THE AUSTRALIAN SPRUCEANTHUS THOZETIANUS
(HEPATICAE: LEJEUNEACEAE)
DISCOVERED IN THE WESTERN GHATS OF INDIA

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(Received 3 March, 2009; Accepted 30 June, 2009)

Spruceanthus thozetianus, known to be distributed only in Australia so far, is recorded here for India from the southern Western Ghats. A detailed description with information on capsule and spores for the first time is provided here with an illustration and a distribution map.

Key words: Hepaticae, India, Lejeuneaceae, Spruceanthus thozetianus, Western Ghats

INTRODUCTION

Peninsular India, a part of the erstwhile Gondwanaland, has a great diversity of flora owing to its large geographical area and a variety of biogeographical zones that prevail therein. The Western Ghats in this region with its diverse vegetation types, one of the already identified hotspots with neighbouring Sri Lanka (Ceylon) (Gunawardene et al. 2007), possess excellent habitats and niches conducive for a lush growth of bryophytes. Though the angiosperm flora of the region with a high degree of endemism has been well studied, the southern Western Ghats still remains a terra incognita for bryophytes. Hence, investigations on the bryoflora were initiated about a decade ago in the Agasthyamalai and its surroundings in the southern Western Ghats in Peninsular India. Spruceanthus thozetianus (Gottsche et F. Muell.) B. Thiers et Gradst., an Australian species, is reported here from this region. Specimen cited is deposited at SCCN, herbarium of Scott Christian College, Nagercoil.
**Spruceanthus thozetianus** (Gottsche et F. Muell.) B. Thiers et Gradst. (Figs 1–17)

(Bas.: *Phragmicona thozetiana* Gottsche et F. Muell. in F. Muell., Fragm. 11(Suppl.): 63 (1880).

Plants dioecious, 5–7 cm long, prostrate or pendant, pale brown to dark brown. Stem with branching of *Lejeunea*-type, ca 0.26 × 0.23 mm, ca 15-celled across with epidermis not distinct from cortex; cortex 2- or 3-layered; cells thick-walled, 16–20 × 8–10 μm, brown-pigmented; medulla 10–12-celled; cells thin-walled, 20–28 × 18–26 μm, quadrate-hexagonal. Leaves imbricate, widespreading, 1.2–2 × 0.8–1.2 mm, ovate-lanceolate, entire at margin, acute to apiculate at apex and rarely faintly 1- or 2-toothed; cells thick-walled with trigones and intermediate nodular thickenings on walls; apical cells 12–20 μm; median ones 20–28 × 16–20 μm; basal ones 28–48 × 16–30 μm; lobules 0.17–0.23 × 0.08–0.13 mm, swollen, curved at keel, free at margin, truncate and 1- or 2-toothed at apex and apex continuous with leaf ventral margin. Underleaves transversely inserted, 0.41–0.75 × 0.3–0.45 mm, twice or thrice as broad as stem, small at base and larger towards female inflorescence, orbicular to oblong, truncate at apex, entire, flat or recurved at lateral margin, faintly 2-plicate, auriculate at base. Sporophytes intercalary on branches; bracts ca 0.71 × 0.51 mm, oblong, truncate, faintly irregularly toothed at apex, entire at lateral margin, concave; bracteoles ca 1.1 × 0.56 mm, oblong-ovate, entire at lateral margin, divided at apex. Perianth emergent, ca 1.2 × 0.9 mm, oblong, truncate at apex, 7- or 8-plicate; cells 20–32 × 14–16 μm, quadrate with trigones and intermediate nodular thickenings on walls. Capsules ca 1 × 0.7 mm, ovoid, dehiscing by 4 valves; wall cells 20–56 × 16–20 μm, quadrate with occasional bulged thickenings on walls. Spores ca 16–20 μm, globose to ovoid, spinose, opaque, black.

Habitat: Rupicolous, in evergreen forests, ca 1,250 m.

Distribution: Australia (New South Wales, Queensland, Rockhampton, 60–1,000 m) and India: Tamil Nadu (W Ghats of Kanyakumari, ca 1,250 m) (Fig. 18).

Specimens examined: India, Tamil Nadu, Kanyakumari Dist., W Ghats, Upper Kodaiyar, ca 1,250 m, 19.4.2002, Daniels 2003.
Figs 1–17. _Spruceanthus thozetianus_ (Gottsche et F. Muell.) B. Thiers et Gradst.: 1 = plant ventral view, 2–4 = leaves, 5 = leaf apical cells, 6 = leaf medial cells, 7 = leaf basal cells, 8–10 = underleaves, 11 = stem cross section, 12 = bract, 13 = bracteole, 14 = perianth, 15 = perianth cells, 16 = capsule wall cells, 17 = spores (Daniels 2003)

_Acta Bot. Hung._ 51, 2009
DISCUSSION

Thiers and Gradstein (1989) synonymised Phragmicoma eavesiana Gottsche et F. Muell. (in F. Muell., Fragm (11 Suppl.): 63. 1880) (Brachiolejeunea eavesiana (Gottsche et F. Muell.) Steph. (Sp. Hepat. 5: 141. 1912), Mastigolejeunea phaea Gottsche ex Schiffn. (in Engl. & Prantl, Nat. Pflanzenfam. 1(3): 129. 1895), Brachiolejeunea plagiochiloides Steph. et Spruce ex Steph. (Sp. Hepat. 5: 142. 1912) and Brachiolejeunea robusta Steph. (Sp. Hepat. 5: 141. 1912) under Spruceanthus thozetianus (Gottsche et F. Muell.) B. Thiers et Gradst. The types of all these synonyms are from Australia. Besides, Thiers and Gradstein (1989) also stated, “At present Spruceanthus thozetianus is known only from Australia”. As a result, this is the first report of this species outside Australia.

Fig. 18. Distribution of known localities of Spruceanthus thozetianus in Australia (★) and India (● present locality)
It is not surprising to find an Australian species in the Western Ghats of India. According to Wegener’s Continental Drift Hypothesis, Australia and India were part of a single landmass, the “Pangaea”, during the Upper Carboniferous period. In the Cretaceous period this landmass split into two to form the northern Laurasia and the southern Gondwanaland comprising South America, Africa, India, Australia and Antarctica which remained together till the early Jurassic period. During the Lower Jurassic period India separated from Australia and drifted northwards to be part of Laurasia. The presence of *Spruceanthus thozetianus* might indicate the geological connection of these two regions in the far past.

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**Acknowledgements** – We are thankful to the Tamil Nadu State Forest Department for permission to explore the said forests, Mr B. J. O’Shea (London) for help with literature, and Mr M. J. Wigginton (Peterborough) for his considered opinion on the material. AEDD is thankful to Dr S. C. Rose (Principal, Scott Christian College) for encouragement. PD is thankful to the MoEF, Govt (New Delhi) and the Director (Botanical Survey of India, Kolkata) for an emeritus and the Registrar, M. S. University and Dr A. P. Lipton, Professor and Head (CMST, M. S. University) for bench space.

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