Journal on New Biological Reports
JNBR 4(2) 103 – 105 (2015)

ISSN 2319 – 1104 (Online)

Published by
www.researchtrend.net

A New Species of *Acanthothecis* (lichenized *Ascomycetes*) from India

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| **Received**: 20 April 2015 | **Accepted**: 12 May 2015 |

ABSTRACT

Acanthothecis subconsocians, a new lichen species is described from India. It is characterized by presence of striate excipulum, inspersed hymenium with warty paraphysis tips and (1)3–7(9) septate ascospores. A description of the species is given with notes on distribution, ecology, illustration and taxonomy.

Key Words: Graphidioid lichens, lirellate, Sikkim, taxonomy.

INTRODUCTION

Acanthothecis Clem. (Graphidaceae) is mainly distributed in pantropical regions and comprises ca. 35 species world–wide (Staiger & Kalb 1999; Staiger 2002; Makhija & Adawarkar 2003, 2007; Archer 2006, 2007, 2009; Dal Forno & Eliasaro 2009; Sharma et al. 2010). It is represented by 7 species in India viz. *A. archeri*, *A. celata*, *A. coccinea*, *A. collateralis*, *A. consocians*, *A. dialeuca* and *A. nivalis*. The genus is characterized by non-carbonized exciple, I– hymenium with finely spiny, filiform or warty periphysoids and paraphysis tips and oblong–oval, I– ascospores with cylindrical locules. While studying lichens collected from Sikkim, India a new species has been discovered, which is dealt to facilitate its identification

MATERIAL AND METHODS

The new species is described based on specimen collected from Sikkim, India. Identification work was carried out in the Lichenology Laboratory, Botanical Survey of India, Central Regional Centre, Allahabad. The images displayed in Fig. 1 were obtained with stereomicroscopes (Olympus SZ61) and compound microscopes (Nikon Eclipse 50*i*). Sections of thalli and ascomata were mounted in water, 10% KOH, and Lugol's iodine solution. All measurements were made in water. Chemical constituents were identified by thin-layer chromatography in solvent C (170 ml toluene, 30 ml glacial acetic acid) according to standardized methods (Orange et al. 2001). Taxonomic comparision with allied species are provided in table I.

THE SPECIES

Acanthothecis subconsocians Pooja Gupta & G.P. Sinha, **sp. nov.** **Fig. 1**

Myco Bank No.: MB812563

Etymology: The specific epithet refers its similarity with *Acanthothecis consocians*.
Type: India, Sikkim, East Sikkim district, Pangthang-Rokshe, on exposed tree trunks in

