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Source: Lindbergia, 39(4) : 35-38

Published By: Dutch Bryological and Lichenological Society and Nordic Bryological Society

URL: <https://doi.org/10.25227/linbg.01083>

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Syntrichia amphidiacea (Pottiaceae) – new to India from the Western Ghats

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Syntrichia amphidiacea, earlier known to occur in the American and African continents, China and Malesia, is recorded in the Indira Gandhi National Park in Anamalais in the Western Ghats. A brief description with figures and a photo plate is provided.

Pottiaceae is one of the largest moss families with a wide distribution and can occur in harsh environments viz., from dry, arid places to snow-covered peaks. The diverse habitats that the members of this family occupy, influence the growth of these plants leading to polymorphy which makes the taxonomy of this family more than difficult. On the other hand, lack of regional manuals for identification, few revisions, a number of poorly conceived “geographic” species, and the heterogeneity and large size of some of the genera (Zander 1993) add to the woe.

Aziz and Vohra (2008) monographed the Indian Pottiaceae and dealt with 130 species under 29 genera. However, Daniels et al. (2010) described a new genus from the Silent Valley National Park in the Western Ghats. Daniels et al. (2013) rediscovered *Trichostomum hyalinoblastum* (Broth.) Broth., an endemic and elusive moss from Anamalais. Again, Daniels and Kariyappa (2014) added *Pseudosymblypharis subduriuscula* (Müll.Hal.) P.C. Chen to India from the Western Ghats.

Until recently, *Syntrichia amphidiacea* (Müll.Hal.) R.H. Zander, was known only from the American and African continents and Malesia until Mao et al. (2010) reported its occurrence in China in continental Asia. Surveys made for a bryoflora of the Indira Gandhi National Park in Anamalais (10°13'–10°33'N and 79°49'–77°21'E) in the

Western Ghats, led to the discovery of this plant which is new to the moss flora of India. Hence, a brief description with figures and a photo plate is provided. The specimen is housed at SCCN and MO.

With the addition of *S. amphidiacea* to the so far known Indian congeners, currently there are nine species.

Syntrichia amphidiacea (Müll.Hal.) R.H. Zander, Bull. Buffalo Soc. Nat. Sci. 32: 267, Pl. 106, ff. 1–8. 1993; L. Mao et al., Acta Bryolichenol. Asiat. 3: 101. 2010. *Barbula amphidiacea* Müll.Hal., Linnaea 38: 639. 1874. – Type: Mexico, Monte Orizaba, *Freder. Müller s.n.* (Herb. Lorenz). *Tortula amphidiacea* (Müll.Hal.) Broth., in Engl. & Prantl, Nat. Pflanzenfam. 1(3): 434. 1902. *T. caroliniana* A.L. Andrews, Bryologist 23: 72. 1920. *T. tanganyikae* Dixon, J. Bot. 76: 252. 1938. *T. novo-guinensis* E.B. Bartram, Bryologist 48: 113. 1945. (Fig. 1, 2)

Plants densely, caespitose or forming mats 5–10 mm high. Rhizoids red. Stems erect, simple, 4–8 mm high, 0.25–0.32 mm across, with a thin-walled central strand; cortex 2- or 3-layered; cells 8–24 × 6–20 µm, thick-walled, rounded-quadrate; medullary cells 20–32 × 20–28 µm, quadrate-hexagonal, thin-walled. Leaves uniform, undulate, inrolled at margin, up to 3/4 from base, erectopatent, 1.5–2.5 × 0.7–1 mm, oblong-lingulate to oblong-spatulate, carinate, not sheathing, hyaline at base, broad, acute at apex; apical and median cells incrassate, 10–18 × 12–16 µm, quadrate to rounded-quadrate, 2–6-papillate; basal cells thin-walled, rectangular, 40–100 × 16–30 µm, hya-

