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COLOLEJEUNEA LONGIANA GROLLE & MIZUT. – AN ADDITION TO INDIAN BRYOFLORA FROM DARJEELING, WEST BENGAL

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The genus *Cololejeunea* (Spruce) Schiffn. is represented in India by 30 species, of which 17 species are known from Eastern Himalaya (Asthana & Srivastava, 2003). During the course of studies on the epiphyllous liverworts of Eastern Himalaya, some interesting plants of the genus were collected from Darjeeling district of West Bengal. A critical morpho-taxonomic investigation of the specimens revealed that while the plants belong to subgenus *Leptocolea* (Spruce) Schiffn., they did not match with any of the species of the sub genus so far known from India. A subsequent literature review (Grolle, 1988; Zhu & So, 2001; Asthana & Srivastava, 2003) revealed it to be *Cololejeunea longiana* Grolle & Mizut., a species so far known only from its type locality in Bhutan (Grolle, 1988) and Nepal (Zhu & Long, 2003). A detailed description and illustration of the same has been provided in the present communication.

DESCRIPTION

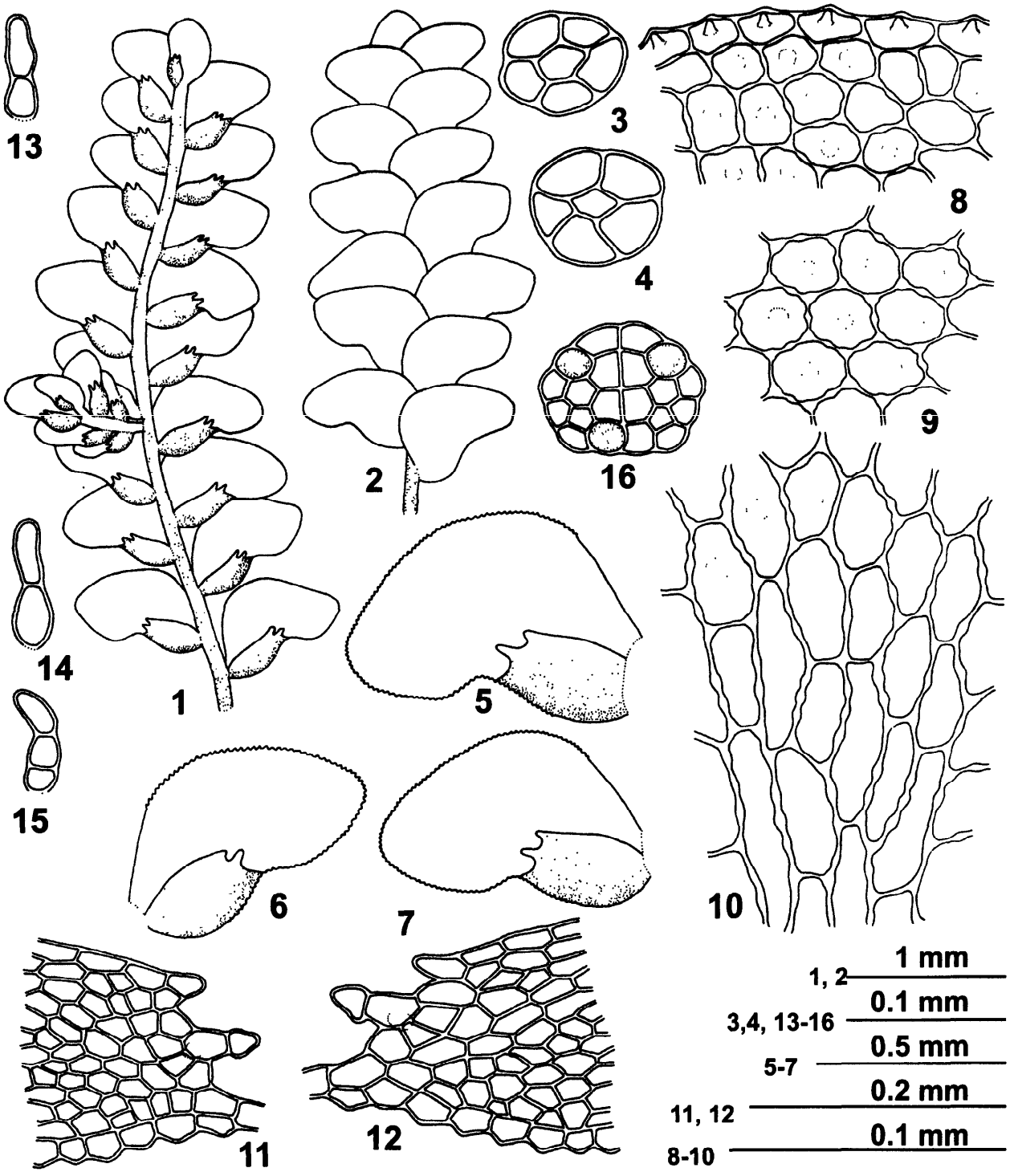
Cololejeunea longiana Grolle & Mizut. in J. Bryol. 15: 284. 1988. **Figs. 1-16**

