Guinea, Australia, and New Caledonia (He, 1999). The previously known northernmost locality for the genus *Pycnolejeunea* and *P. grandiocellata* were Cuba and Hainan Island (China) respectively. Up to this point, Jingualiao Stream (ca. 24°55' N, 121°40' E) is the northernmost locality for this genus and species, as shown in Fig. 3.

ACKNOWLEDGEMENTS

Thanks are due to James R. Shevock for reviewing the manuscript and making useful suggestions. We are grateful to Miss Hsiu-Jane Chen and Miss Kui-Chu Chen who assisted in field collections and plate preparation. We also thank for the financial support by National Science Council (NSC 98-2321-B-329-002) and Council of Agriculture, Taiwan.

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巨胞密鱗蘚（細鱗蘚科），臺灣蘚類植物誌新紀錄屬、種

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(收稿日期：2010 年 7 月 6 日；接受日期：2010 年 10 月 4 日)

摘要：巨胞密鱗蘚（*Pycnolejeunea grandiocellata*）為臺灣蘚類植物誌新紀錄屬、種。密鱗蘚屬為一熱帶屬，共計有 9 種。過去已知密鱗蘚屬及巨胞密鱗蘚最北的分布地點分別為古巴及中國的海南島。巨胞密鱗蘚在臺灣的分布地點金瓜寮溪(約北緯 24°55', 東經 121°40')為本屬之最北分布地點。文中提供形態描述、圖版、棲地、及引證標本，以及密鱗蘚屬及巨胞密鱗蘚之分布地圖等。

關鍵詞：細鱗蘚科、蘚類、密鱗蘚屬、臺灣。

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