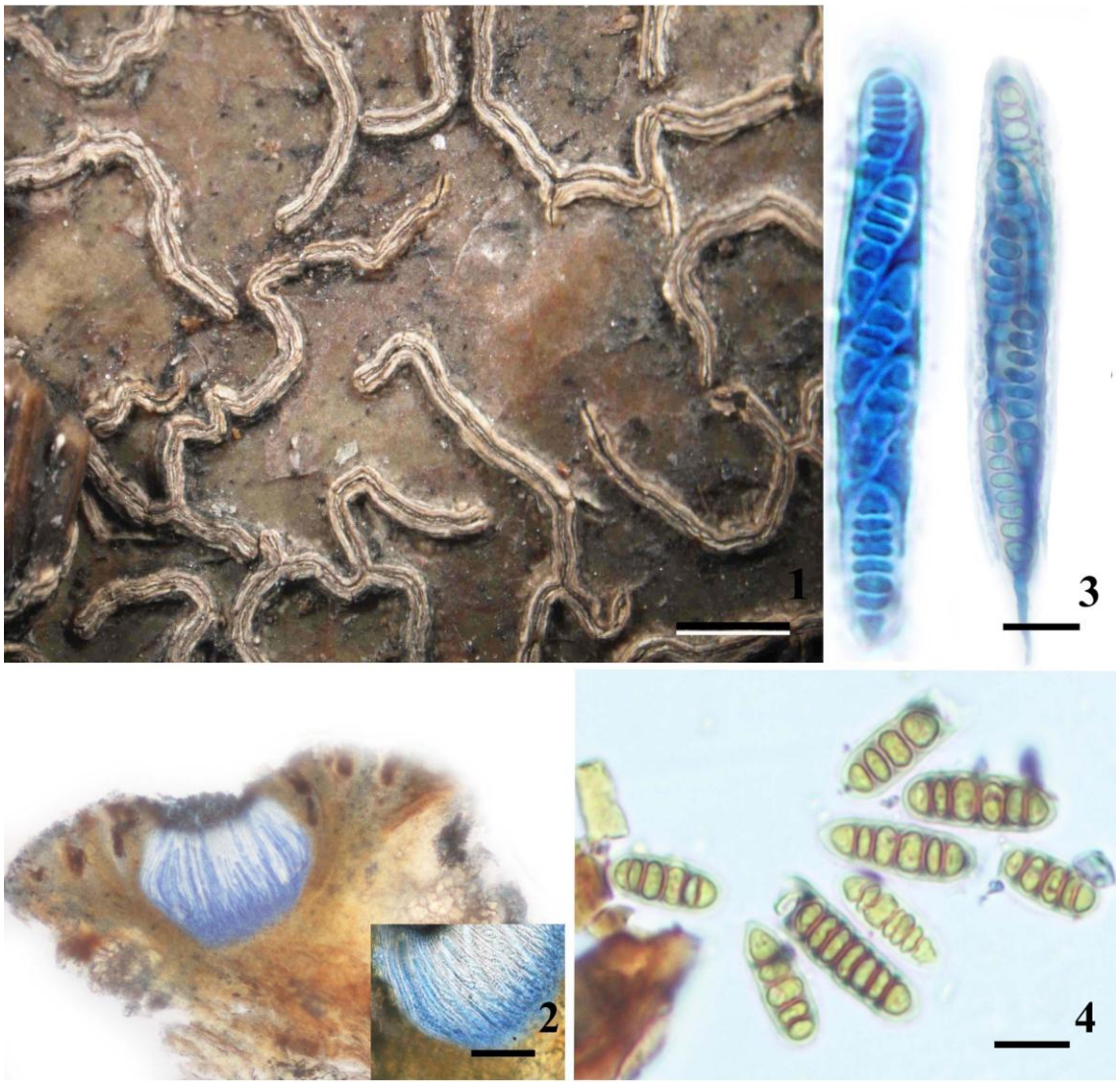

Fig. 1 – ***Acanthothecis subconsocians*** **1**-Habit; **2**- Vertical section of apothecium; **3**- Asci with ascospores; **4**- Ascospores. Scale bars: **1**= 2 mm; **2**= 40 µm, **3** & **4**= 10 µm.

Table I. Comparision of *Acanthothecis subconsocians* with closely related species.

Characters	***A. subconsocians***	***A. celata*** Sharma, Makhija & Khadilkar	***A. consocians*** (Nyl.) Staiger & Kalb
Thallus colour	Yellowish-brown; granulose	Snowy white; granulose, farinose	Pale white–yellowish; effuse
Lirellae emergence branching	errumpent-prominent simple to dichotomously branched	immersed, completely hidden in the thallus simple	immersed-slightly raised branched
colour	white	white (concolourus with thallus)	White
size	elongated; (2-10 × 0.3-0.5 mm)	short (0.5-1.5 × 0.2-0.3 mm)	elongated; (3-6 × 0.25 mm)
pruina	slightly pruinose	dense white pruina	Pruinose
Striation	striate	Entire	Entire
Hymenium	inspersed	Clear	Clear
Ascospores	transversely (1) 3-7 (9) septate, (14-25 × 5-8µm)	transversely 8-10 septate, (35-43 × 7-10µm)	transversely 5-8 septate (13-18 × 4-5µm)

subtropical forest between 1898–1795 m altitudes, 21 November 2006, G.P. Sinha 3621 (Holotype–BSA).

Thallus crustose, corticolous, epiphloeodal, yellowish–brown, continuous, 6–8 cm across, 98–125 µm thick; surface smooth, shiny, epruinose; calcium oxalate crystals present, 36–63 µm diam.; prothallus indistinct; photobiont *Trentepohlia*, algal cells rounded, 8-12 µm diam.; medulla indistinct.

Apothecia lirelliform; lirellae off white, incrusted with small, grey crystals, erumpent–prominent, 2-10 mm long and 0.3-0.5 mm wide, straight, usually unbranched, partly dichotomously branched, with subacute or rounded ends; disc mostly exposed, flesh-coloured to pale brownish; labia striate, convergent, slightly covered by white pruina; thalline margin thin or basal; excipulum uncarbonized, 107–158 µm wide; epithecium colourless, 45–52 µm thick; hymenium colourless, inspersed with oil globules, I–, KI–, 75–90 µm high; hypothecium colourless to pale–yellowish, 24–29 µm thick; paraphyses simple, dichotomously branched and warty at the tip, 1.4–2 µm thick; periphysoids indistinct; asci 8–spored, ± cylindrical, 67–76 × 10–12 µm, I–, KI–; ascospores colourless, oblong–fusiform, transversely (1) 3–7 (9) septate with lenticular–rounded locules, 14–24 × 5–8 µm, I–, KI–.

Chemistry: Thallus K–, C–, KC–, P–, UV–; no lichen substances detected by thin-layer chromatography.

Characterization and taxonomic relationships: *Acanthothecis subconsocians* is characterized by the thallus lacking lichen substances, elongated lirellae, striate excipulum, inspersed hymenium with warty paraphysis tips and transversely (1) 3–7 (9) septate ascospores. Lichen substance are also absent in *A. celata* and *A. consocians*, both known from India and this is the third species without lichen substances. The first one is morphologically different and has snowy white, granulose–farinose thallus and immersed lirellae, completely hidden in the thallus (Sharma et al. 2010). The present species is morphologically close to *Acanthothecis consocians* (Nyl.) Staiger & Kalb which differs in smaller and immersed lirellae, entire excipulum, clear hymenium, transversely 5–8 septate, smaller and narrower ascospores (13-18 × 4-5 µm).

In its morphology, uncarbonized excipulum and indistinct periphysoids, *A. subconsocians* can be confused with other genera of the Graphidaceae (e.g. *Hemithecium*). However, the presence of warty paraphyses tips, inspersed hymenium and non–amyloid ascospores clearly separate the new species from other.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. Paramjit Singh, Director, Botanical Survey of India, Kolkata, for providing facilities, to Dr. K.P. Singh, Emeritus Scientist, Botanical Survey of India, Allahabad for his keen interest and suggestions and to Dr. B.O. Sharma, Agharkar Research Institute, Pune for her critical suggestions.

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