ON THE OCCURRENCE OF CALYCLARIA CRISPULA MITT. (CALYCLARIACEAE) IN THE WESTERN GHATS, INDIA

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The liverwort Calyclaria crispula is added here to the liverwort flora of the Western Ghats in Peninsular India. A brief description with illustration is provided.

Key words: Anamalais, Calyclaria crispula, Western Ghats

INTRODUCTION

Calyclaria Mitt. is a monotypic genus in the Calyclariaceae (He-Nygrén et al. 2006) containing two species, C. crispula Mitt. and C. laxa Lindb. et Arnell (Konstantinova and Mamontov 2010). Calyclaria crispula is predominantly a plant of upland areas in the tropics of Asia, Africa and Central America, whilst C. laxa is a species of temperate to arctic regions of the northern hemisphere from Japan to Russia, Alaska and Canada (Konstantinova and Mamontov 2010).

Historically, three other names in Calyclaria (C. birmensis Steph., C. compacta Kashyap and C. radiculosus Steph.), relate to Indian collections. Calyclaria birmensis and C. compacta are synonyms of C. crispula, but in recognition of its different morphology, Schuster (1982) transferred C. radiculosus to a new genus Sandeonothallus R. M. Schust. (as S. radiculosus (Steph.) R. M. Schust.), where it currently resides. This transfer was overlooked by Parihar et al. (1994) and Bapna and Kachroo (2000), who included the taxon under Calyclaria. In India, S. radiculosus is so far known only from the Western Himalayas.
Calycularia crispula has been recorded from various places in northern India (Bapna and Kachroo 2000, Kachroo et al. 1977, Singh and Singh 2009). However, it has not been reported so far from the Western Ghats, one of the biodiversity hotspots of the world. It was listed by Chopra (1938) from Peninsular India based on a collection from Madras by Iyengar in 1922, although apparently no subsequent authors have cited that record or included it in lists. No location or habitat details are provided by Chopra (1938) for the Iyengar collection, and it is not known whether Iyengar’s ‘Madras’ referred to the present-day capital city Madras (now Chennai) or the Madras Presidency.

While exploring the fragments of evergreen forests along the fringes of Patchamalai Estate, as well as on roadsides in Anamalais, in the Western Ghats, material of Calycularia crispula was collected. This record confirms its occurrence in the Western Ghats in Peninsular India. The species is briefly described and illustrated here.

Calycularia crispula Mitt.
(Figs 1–12)

Calycularia crispula Mitt., J. Proc. Linn. Soc., Bot. 5: 122. 1861. – Type: India, Himalaya, Sikkim, ca 6,000 ft., in moist soil, J. D. Hooker 1679 (Lectotype LE; Isolectotype H-SOL (Kontstantinova and Mamontov 2010)).


Plants dioecious, in overlapping patches, translucent, green. Thalli dichotomously branched or not, broadly ligulate, 12–16 cells thick in middle, with a distinct midrib, protruding ventrally, gradually narrowing into 1-layered wings, crispatate at margin; ventral scales abundant near apex, linear to linear-lanceolate, with 1–4-celled ciliate teeth ending in rounded mucilaginous cells, hyaline, sometimes purple tinged towards base. Male thalli 2–3 mm × 1–1.5 mm; antheridia dorsal, in several rows along midrib, ovoid to globose, subtended by linear, lanciate, hyaline scales. Female thalli 7–13 mm × 2–3 mm; archegonia dorsal, in clusters towards apex, enclosed by involucre with linear, lanciate, hyaline scales. Mature pseudoperianth and sporogonium not seen.

Habitat: Terricolous, in moist soil near water sources in evergreen forests, ca 1,200 m.

Distribution: Africa, America, Bhutan, China, Myanmar, Nepal, Taiwan, Thailand and India: Himalaya, NE India (Meghalaya), Punjab and West Rajasthan and Western Ghats of Tamil Nadu (Coimbatore).

Specimens examined: Western Ghats, Tamil Nadu, Coimbatore Dist., Anamalais, ca 1,200 m a.s.l. Coll.: A. E. D. Daniels and K. C. Kariyappa (9376), 19.2.2013 (SCCN).
Figs 1–12. Calycularia crispula Mitt. – 1 = thallus (dorsal view); 2 = a portion of thallus (ventral view); 3 = cross section of thallus (diagrammatic); 4–5 = cells of upper and lower epidermis in cross section; 6–8 = cells of thallus wings in cross section; 9 = ventral scales; 10 = male thallus with antheridia; 11 = antheridial scales; 12 = female thallus with involucre (drawn from A. E. D. Daniels and K. C. Kariyappa 9376)
DISCUSSION

Madras Presidency was an administrative subdivision of British India, which included much of southern India, including the present-day Tamil Nadu comprising Nilgiri Hills, Palani Hills, Anamalais, etc., the Malabar region of North Kerala, Lakshadweep Islands, greater part of Andhra Pradesh, a part of Orissa and Karnataka barring the Princely States of Mysore and Kerala (Cochin to Travancore). Since C. crispula is restricted to tropical mountains, it therefore seems very probable that Iyengar collected the species from an upland area in Madras (Chennai) for, the present collection is also from a high-altitude mountain range. However, the possible occurrence of C. crispula in the lowlands of Madras city should not be ruled out because, Madras city left by itself has always been a moist area due to the rivers that watered it en route to the Bay of Bengal, as well as large water bodies, such as the Velacheri Wetland, which are now fragmented and polluted beyond measure. Moreover, the vegetation types (Daniels et al. 2007) that once prevailed in Madras might have provided a habitat conducive for the growth of liverworts, such as C. crispula. On the other hand Iyengar, while looking for freshwater algae, with all probability might have collected C. crispula near shady water sources since Chopra (1938: 239) also reported the occurrence of Riccia fluitans L. based on Iyengar’s collection in Madras. Riccia fluitans is an aquatic liverwort, but also grows as a terrestrial form adjacent to water sources. Hence, it can be concluded that Madras once had tropical vegetation types that favoured the growth of liverworts, such as C. crispula.

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REFERENCES


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