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NOTE

A New Record of *Syncesia* (Lichenized Ascomycota) from India with Additional Taxonomic Characters

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ABSTRACT: A lichen species *Syncesia farinacea* (Fée) Tehler collected from the Nilgiri hills of Tamil Nadu is reported as new to India. A detailed description and figures along with additional information about its pycnidia, oil globules in young ascomata and rare isidia like structures not mentioned in earlier reports for this species are also provided.

KEY WORDS: Arthoniales, Roccellaceae, Tamil Nadu, taxonomy.

INTRODUCTION

The genus *Syncesia* Taylor was monographed by Tehler (1997) with 17 accepted species. Six species have been described since then (Sipman, 2009; Ertz et al., 2010; Ertz and Tehler, 2011; Joshi et al., 2011; van den Boom et al., 2011) and now 23 species are known world-wide. Recently, the genus has been demonstrated to be monophyletic in a phylogeny of Arthoniales, and eight species were included in it (Ertz and Tehler, 2011). *Syncesia indica* S. Joshi & Upreti is the only species known from India (Joshi et al., 2011).

Tehler (1997) stated that the circumscription of *S. farinacea* complex comprising other six species viz. *S. effusa* (Fée) Tehler, *S. glyphysoides* (Fée) Tehler, *S. psaroleuca* (Nyl.) Tehler, *S. rhizomorpha* Tehler, *S. intercedens* (Müll. Arg.) Tehler and *S. mollis* (Müll. Arg.) Tehler is apt to change in future when more fresh materials are available for further studies. During the course of revision of family Roccellaceae *s.l.* in India, an interesting *Syncesia* specimen was collected from Nilgiri hills, Tamil Nadu, India. Critical examination followed by expert suggestion (Ertz, pers. comm.) has led the authors to identify it as *S. farinacea* (Fée) Tehler albeit it possesses some interesting features viz. pycnidia, sparse oil globules in hymenium of young ascomata and rare presence of isidia like structures hitherto unknown so far in the species. The species is also a new record for India. Taxonomic description along with additional information, world distribution map and figures are provided to facilitate its identification.

MATERIALS AND METHODS

Morphological details were examined using a Nikon SMZ 1500 stereomicroscope. Hand-cut sections of thalli and ascomata were studied mounted in distilled water and KOH. The amyloid reactions were tested in Lugol's iodine solution (I), with and without pre-treatment of KOH. Anatomical details were studied using a Nikon Eclipse 50i compound microscope. Measurements of asci and ascospores were made in distilled water and drawings were made with help of Ernst Leitz Wetzlar (Germany) microscope (in 10×) with sections mounted in distilled water. The chemistry was studied by spot tests and thin layer chromatography following Orange et al. (2001). The examined specimens were deposited in the herbarium of Botanical Survey of India, Allahabad (BSA).

TAXONOMIC TREATMENT

Syncesia farinacea (Fée) Tehler, Fl. Neotrop. Monogr. 75: 25. 1997. *Chiodecton farinaceum* Fée, Ann. Sci. Nat. (Paris) 17: 25. 1829. Figs. 1–4.

Thallus corticolous, crustose, epiphloeodal, dense, coherent, water absorbent, marginally byssoid, rimose, rugose to sometimes slightly verrucose, rarely isidia like structures present, epruinose, whitish to slightly greenish, 140–180 µm thick, ecorticate, medulla indistinct, calcium oxalate crystals absent. Photobiont *Trentepohlia*. Prothallus white to brown, byssoid, 1–2(–3) mm wide. Ascomata pseudo-monocarpocentral, solitary and rounded when young, 0.05–0.1(–0.2) mm diam., synascomatal and sinuate when old, 0.4–1.5(–2) mm diam., tomentose, sessile, ± constricted at base; margin white, 80–155 µm thick, level with or only

