

**The liverwort *Schistochila aligera* (Nees & Blume)
J.B. Jack & Steph. (*Schistochilaceae*)
rediscovered in India**

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Abstract – The liverwort *Schistochila aligera*, which has not been re-collected in its earlier known localities and the Nilgris in India, has been rediscovered in the Agasthyamalai Biosphere Reserve and Silent Valley National Park in the Western Ghats after more than a century. A detailed description, an illustration and a distribution map are provided along with notes on the habitat.

Liverwort / *Schistochila aligera* / India / Western Ghats / Nilgris

INTRODUCTION

The genus *Schistochila* Dumort., with *Gottschea* Nees ex Mont. and *Pleurocladopsis* R.M.Schust., belongs to the family *Schistochilaceae* (So, 2003). *Schistochila* with about 180 species (Geissler & Bischler, 1990) is distributed in the tropical as well as temperate regions and has its highest diversification centre in the region of South America-West Antarctica-New Zealand-New Caledonia (Schuster & Engel, 1977). In Asia, however, it is represented by 9 species of which only *S. aligera* has been reported in India. *Schistochila aligera* is distributed in Asia and Melanesia (So, 2003).

Based on a Beddome material collected at Sispara in the Nilgris on the Western Ghats of Tamil Nadu, Stephani (1909) described *S. commutata* as a new species. Though this species goes under different names, including *S. aligera* and *S. commutate*, it has never been re-collected anywhere in India including the type locality, the Nilgris, of *S. commutata*. In her revision of the genus *Schistochila* So (2003) who found *S. commutata* Steph. conspecific with *S. aligera* (Nees & Blume) J.B.Jack & Steph. reduced the former to a synonym under the latter. So (*l.c.*) cited five specimens from India - Sispara, *Beddome s.n.* (FI, STR), *Beddome* 602 (BM), Walaghat, *Beddome* 855 (BM), Nilgris, Feb. 1845, without collector's name 39 (BM) and Nicobar Is., Exped. Novara, *Jelinek* 60 (W). There is also a Beddome material at BM collected in Tinnevely (Tirunelveli) (Ellis, *in litt.*) located at the southern end of the Western Ghats which appears to have been overlooked by So. Earlier Indian

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literature mentions the distribution of this species only in South India/Western Ghats/Nilgris (Chopra, 1938, 1943; Kachroo, 1973; Singh, 1997). The Jelinek material also proves that this species occurs on the Nicobar Islands as well. Beddome might have collected it in the 1860s and Jelinek in the late 1850s (Nair & al., 1996: 67, 68, 122). Though the Nilgris is one of the well collected areas for bryophytes in recent years no one has apparently collected material of this species there.

Initially material of this species was collected in the Agasthyamalai (part of the erstwhile Tirunelveli-Travancore hills) in Tamil Nadu in the southern Western Ghats (Daniels, 2003). More recently, material was also collected in the Silent Valley in Kerala. This is a rediscovery of this species in India after more than a century. Therefore, a detailed description and an illustration of the species are provided to help find the species elsewhere in the Western Ghats.

Schistochila aligera (Nees & Blume) J.B. Jack & Steph., *Hedwigia* 31: 12. 1892 (as *Schistocheila*); R.S. Chopra, *Proc. Indian Acad. Sci. Sect. B* 7: 247. 1938 & *J. Indian Bot. Soc.* 22: 247. 1943; Kachroo, *J. Sci., Univ. Kashmir* 3: 155. 1973; M. L. So, *J. Hattori Bot. Lab.* 93: 81. 2003.

Figs 1-15

Jungermannia aligera Nees & Blume, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 11: 135. 1832. Type: Indonesia, Java, Tjeriman, *Junghuhn s.n.* (STR). *Gottschea gaudichaudii* Gottsche, *Ann. Sci. Nat., Bot., Ser. 4*, 8: 319. 1857. Type: Malaysia, Pulau-Penang, *Gaudichaud s.n.* (PC). *Schistochila gaudichaudii* (Gottsche) Schiffn., *Consp. Hepat. Arch. Ind.*: 216. 1898; R.S. Chopra, *J. Indian Bot. Soc.* 22: 247. 1943.

