

Plagiothecium argentatum (Plagiotheciaceae, Bryophyta) New to Myanmar

Masanobu Higuchi^{1,*} and Mu Mu Aung²

¹Department of Botany, National Museum of Nature and Science, 4–1–1 Amakubo, Tsukuba, Ibaraki 305–0005, Japan

²Forest Research Institute, Forest Department,
Ministry of Natural Resources and Environmental
Conservation, Yezin, Nay Pyi Taw, Myanmar

*E-mail: higuchi@kahaku.go.jp

(Received 30 November 2020; accepted 23 December 2020)

Abstract *Plagiothecium argentatum* (Mitt.) Q.Zuo, known from India, Nepal, Bhutan and China, is reported as new to Myanmar. The description and illustration based on Myanmar plants are given. This species is characterized by the absence of caducous leaves and naked shoots, serrate leaves and elongate laminal cells. The differentiation of epidermal cells of stem is noted.

Key words : bryophytes, epidermal cells of stem, Himalayan element, Myanmar, *Plagiothecium*.

Plagiothecium argentatum (Mitt.) Q.Zuo has been treated as *Struckia argentata* (Mitt.) Müll. Hal. for a long time. *Struckia* is small Asian genus including at most two species, *S. enervis* (Broth.) Ignatov, T.J.Kop & D.G.Long and *S. zerovii* (Lazarenko) Hedenäs except *S. argentata*. The taxonomic position of *Struckia* has been discussed by several authors (Tan *et al.*, 1990; Hedenäs, 1996; Ignatov *et al.*, 2007). Zuo *et al.* (2011) proposed that *Struckia* was reduced to a synonym of *Plagiothecium* based on a phylogenetic analysis using multiple nuclear and chloroplast regions.

In November 2017, the first author collected a small moss growing on tree-trunk in Chin Hills, Myanmar. Through a close examination we confirmed that the plants are *Plagiothecium argentatum* (Mitt.) Q.Zuo which is the fifth species of the genus in Myanmar, where four species of *Plagiothecium*, *P. neckeroideum*, *P. nemorale*, *P. paleaceum* and *P. svihlae*, have been reported (Tanaka *et al.*, 2003).

Plagiothecium argentatum (Mitt.) Q.Zuo, J. Bryol. 33: 27. 2011.

[Fig. 1].

The following description is based on the Myanmar plants.

Plants small for the genus, in sparse, pale green to yellowish green, usually glossy mats. Stems creeping, sympodial, radiculose on primary stems, irregularly branching; secondary stems ascending; cross-sections of creeping stems round, 130–150 µm in diameter; central strand slightly differentiated; epidermal cells hyaline, with thin outer walls. Pseudoparaphyllia lacking. Rhizoids originating in a cluster from the abaxial leaf costa insertion or from basal row of abaxial stem leaf cells. Branches erect, julaceous, up to 10 mm long, 1.6–3.0 mm wide, including leaves when moist. Leaves of creeping primary stems erect to erect-patent, sparsely foliated or imbricate, triangular, gradually narrowed to a piliferous acumen, 0.4–0.7 mm long, 0.15–0.2 mm wide. Leaves of ascending secondary stems crowded, imbricate when dry, spreading when moist, almost symmetrical, ovate or oblong-ovate, abruptly acute, 1.7–2.0 mm long,