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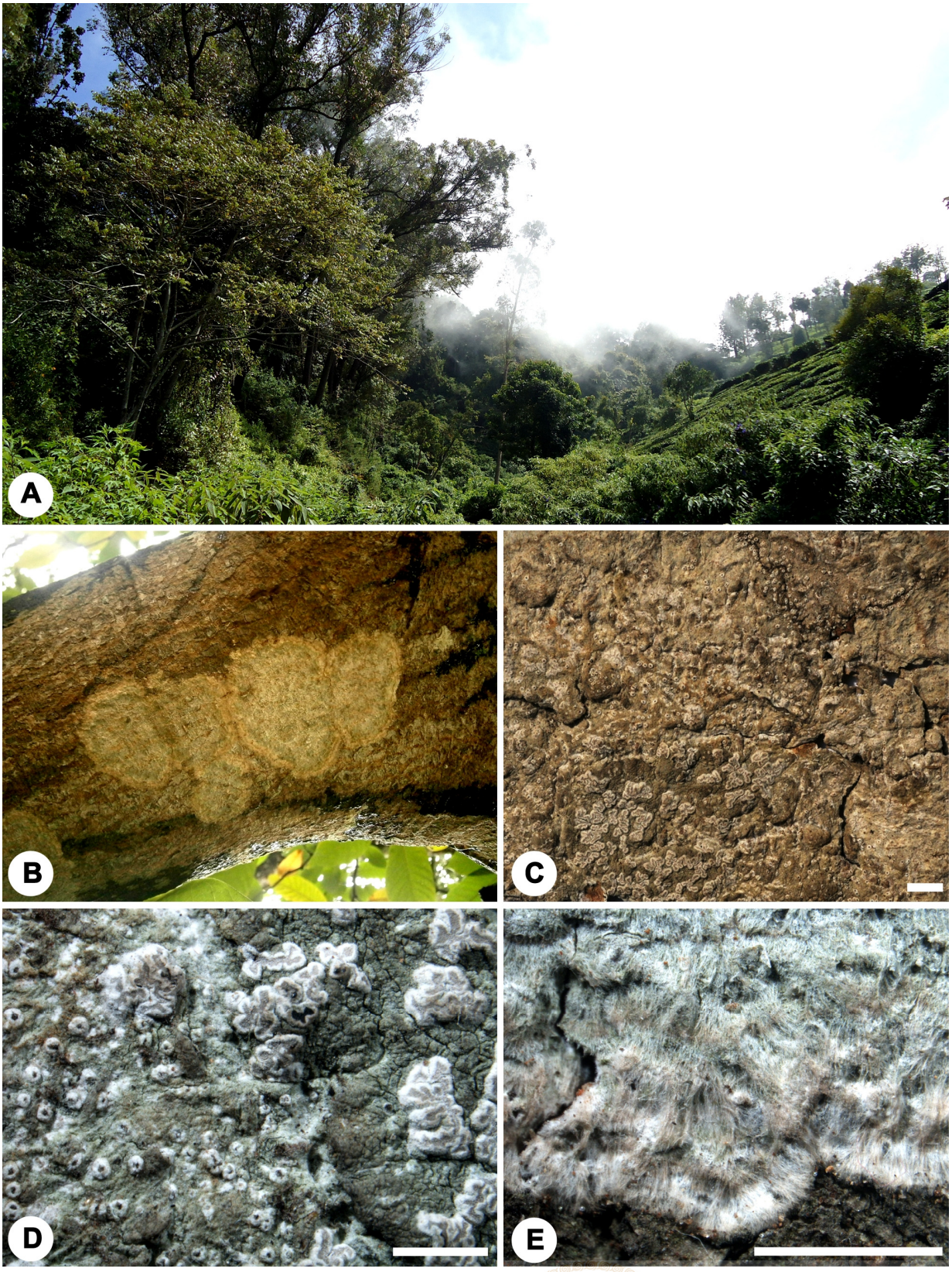


Fig. 1. ***Syncesia farinacea.*** **A: A photograph of collection locality. B & C: Habit. D: An enlarged view of habit showing pycinidia and synascomata. E: Habit with prothallus. Scale bars: C, D & E = 5 mm.**

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slightly rising above the disc, cortex lacking, with minute crystals, sometimes with sparse algae; disc flat or slightly convex, white purinose, tomentum indistinct. Excipulum pale brown above, dark brown below. Epithecium dark brown, 20–30 µm thick, granular, K+ olivaceous. Hymenium hyaline, 80–120 µm high, with sparse oil globules (in young ascomata only), K-, I+ orange-red, K/I+ weak blue. Paraphysoids ± separable, richly branched and anastomosing in epithecium, 1–1.8 µm thick. Hypothecium dark brown to black (carbonaceous), 100–230 µm thick, extending down to the substrate, K+ olivaceous (green). Asci clavate, 8-spored, 80–110 × 13–15 µm. Ascospores hyaline, 31–36.7 × 4.3–5.7(–6) µm, 3-septate (rarely 2- and 4-septate), microcephalic, ± fusiform, not constricted at the septa, straight or curved, perispore absent.

Pycnidia conspicuous, marginal, rare towards centre, appear like young ascomata, margin white, tomentose, without cortex, sometimes with algal cells. Conidia filiform, sickle-shaped, aseptate, hyaline, (13.5–)15–19 (–22.1) × 0.8–1.2 µm.