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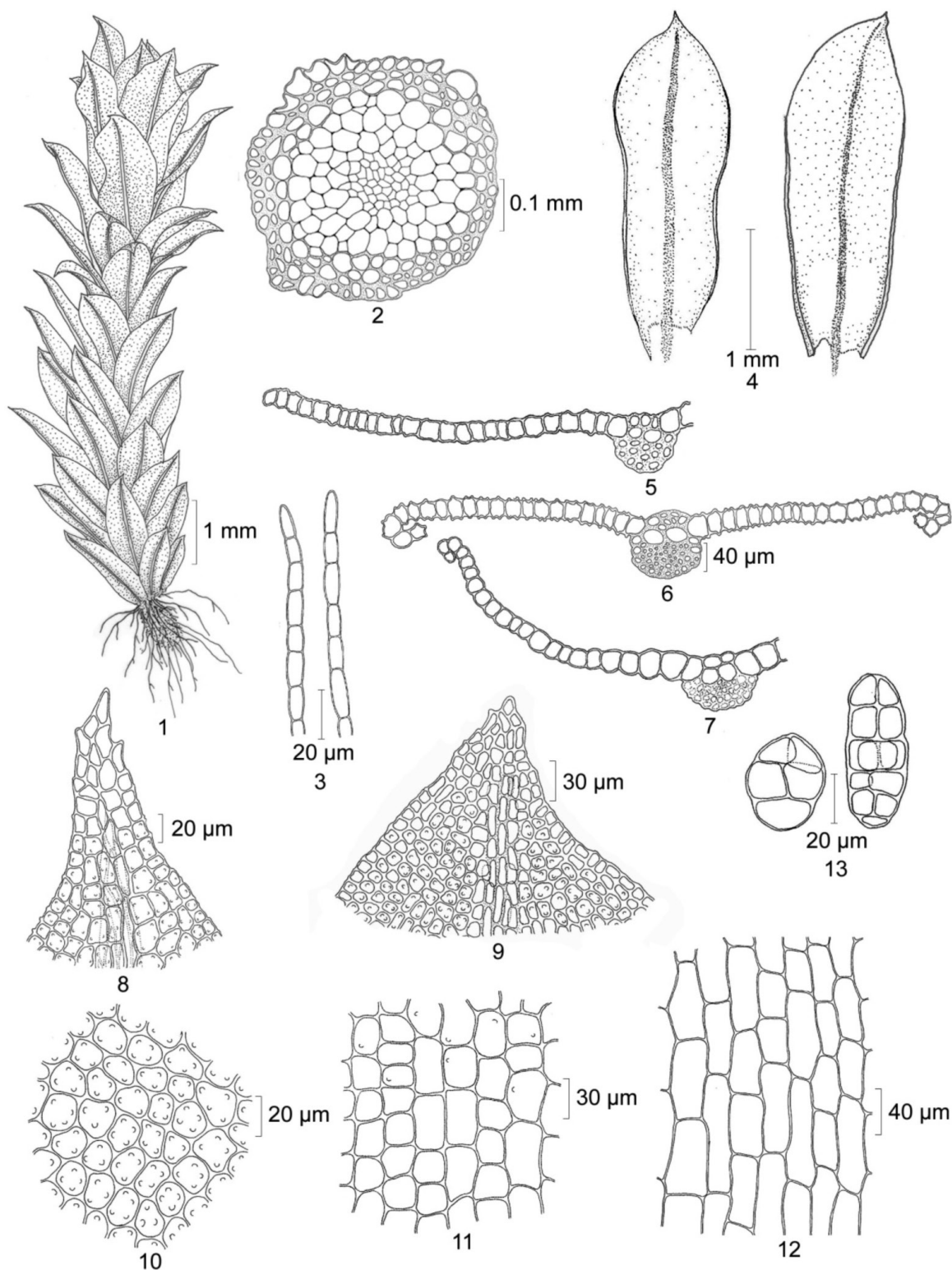


Figure 1. *Syntrichia amphidiacea* (Müll.Hal.) R.H. Zander (1) plant. (2) cross section of stem. (3) stem hairs. (4) leaves. (5–7) cross section of leaf at apex, mid-leaf and base. (8,9) leaf apical cells. (10) leaf median cells with papillae. (11) leaf mid-basal cells. (12) leaf basal cells. (13) Gemmae. (Drawn from Daniels 8634 p.p.)