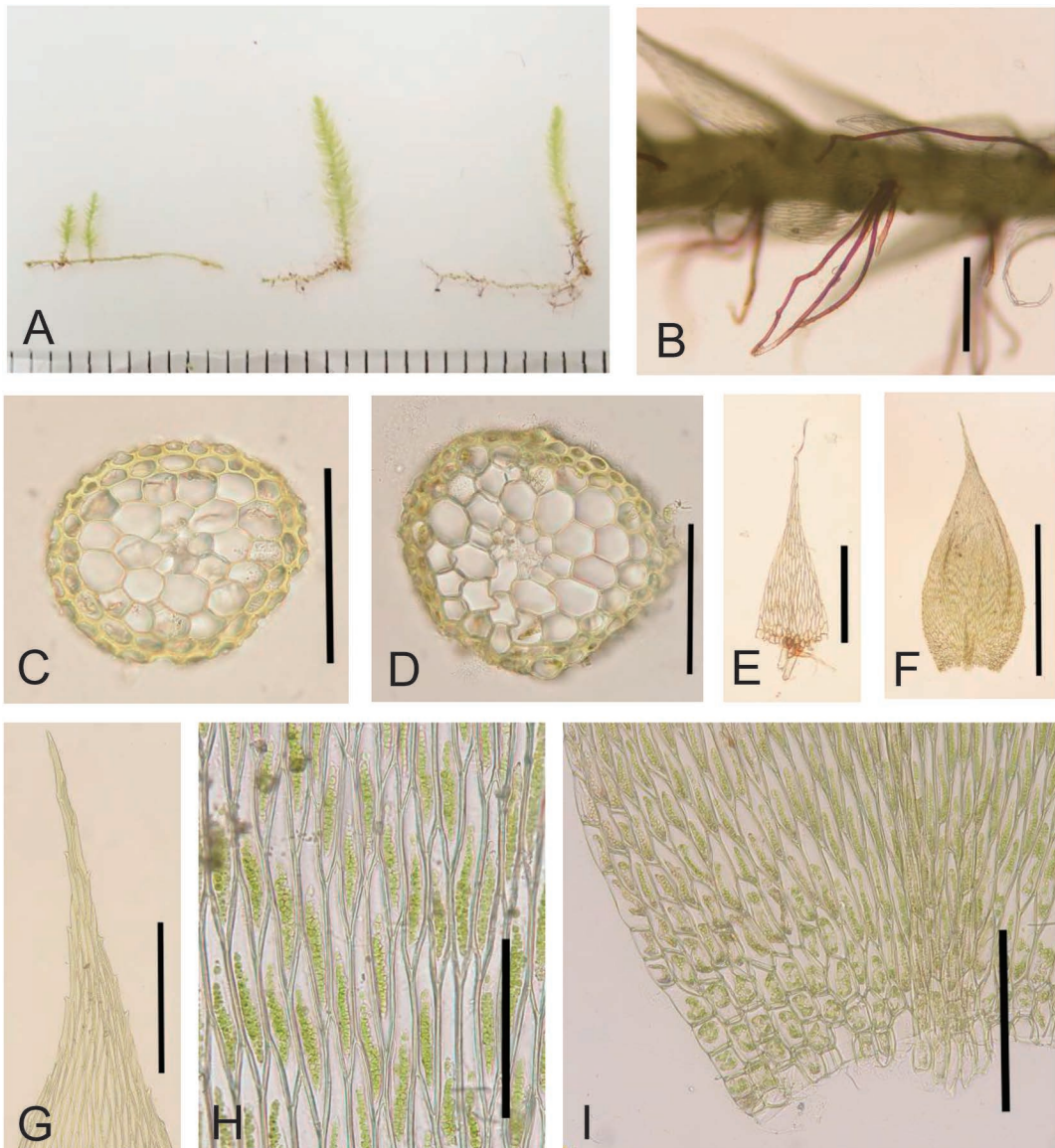


Fig. 1. *Plagiothecium argentatum* (Mitt.) Q.Zuo A. Plants showing creeping primary stems and ascending secondary stems and erect branches. B. Rhizoids originating in a cluster from the abaxial leaf costa insertion. C. Transverse section of primary stem. D. Transverse section of secondary stem. E. Stem leaf of primary stem. F. Stem leaf of secondary stem. G. Apical part of stem leaf of secondary stem. H. Median cells of stem leaf of secondary stem. I. Alar cells of stem leaf of secondary stem. Scales: A & F = 1 mm, B–D & G–I = 100 μ m, E = 0.25 mm, F = 1 mm. All from Higuchi 56477 (TNS).

0.6–0.8 mm wide, concave, not plicate; margins plane, entire throughout or with some weak serrations at apex; base not decurrent; alar cells quadrate or rectangular; costa thin, forked and short; median laminal cells narrow, linear-flex-

uose, smooth, 90–120(–140) μ m long, 10–12(–14) μ m wide, thin-walled. Branch leaves similar to the leaves of ascending secondary stems, sometimes smaller than them. Sexual organs and sporophytes not seen.

Specimens examined. Myanmar. Chin State, Chin Hills, Mindat Township, northwest of town, 2520m alt., on tree-trunk in *Quercus* forest at ridge, November 28, 2017, coll. M. Higuchi 56473, 56477 (RAF, TNS).

Distribution. India, Nepal, Bhutan and China (cf. Tan *et al.*, 1990). New to Myanmar.

Plagiothecium argentatum is characterized by the absence of caducous leaves and naked shoots, serrate leaves (Fig. 1G) and elongate laminal cells (Fig. 1H). This species has been known from the Himalayan region of India, Nepal, Bhutan and China (cf. Tan *et al.*, 1990). In Myanmar, this species grows on tree-trunk in *Quercus* forest at ridge of higher elevation, being mixed with *Brachymenium nepalense*. *Plagiothecium argentatum* is one of the Himalayan element in the moss flora of Myanmar.

Hedenäs (1996) examined the detail morphological features of the genus *Struckia* based on the specimens which are kept in the herbaria of the New York Botanical Garden (NY) and the Natural History Museum of Stockholm (S). He described the stem structure of the genus, "Stem with central strand, and cortex (including epidermis) of 1–2 layers of small and slightly incrassate cells." In Myanmar plants of *Plagiothecium argentatum*, the secondary stems with larger leaves do not show any differentiation of epidermal cells (Fig. 1D). The primary stems, however, show distinct differentiation of epidermal cells, that is, they are hyaline, with thin outer walls (Fig. 1C). This is one of the common characteristics of the family Plagiotheciaceae.

Acknowledgments

We wish to express our sincere thanks to Forest Research Institute, Myanmar, and the members of the field research in November, 2017, for their kind help in the field research. This study was carried out by the international cooperative project "Biological Inventory with special attention to Myanmar" as the integrated research initiated by the National Museum of Nature and Science, Japan based on a memorandum of understanding (MoU) with the Forest Department, Ministry of Natural Resources and Environmental Conservation, Myanmar.

References

- Hedenäs, L. 1996. On the taxonomic position of *Struckia* C. Müll. Journal of the Hattori Botanical Laboratory 80: 241–245.
- Ignatov, M. S., Milyutina, I. A., Koponen, T., Long, D. G. and Ignatova, E. 2007. Taxonomy of *Struckia* (Plagiotheciaceae, Bryophyta) based on molecular and morphological data. Chenia 9: 117–125.
- Tan, B. C., Buck, W. R. and Ignatov, M. S. 1990. On the Himalayan *Struckia* C. Muell. and Russian *Cephalocladium* Lazar. (Musci, Hypnaceae). Lindbergia 16: 100–104.
- Tanaka, A., Zaw, K. M., Ngai, S. G. and Akiyama, H. 2003. Mosses of Natma Taung (Mt. Victoria) National Park, Myanmar. Makinoa 3: 1–84.
- Zuo, Q., Higuchi, M., Wang, Y. F., Arikawa, T. and Hirayama, Y. 2011. The status of *Struckia* Müll.Hal. (Plagiotheciaceae, Bryopsida) inferred from multiple nuclear and chloroplast loci. Journal of Bryology 33: 221–228.