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Pseudolepicolea trollii Sub SP *andoi* (Scuhust.) Hatt.*et* Mizut. from India.

Dinesh Kumar

Department of Botany,University of Lucknow, Lucknow 226007.

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Pseudolepicolea trollii sub sp. *andoi* (Schust.) Hatt. *et* Mizut., was discovered in Darjeeling, eastern Himalayas. complete details,including sporophytic features have been provided.

During the plant collection trip to Darjeeling, eastern Himalayas in January 1970, several leafy liverworts were collected which on critical investigations revealed the occurrence of *Pseudolepicolea trollii* sub sp. *andoi*. This species was known from Japan,Taiwan (Formosa), China and Borneo. Hattori & Mizutani (1968) described *P. trollii* var. *darjeelingensis* from Darjeeling, on the basis of the material collected by A.J. Sharp and Z. Iwastsuki in 1965. But this collection did not include *P. trollii* sub sp. *andoi*. The sprophytic details of the plant have been studied and presented.

DESCRIPTION Plants large 25-40 mm long, deep brown to light brown in colour,robust,rarely branched in dense patches, intermingled with other liverworts. Stem leafy throughtout, 180-240 μ in diameter,differentiated into cortical and medullary cells. Cortical cells in 2 rows rarely in 3 rows, thick walled, smaller 8 x 12 μ - 12 x 18 μ,brown in colour, medullary cells thin walled,large 10 x 12 - 24 x 28 μ. Leaves in three rows,isophyllous to subisophyllous,underleavesslightly smaller, transversely attached to stem. Leaves and underleaves 4 lobed up to 3/4 of the leaf length, lobes diverging, triangular to lanceolate;apex of lobe uniseriate, 2 cells long (rarely 1 or 3 cells long) and 4-6 cells wide at base. Leaves 0.7-1.00 mm long and 0.2-0.4 mm wide. In the lobes the cells at the apical portion are longer than or equal to other cells of leaf. Cells at apex 46 x 13.8 μ -69 x 20.7 μ at middle cells 23 x 18/μm - 50.6 x 23 μ; basal cells 69 x 20 - 82 x 24 μ. Plants monoecious; androecia on short lateral branches. Male bracts 4 lobed enclosing single large antheridium with a biseriate long stalk. Perianth terminal,cylindrical 3-4 mm long. 0.6-0.8 mm wide at middle, 0.3-0.4 mm wide at apex,5-6 plicate,mouth of perianth irregularly deeply lobed,deep brown in colour. Cells thin walled longer than broad. Bracts in 2-3 pairs 1.3 x 0.4 mm -1.8 x 0.6 mm four lobed up to 2/3 - 3/4 of the length, lobes several cells wide at base. Upper cells 32.2 x 13 μ - 64 x 18.2 μ, middle cells 23 x 15.7 - 55.2 x 29.9 μ, basal cells 41.4 x 18.2-64.4 x 27.6 μ.

Capsule cylindrical deep brown to black with 4 distinct lines of dehiscence. Capsule wall two layered. Outer layer with large cells having nodulose thickenings,inner layer with smaller cells having complete transverse bands. Spores small,yellowish, 14-20 μ in diameter finely granulose. Elaters 85-120/μm long bisprial with faint thickenings towards extremities. Seta massive, 30 μ in diameter, differentiated into a hyaloderm of 14 larger cells, 56 x 44 μ- 80 x 60 μ, encircling the thin walled, smaller, 32 x 28 μ - 40 x 36 μ medullary cells.

Specimens deposited in Lucknow University Hepatic Herbarium (LWU 135/70). Collection of liverworts from eastern Himalayas, Darjeeling, Loc.: on way to Tonglu from Ghoom Darjeeling (ca 2500 meter), Leg.: R. Udar, S.C.Srivastava and Dinesh Kumar, January 1970. Det.: R. Udar and Dinesh Kumar 1982.

Ecology - Plants of *Pseudolepicolea trollii* sub sp. *andoi* growing on very moist and shady places on the rocky soil of road side rock boulders and forming