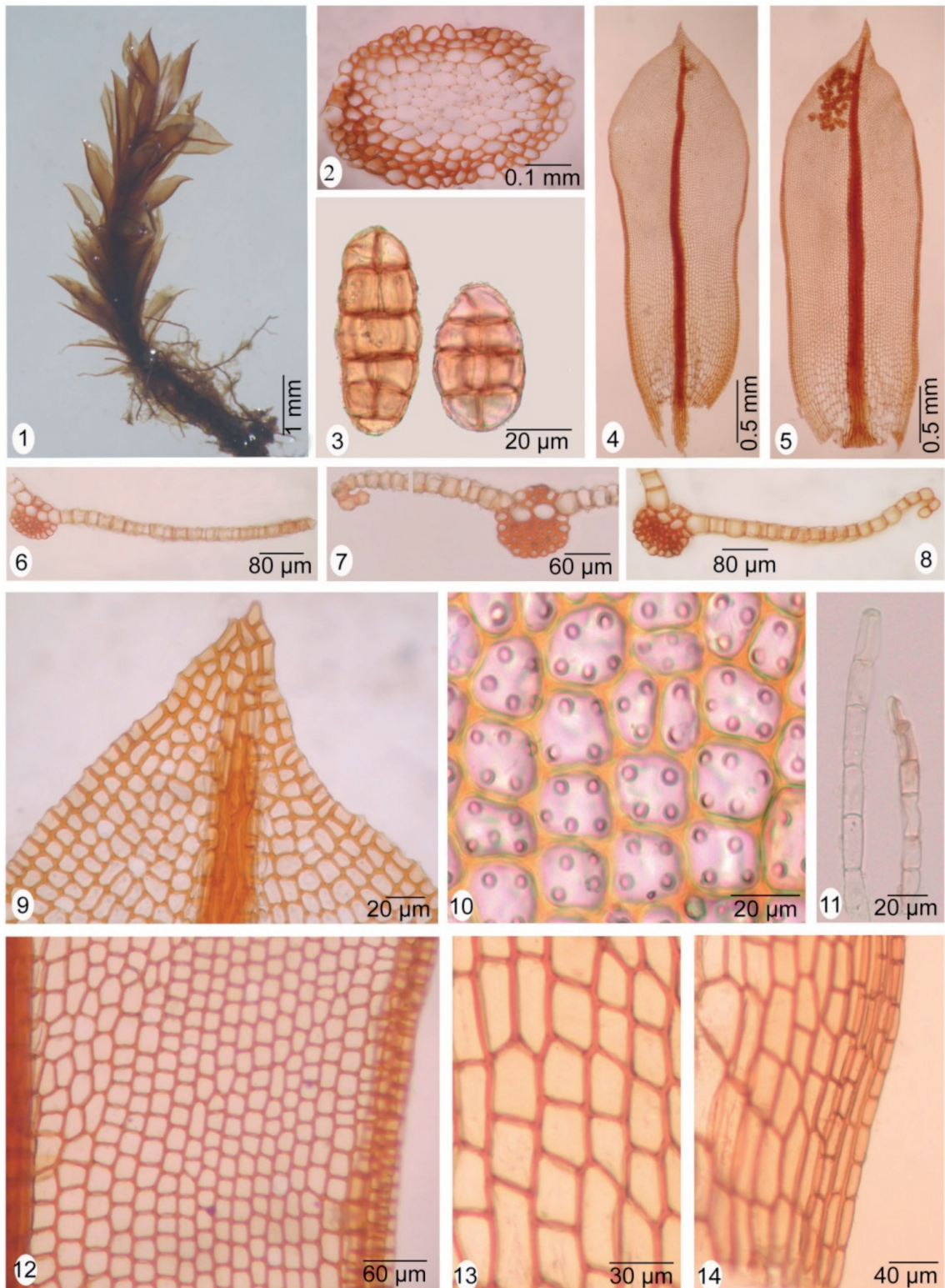


Figure 2. *Syntrichia amphidiacea* (Müll.Hal.) R.H. Zander (1) plant. (2) cross section of stem. (3) gemmae. (4,5) leaves with gemmae. (6–8) cross section of leaf at apex, mid-leaf and base. (9) leaf apical cells. (10) leaf median cells with papillae. (11) axillary hairs. (12) leaf mid-basal cells. (13) leaf basal cells. (14) leaf marginal cells at base. (Daniels 8634 p.p.)

line, smooth; axillary hairs linear, ca 6-celled, translucent to hyaline; costa ending below apex with two guide cells in cross section and stereid bands faint or absent, reddish-brown to brown. Vegetative propagules, on adaxial surface of leaves near apex, oblong, $100\text{--}144 \times 40\text{--}50\ \mu\text{m}$. Sporophyte not seen.

Habitat: corticolous in plantations, ca 880 m.

Distribution: Africa, North & South America, China, Malesia (includes Papua New Guinea also) and India: Western Ghats of Tamil Nadu.

Specimens examined: Western Ghats: Tamil Nadu, Coimbatore Dist., Anamalais, Valparai, Anali Estate, ca 880 m, 11.8.2012, *A.E.D. Daniels* 8634 p.p.

Discussion

Based on earlier reports, *Syntrichia amphidiacea* appears to be a corticolous species and does not show host specificity. However, it shows habitat preference as it was found to grow in habitats with human interference (Mao et al. 2010) similar to the one (a mixed plantation), from where the present collection was made.

Syntrichia amphidiacea can be readily distinguished from the other Indian congeners in not having either an aristate costa or an excurrent or mucronate costa. However, it is closely related to *Syntrichia fragilis* (Taylor) Ochyra, but differs from it in the leaves not being spatulate, leaf apex not being mucronate, costa in cross section with one