Chemistry: Thallus K-, C-, Pd-, UV-; ascomata and pycnidia K-, C-, Pd+ red, UV+ violet; TLC: protocetraric (major) and roccellic (major) acids.

Distribution and habitat: Brazil, Colombia, Cuba, Mexico, Puerto Rico, Venezuela and West Indies. In India, presently this species is known from Coonoor, Nilgiris where it was collected from the bark of *Annona muricata* L. near tea plantation area along river bank side during 2011 (September) and 2012 (December) from the same tree.

Notes: *Syncesia farinacea* is a highly variable species. The ascospore size are reported to vary between 25–31 × 4 µm (Tehler, 1997) and 35–50 × 4–5 µm (Sipman, 2009). Spore length in Indian specimens (31–36.7 µm) is an intermediate value compared to Tehler (1997) and Sipman (2009). Pycnidia of this species are known only from Indian specimens.

Syncesia farinacea is similar to *S. effusa* in ascomata morphology and spore size but the latter has UV+ yellow thallus and atranorin. *Syncesia indica,* the only known species from India differs from *S. farinacea* by shorter ascospores (15–22 × 2–4 µm), an amyloid hymenium and thallus with marginally rhizomorph like structures which are similar to *S. rhizomorpha. Syncesia farinacea* also possesses occasional rhizomorph like structures but are less conspicuously developed and can be differentiated from *S. rhizomorpha* by longer ascospores, absence of calcium oxalate crystals in the thalline margin and absence of schizopeltic acid (Tehler, 1997).

Specimens examined: **INDIA**: Tamil Nadu, Nilgiri District, Coonoor, 11°20′19.6″N, 076°48′05.0″E, 1705 m, on bark of *Annona muricata*, 21.09.2011, *Siljo Joseph 7622A*, *7622B* (BSA); *ibid*, 02.12.2012, *Siljo Joseph 8052*(BSA).

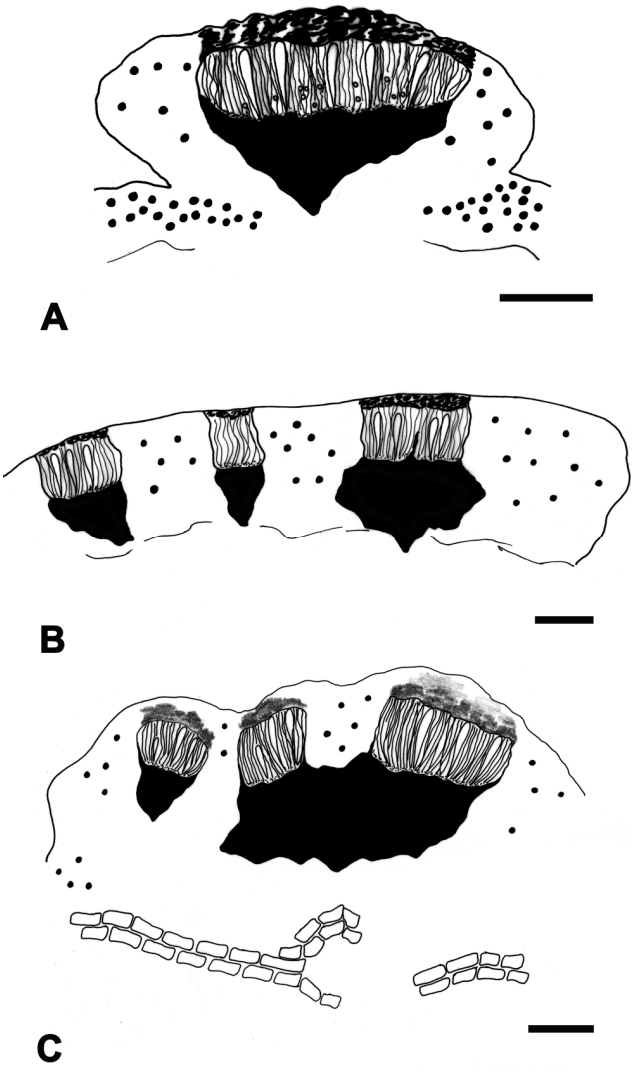


Fig. 2. *Syncesia farinacea.* A: Section of a simple ascoma. B & C: Synascomata. B: Section through margin. C: Section through centre. Scale bars: A, B & C = 100 µm.