Plants yellowish green in herbarium; shoot 7 – 12 mm long, 0.9 – 1.5 mm wide. Stem orbicular – slightly oval in outline in cross section, 80 – 87.5 × 70 – 75 µm, 3 cells across the diameter; cortical cells 5 in number, polygonal, 27.5 – 50.0 × 20.0 – 30.0 µm, thin walled; medullary cell one, pentagonal, 25 – 30 × 17.5 – 22.5 µm, thin walled. Leaves loosely imbricate – contiguous, obliquely spreading; leaf lobe oblong-ovate, falcate, 0.55 – 0.73 mm long, 0.37 – 0.50 mm wide, apex obtuse, margin crenulate due to projecting cells, dorsal margin strongly arched, basal 1/3 of dorsal margin almost straight and smooth, ventral margin strongly concave in the middle; marginal leaf cells sub rectangular, 10 – 17.5 × 10 – 20 µm; median leaf cells pentagonal – hexagonal, 17.5 – 30 × 10 – 25 µm; basal leaf cells elongated, polygonal, 37.5 – 75 × 10 – 20 µm; walls thin with small – large trigones and intermediate thickenings; each cell with a single dorsal papilla, except the basal cells; papillae 5 – 8.75 µm in diameter; leaf lobule 2/5 – 1/2 as long as the lobe, inflated, ovate, 0.28 – 0.38 mm long, 0.16 – 0.21 mm wide, bi-dentate, first tooth 2 cells long, uniseriate, apical cell triangularly ovate, second tooth 1– 2 cells long, 1 – 2 cells wide at base, hyaline papilla present at the inner surface of the base of first tooth; stylus filiform, uniseriate, 2 – 3 (– 4) cells long, present only at the shoot apex. Gemmae present on dorsal surface of leaves, discoid, 20 – 22 celled, 80 – 100 × 75.0 – 90.0 µm, with 3 adhesive cells. Androecial and gynoecial branches not seen.

Distribution: India (West Bengal, Darjeeling district – present study); Bhutan (Grolle, 1988); Nepal (Zhu & Long, 2003).

Specimen examined: Epiphyllous, growing on the surface of leaves of *Eurya* sp. in moist and shady places. India: Eastern Himalaya, West Bengal, Darjeeling district, Mungpoo, c. 13 km from Chorbangla (c. 2000 m), 19. 12. 2004, *K. P. Singh*, 36390 (CAL).

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Figs. 1 – 16. *Cololejeunea longiana* Grolle & Mizut. **1.** a portion of plant in ventral view; **2.** the same in dorsal view; **3 – 4.** cross-sections of stem; **5 – 7.** leaves; **8.** marginal leaf cells; **9.** median leaf cells; **10.** basal leaf cells; **11 – 12.** apices of leaf lobules; **13 – 15.** styli; **16.** a gemma.

DISCUSSION

The major distinguishing characters of *Cololejeunea longiana* Grolle & Mizut. are oblong-ovate, falcate leaves with crenulate margins (Figs. 5 – 7); thin walled leaf cells with small – large trigones and intermediate thickenings; single dorsal papilla present in each leaf cell, except the basal cells (Figs. 8 – 10); leaf lobule with 2 celled uniseriate first tooth and 1 – 3 celled second tooth (Figs. 11 – 12); uniseriate, 2 – 3 (-4)-celled, filiform stylus (Figs. 13 – 15); 20 – 22 celled, discoid gemmae with 3 adhesive cells (Fig. 16). Among the Indian species, *C. longiana* comes somewhat close to *Cololejeunea haskarliana* (Lehm. & Lindenb.) Schiffn., in general appearance, in having leaves with crenulate margins, and each leaf cell with a single dorsal papilla except the basal cells. But the latter differs from the former in having leaf cells without or with very small trigones, without intermediate thickenings; leaf lobule with 1 – 2 celled first tooth and unicellular second tooth (Zhu & So, 2001; Asthana & Srivastava, 2003), and with (Zhu & So, 2001) or without unicellular stylus (Asthana & Srivastava, 2003).

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REFERENCES

ASTHANA, G. AND S.C. SRIVASTAVA. 2003. Indian *Cololejeunea* (A taxonomic study). *Bryophyt. Biblioth.* 60: 1 – 115.

GROLLE, R. 1988. Two new species of *Cololejeunea* from Bhutan. *J. Bryol.* 15: 281 – 287.

ZHU, R. AND D.G. LONG. 2003. Lejeuneaceae (Hepaticae) from several recent collections from the Himalaya. *J. Hattori Bot. Lab.* 93: 101 – 115.

ZHU, R. AND M.L. SO. 2001. Epiphyllous liverworts of China. *Nova Hedwigia* 121: 1 – 418.