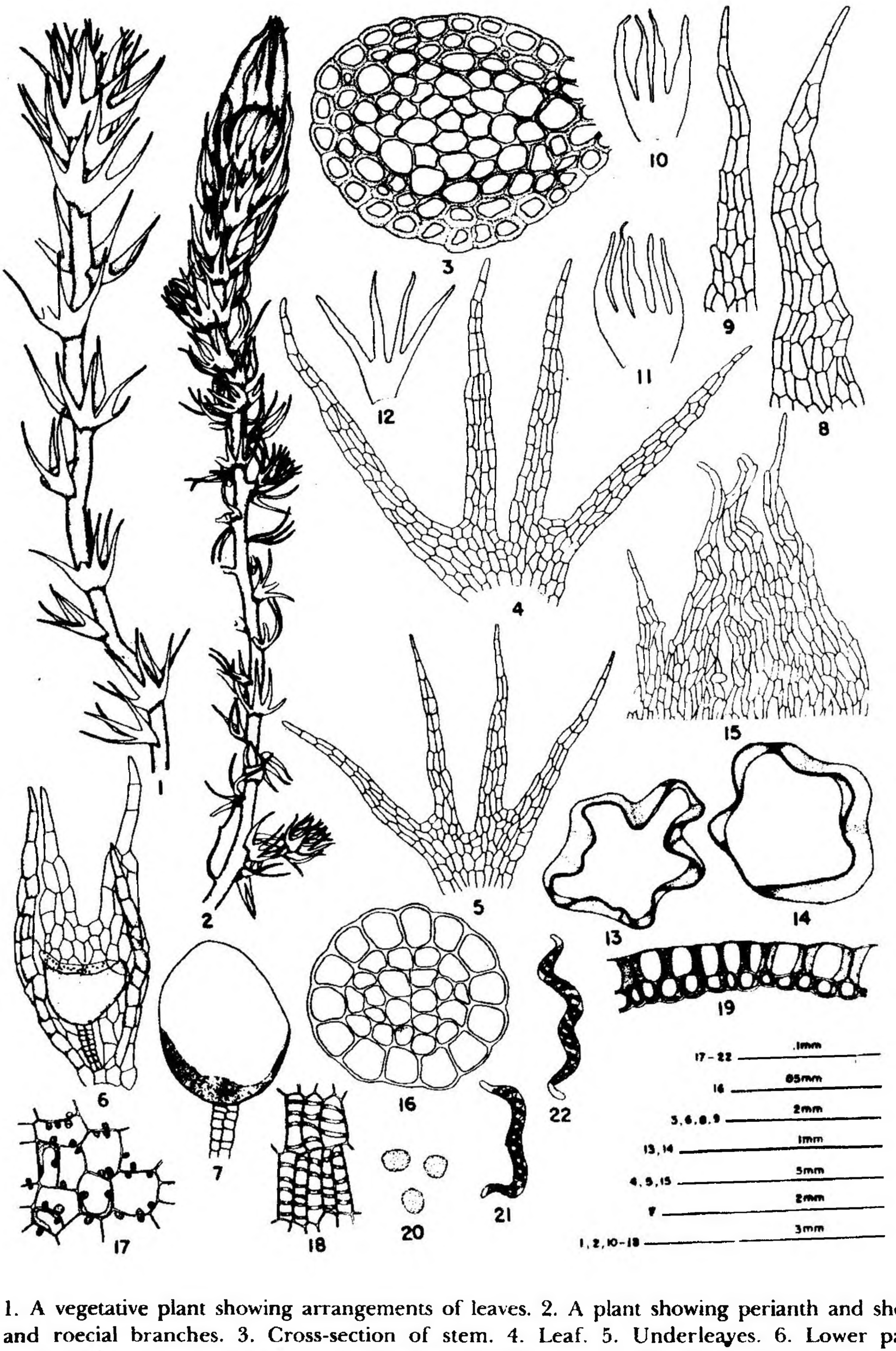

Fig. 1-22 1. A vegetative plant showing arrangements of leaves. 2. A plant showing perianth and short lateral and roecial branches. 3. Cross-section of stem. 4. Leaf. 5. Underleaves. 6. Lower part of an antheridium along with bract. 7. Single antheridium with biseriate stalk. 8, 9. Lobes bract. 10, 11. Female bracts. 12. Bracteole 13, 14. Cross-section of perianth (given keeled). 15. Mouth of the perianth. 16. Cross-section of the sets. 17. Capsule wall, outer layer. 18. Capsule wall, inner layer. 19. Cross-section of capsule wall. 20. Spores. 21, 22. Elaters.

patches of pure growth and sometimes mixed with *Lepidozia* and *Cephalozia*.

DISCUSSION The plants of P. *trollii* sub sp. *andoi* are more or less similar to P. *trollii* sub sp. *trolli* var. *darjeelingenesis* in most of the features except in a few details. The dentition in the leaf lobes of *P. trollii* var. *darjeelingensis* is prominent while it is absent in *P. trollii* sub sp. *andoi*. The lobing of the leaf is very deep, up to 3/4 of the leaf length in latter and only 2/3 - 1/2 of the leaf length in the former. Stem anatomy also varies in both the taxa. In *P. trollii* sub sp. *andoi* the cortical cells are uniformly thickened while in P. *trollii* var. *darjeelingensis* the outer layer of cortical cells is not uniformly thickened. In the shape of perianth both varieties differ from each other. In *P. trollii* var.*darjeelingensis* the perianth is not narrow at the apex while in *P. trollii* sub sp. *andoi* the perianth is narrowed at the apex. The female bracts and bracteole are 2/3 to 3/4 deeply lobe of their length (Figs. 10-12) which are characteristic of *P. trollii* sub sp. *andoi* while bract and bracteole are lobed to 1/2 - 2/3 of their length in P. *trollii* var.*darjeelingensis*.

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REFERENCE

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