

Physcomitrium immersum Sull. (Funariales; Bryophyta) an addition to the bryoflora of Western Ghats

C. N. Manju*, V. K. Chandini and B. Mufeed

Department of Botany, the Zamorin's Guruvayurappan College
GA College PO., Kozhikode, Kerala - 673014, India
*Corresponding author's e-mail: manjucali@gmail.com

Manuscript received: 31 January 2017

Accepted for publication: 20 April 2017

ABSTRACT

Physcomitrium immersum Sull. a moss taxon belonging to Order Funariales (Family: Funariaceae, Bryophyta) is recorded here for the first time from the Western Ghats from the Peechi – Vazhani Wildlife Sanctuary in Kerala state. This is an addition to the flora of Bryophytes from this region of India. Systematic description and distribution of *Physcomitrium immersum* Sull. have been provided in the present contribution.

Key-words: *Physcomitrium immersum*, Systematic description, Distribution, Western Ghats.

INTRODUCTION

The genus *Physcomitrium* of the family Funariaceae is represented in India by seven species (Gangulee 1974; Fife 1982). Out of these, only two species were previously known viz., *Physcomitrium coorgense* Broth. and *P. insigne* Dixon & P. de la Varde from the Western Ghats. Here we record an additional species of *Physcomitrium* (*P. immersum* Sull.) from the Western Ghats. *P. immersum* is easily recognizable by its deeply immersed, broadly cupulate capsules that are usually clearly visible within the spreading leaves. It has been opined that the ephemeral nature and small size of *P. immersum* may be a major factor for its rarity (Schofield 1976; Crum and Anderson 1981). According to our observation the distribution of *P. immersum* in the present locality is also very rare. *P. immersum* Sull. can be easily distinguished from other species by the deeply immersed capsules. Rest of the species possess emergent capsule.

SYSTEMATIC DESCRIPTION

Bryophyta

Order: Funariales

Family: Funariaceae

Genus: *Physcomitrium*

Physcomitrium immersum Sull., in A. Gray, Manual. 648. 1848.

(Plate 1, Figs. A-K)

Description: Plants light to dark greenish in colour, stem slender, very small, 0.3-0.8 mm long, not branched, leaves few in number, upper leaves larger than basal, 0.1-0.3 mm long, linear to lanceolate, basal leaves obovate to ovate-lanceolate, leaf tip acuminate, leaf margin entire below; occasionally toothed at distal portion; costa sub-percurrent to short-excurrent in normal vegetative plant, costa absent in young and fertile plant; perichaetial leaves elongated, 0.2-0.5 mm; leaf cells thin walled, elongated at tip, rectangular to hexagonal, 18-34.6 × 5.7-12 µm long, basal cells rectangular, broader than tip cells, 20.8-23.6 × 15.1-21 µm, oil bodies prominent, brownish in some leaves;