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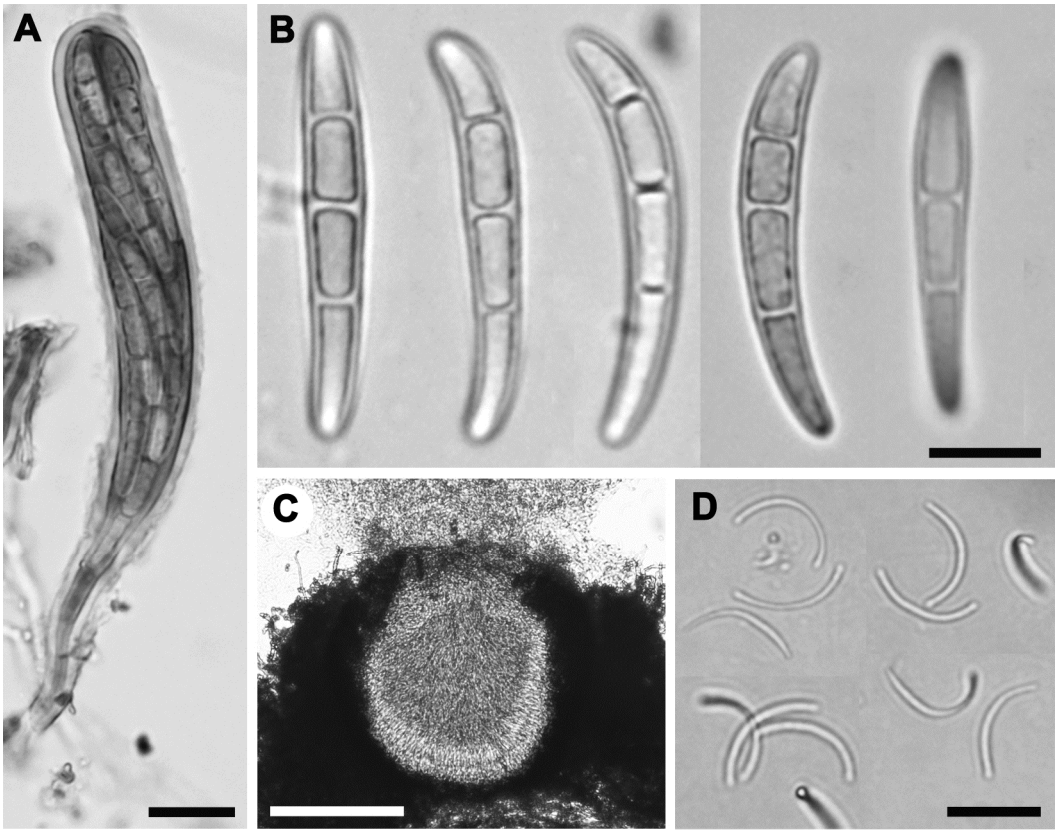


Fig. 3. *Syncesia farinacea*. A: An ascus (in Lugol's iodine). B: Ascospores (in Lugol's iodine). C: Section through a pycnidium. D: Conidia. Scale bars: A, B & D = 10 µm. C = 100 µm.

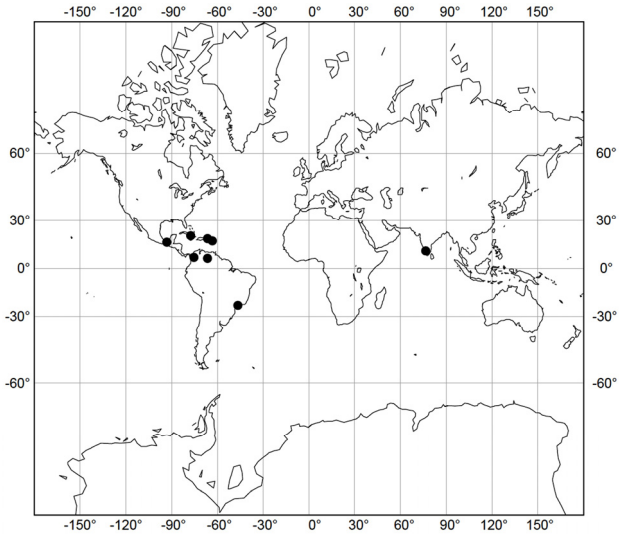


Fig. 4. Map showing known world distribution of *Syncesia farinacea* (●). The map was produced using PanMap software (http://www.pangaea.de/Software/PanMap).

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地衣 *Syncesia* 屬（子囊菌門）印度新紀錄種及分類構造描述增補

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摘要：本文發表了地衣*Syncesia farinacea*在印度的新紀錄分布，採集地點在坦米爾納德邦的尼基里斯山脈。內文除提供了此種的形態描述及彩圖，也包含了獨特構造的新資訊如分生孢子叢、幼子囊器內的油珠體以及罕見的裂芽狀構造。

關鍵詞：星裂菌目、染料衣科、分類學、坦米爾納德邦。

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