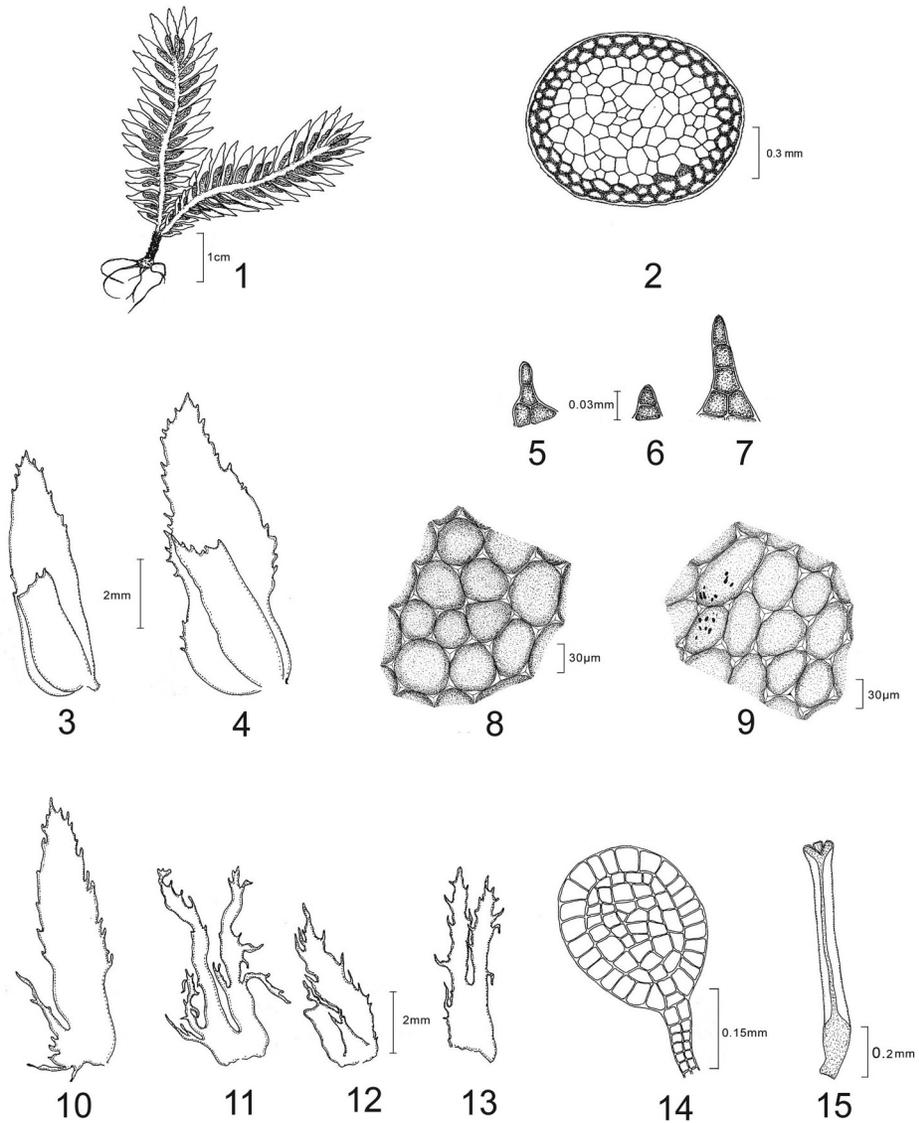
Schistochila commutata Steph., *Sp. Hepat.* 4: 74. 1909; R.S. Chopra, *J. Indian Bot. Soc.* 22: 247. 1943. Type: India (Tamil Nadu), Sispara, Nilgris, *Beddome s.n.*, Hb. Levier 2113 (G) (*vide* So, 2003). In the protologue, however, Stephani wrongly cited Ceylon before 'Nilgherry Montes' and there is no mention of Beddome either.