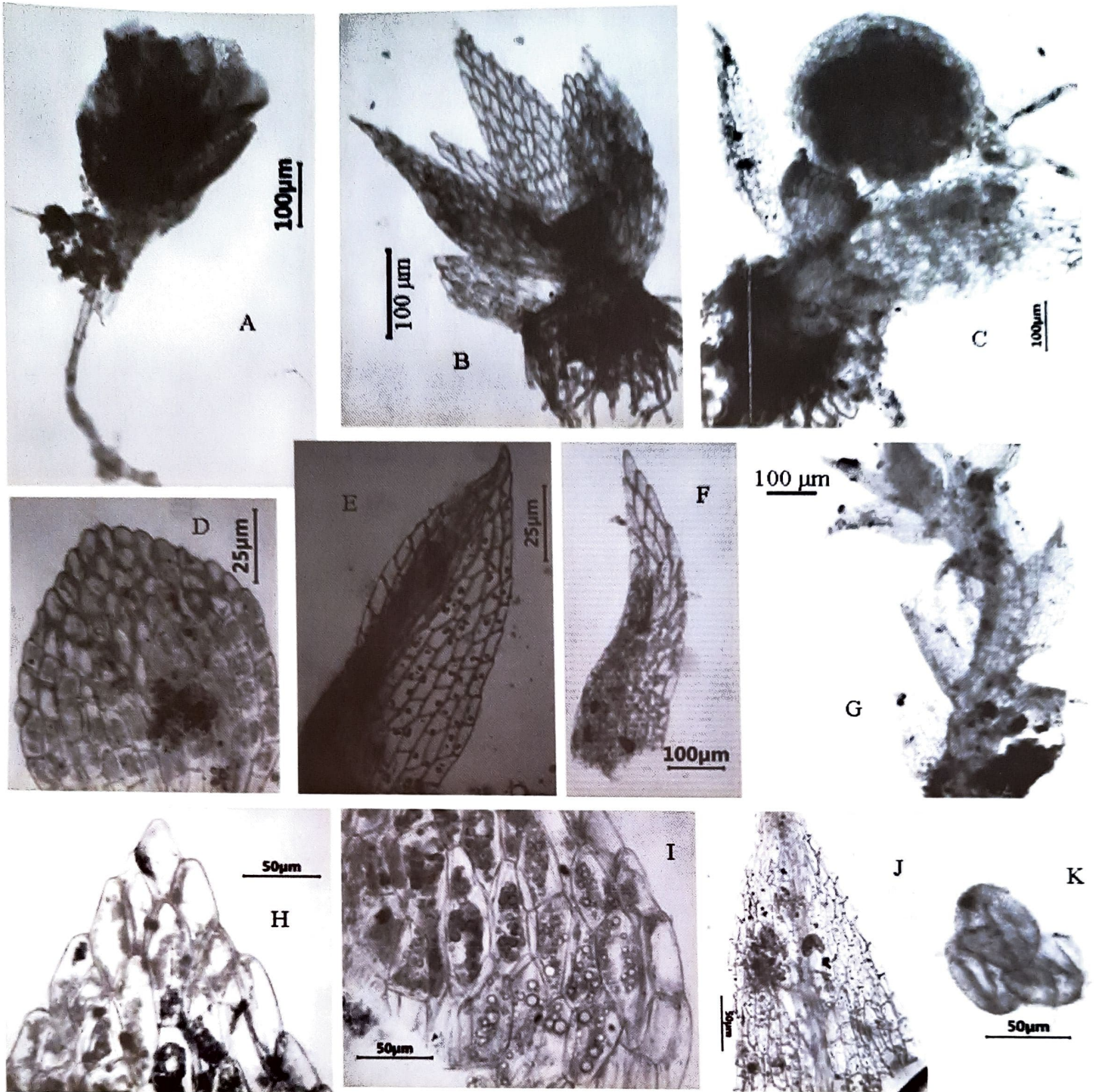


Plate 1

A. Young plant, B. Mature plant without sporophyte, C. Plant with sporophyte, D. Young leaf without costa, E-F. Perichaetial leaf without costa, G. Vegetative plant with costa, H. Leaf tip of perichaetial leaf, I. Leaf basal cells of perichaetial leaf, J. Vegetative leaf with costa, K. Spores.

sporophyte on main stem, immersed, seta very short, stout, 0.027 mm long, capsule globose, 0.3 mm high, 0.4 mm wide, broadly cupulate; neck short, indistinct; operculum not seen, spores shrinking, ovate, densely papillose, $23-28.5 \times 20 \mu\text{m}$, walls somewhat unevenly thickened.

Distribution and habitat: *Physcomitrium immersum* Sull. occurs in South America, eastern North America and Canada. In the Pacific North western North America it is known from British Columbia, Oregon, Colorado, Louisiana, Michigan, Maryland, Minnesota, New Jersey, New York, Pennsylvania, Wisconsin, Texas and Washington (Lawton 1971;

McIntosh 2007). From India this species has been reported from Delhi, Rajasthan, Uttar Pradesh, Himalaya, southern Bengal and Bihar (Gangulee 1974). This species occurs on marshy land along with *Riccia sorocarpa* Bisch. near water reservoir.

Specimens examined: India, Kerala, Thrissur district, Peechi-Vazhani Wildlife Sanctuary, Near dam site (60 m alt.), 10-12-2016, Chandini & Mufeed 10495a, 10495b, 10494 (ZGC).

ACKNOWLEDGEMENTS

The authors are thankful to Kerala State Council for Science Technology & Environment (KSCSTE), Thiruvananthapuram for financial support. We thank the authorities of the Kerala Forest Department for giving permission to collect bryophyte specimens from the area. We also thank the authorities of the Zamorin's

Guruvayurappan College, Kozhikode for providing facilities.

REFERENCES

- Crum, H. and Anderson, L. 1981. Mosses of Eastern North America. 2 volumes. Columbia University Press, New York. 1328 pp.
- Fife, A.J. 1982. Taxonomic and nomenclatural observations on the Funariaceae. 2. Lectotypification of *Physcomitrium* subg. *Cryptopyxis* (C. Muell.) Broth. *Lindbergia*. 8: 75-76.
- Gangulee, H.C. 1974-78. Mosses of Eastern India and Adjacent Regions, Books and Allied (P) Ltd., Kolkata, India. Vol. II. pp. 836-849.
- Gray, A. 1848. A manual of the Botany of Northern United States, James Monroe and Co. Boston and Cambridge.
- Lawton, E. 1971. Moss Flora of the Pacific Northwest. The Hattori Botanical Laboratory. Nichinan, Miyazaki, Japan. 362 pp.
- McIntosh, T. 2007. *Physcomitrium* in Flora of North America North of Mexico. Bryophyta. Oxford University Press, Oxford. 27 (1): 196-198.
- Schofield, W.B. 1976. Bryophytes of British Columbia III: habitat and distributional information for selected mosses. *Syesis*. 9: 317-354.