layer of parenchyma over the guide cells and poorly developed abaxial stereid band.

Acknowledgements – We thank the Tamil Nadu State Forest Department and the Manager, Anali Estate, for permission to explore the study area and help in the field, and the Principal, Scott Christian College for facilities. The financial assistance from the DST, GoI, New Delhi, is gratefully acknowledged. AEDD is thankful to Dr. R.H. Zander (MO), for confirming the identity of the species and help with literature, and Dr. P. Sollman, the Netherlands, for help with literature.

References

- Aziz, M. N. and Vohra, J. N. 2008. Pottiaceae (Musci) of India. – Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
- Daniels, A. E. D. and Kariyappa, K. C. 2014. *Pseudosymblepharis subduriuscula* (Pottiaceae) – new to India from the Western Ghats. – *Nelumbo* 56: 265–267.
- Daniels, A. E. D., Raja, R. D. A. and Daniel, P. 2010. *Indopotia zanderi* (Pottiaceae, Bryophyta) gen. et sp. nov. from the Western Ghats of India. – *J. Bryol.* 32: 216–219.
- Daniels, A. E. D., Kariyappa, K. C. and Sreebha, R. 2013. Rediscovery of *Trichostomum hyalinoblastum* (Broth.) Broth., an elusive moss endemic to the Western Ghats. – *Nelumbo* 55: 205–208.
- Mao, L., Lin, P.-J., He, S. et al. 2010. *Syntrichia amphidiacea* (Müll. Hal.) R.H. Zander new to continental Asia from China. – In: Koponen, T., Piippo, S. and Reinikka, E. (eds), Dr. Ming-Jou Lai memorial volume. *Acta Bryolichenol. Asiat.* 3: 101–104.
- Zander, R. H. 1993. Genera of the Pottiaceae: mosses of harsh environments. – *Bull. Buffalo Soc. Nat. Sci.* 32: 1–378.