Plant dioicous or autoicous; 2.5-3.5 cm high. Stem branched, dark brown at base, 0.6-0.9 × 0.4-0.7 mm in cross-section, to 20-celled across; cells nontrigonous; cortical cells 2 or 3-layered, thick-walled, 15-45 × 13-43 µm; medullary cells thin-walled, 40-60 × 38-55 µm. Leaves 14-20 pairs, evenly distributed, 6-9 × 1-2 mm, faintly shrunk when dry, conduplicate, oblong-lingulate, broader at apex, narrowing down to a rounded base at insertion, toothed at margin with 5-12 teeth towards apex; teeth 30-150 µm long, 2-5-celled; cells penta- to hexagonal, nonpapillose, thin-walled, with distinct bulging triangular trigones; apical and median leaf cells 30-56 × 28-40 µm; basal ones 30-90 × 15-35 µm; oil-bodies occasional, 5-10 per cell, ovoid, 3-5 µm, faintly granular, blue-green; dorsal leaf lobe truncate to acute at apex. Paraphyllia numerous, at leaf bases, 1-2 mm long. Underleaves absent. Male bracts similar to vegetative leaves. Antheridia axillary, enclosed by lobes of male bracts, 2-5 per leaf, ovoid, ca 0.3 × 0.23 mm; stalk ca 0.53 × 0.045 mm. Female bracts apical, 7-8 × 1.5-1.9 mm; more toothed than vegetative leaves; those near archegonial cluster dissected. Archegonia apical, in a cluster of 20-60, ca 0.86 × 0.06 mm. Sporophyte not seen.

Habitat: Rupicolous in riparian evergreen forests, 700-1400 m. Usually in pure formations, in proximity with *Fissidens anomalus* Mont. on rocks surrounded by water along stream sides.

Distribution: China, Indonesia, Malaysia, Micronesia, the Philippines, Sri Lanka, Thailand and India: Nicobar Islands and the Western Ghats (Silent Valley in Kerala) and (Kanyakumari, Nilgris and Tirunelveli in Tamil Nadu) (Fig. 16).

Specimens examined: Tamil Nadu, Tirunelveli Distr., W. Ghats, Agasthyamalai Biosphere Reserve, 700-900 m, 26.4.2002, *Daniels* 2040, 2082, 2083 (MH, SCCN); Kanyakumari Distr., W. Ghats, Agasthyamalai Biosphere Reserve, Muthukuzhivayal, ca 1350 m, 17.5.2002,



Figs 1-15. *Schistochila aligera* (Nees & Blume) J.B. Jack & Steph. **1.** Plant when wet. **2.** Stem cross section. **3.** Lower leaf. **4.** Upper leaf. **5-7.** Leaf marginal teeth. **8.** Leaf apical cells. **9.** Leaf basal cells with oil bodies. **10-13.** Female bracts. **14.** Antheridium. **15.** Archegonium.

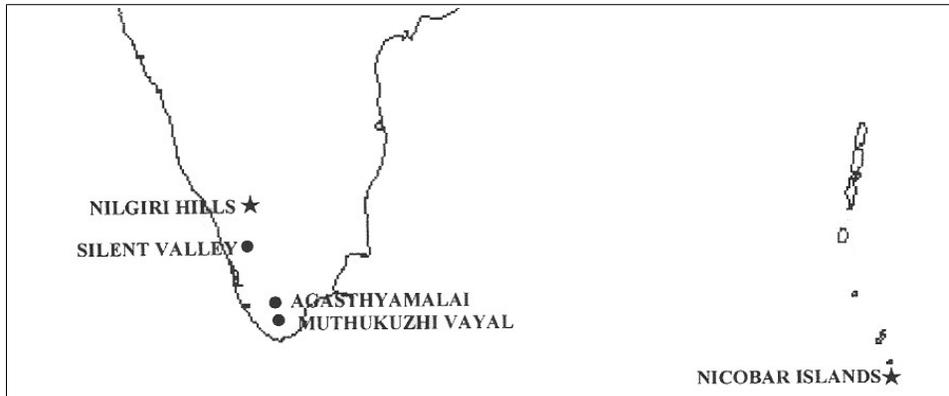


Fig. 16. The distribution of known localities of *Schistochila aligera* in India [★ earlier localities; ● present localities].

Daniels 2230 (MH, SCCN); Kerala, Palakkad Distr., W. Ghats, Silent Valley, ca 1400 m, 17.9.2007, *Kariyappa* 2590 (SCCN*). *Herbarium of Scott Christian College, Nagercoil.

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