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A NEW LICHENICOLOUS SPECIES OF *MELASPILEA* (MELASPILEACEAE, ARTHONIALES) FROM INDIA

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A new lichenicolous fungus *Melaspilea nitidochapsae* colonising on the thallus of *Nitidochapsa leprieurii* (Mont.) Parnmen, Lücking et Lumbsch is described from India. The new species differs from other known species colonising lichen family Graphidaceae by having completely carbonised exciple, hyaline to pale brown transversely 1-septate ascospores and a different host.

Key words: Andaman and Nicobar Islands, lichenicolous fungus, *Melaspilea*

INTRODUCTION

The ascomycete genus *Melaspilea* Nyl. (Melaspileaceae W. Watson) characterised by arthonioid or opegraphoid ascomata, carbonised exciple consisting of several cell layers and hyaline to pale brown, transversely 1-septate ascospores (Perlmutter *et al.* 2015) is represented by about 70 species (Flakus *et al.* 2014, Joseph and Sinha 2015, Kalb *et al.* 2012, Kirk *et al.* 2008, Zhurbenko and Zhdanov 2013) across the world. Majority of its species are lichenised except twelve, viz. *M. amarkantakensis* S. Joseph et G. P. Sinha on *Pertusaria* sp., *M. cupularis* Müll. Arg. on *Pyrenula* sp., *M. diplasiospora* (Nyl.) Müll. Arg. on *Graphis elegans*, *M. epigena* Müll. Arg. on *Reimnitzia santensis*, *M. epigraphella* (Nyl.) Müll. Arg. on *Acanthothecis consocians*, *M. galligena* Zhurb. et I. Zhdanov on *Pertusaria* sp., *M. insitiva* Stirt. on *Pertusaria leioplaca*, *M. lakae* Brackel et Kalb on *Sarcographa labyrinthica*, *M. leciographoides* Vouaux on *Verrucaria* sp., *M. lentiginosa* (Lyell ex Leight.) Müll. Arg. on *Phaeographis dendritica*, *M. tribuloides* (Tuck.) Müll. Arg. on *Anthracothecium* sp. and *Pyrenula* sp., and *M. tucumana*

Flakus, Etayo et Kukwa on *Pertusaria* sp., which are lichenicolous (Clauzade *et al.* 1989, Ertz and Diederich 2015, Flakus *et al.* 2014, Joseph and Sinha 2015, Kalb *et al.* 2012, Zhurbenko and Zhdanov 2013).

Neither *Melaspilea* nor any other lichenicolous fungi has hitherto been reported on *Nitidochapsa leprieurii*. Hence, our fungus is clearly distinct from all other known lichenicolous *Melaspilea* species and thus, deserves to be described as new species, which is dealt below.

MATERIALS AND METHODS

The specimen collected from Andaman and Nicobar Islands, deposited in BSA Herbarium was examined morphologically, anatomically and chemically. Morphological characters of reproductive structures and their colour, size and shapes were examined under a stereo microscope (Nikon SMZ-1500). Thin hand-cut sections of ascomata were mounted in water and KOH and examined under a compound microscope (Nikon Eclipse 50i). All anatomical measurements were made in water mounts. Ascomata and ascospores were stained with Lugol's solution to check the amyloid reaction.

RESULTS AND DISCUSSION

Melaspilea nitidochapsae Pushpi Singh, Y. Joshi et Kr. P. Singh, spec. nova (Fig. 1A–C)

MycoBank no.: MB 820798

Similar to *Melaspilea epigraphella*, but differs by its lichenicolous habit on the thallus of *Nitidochapsa leprieurii* and completely carbonised exciple.

Type: India. Andaman and Nicobar Islands, South Andaman Island, Motor Vhanji, Dhani-Khari Dam forest area, alt. 24 m, 11° 33.738′ N and 92° 40.435′ E, on thallus of *Nitidochapsa leprieurii*, coll.: Singh, K. P. (9381B), 04 Feb. 2014 (holotype: BSA).

Ascomata lichenicolous on the thallus of *Nitidochapsa leprieurii*, black, lirelliform, solitary, scattered, very short, simple, prominent to sessile, 0.18–0.30 mm long, 100–110 μm wide and 70–85 μm high; disc concealed to slit-like, epruinose (Fig. 1A). Exciple carbonaceous, continuous below the hypothecium, laterally 15–30 μm thick, basally 25–30 μm thick, K– (Fig. 1B). Epihymenium brownish, ca 8 μm thick, K–. Hymenium hyaline, thin, not inspersed with oil droplets, 40–45 μm high, K–, I+ pale blue, KI+ blue. Hypothecium hyaline to brown, 10–15 μm thick, K–, I+ red. Paraphyses unbranched to sparsely branched, 2.0–2.2 μm thick; apices indistinctly swollen, up to 3 μm

thick. Asci 6–8-spored (Fig. 1C), subclavate, 37–41 × 10–12 µm. Ascospores hyaline, becoming brown when mature, ellipsoid to oblong, 1-septate, sole-

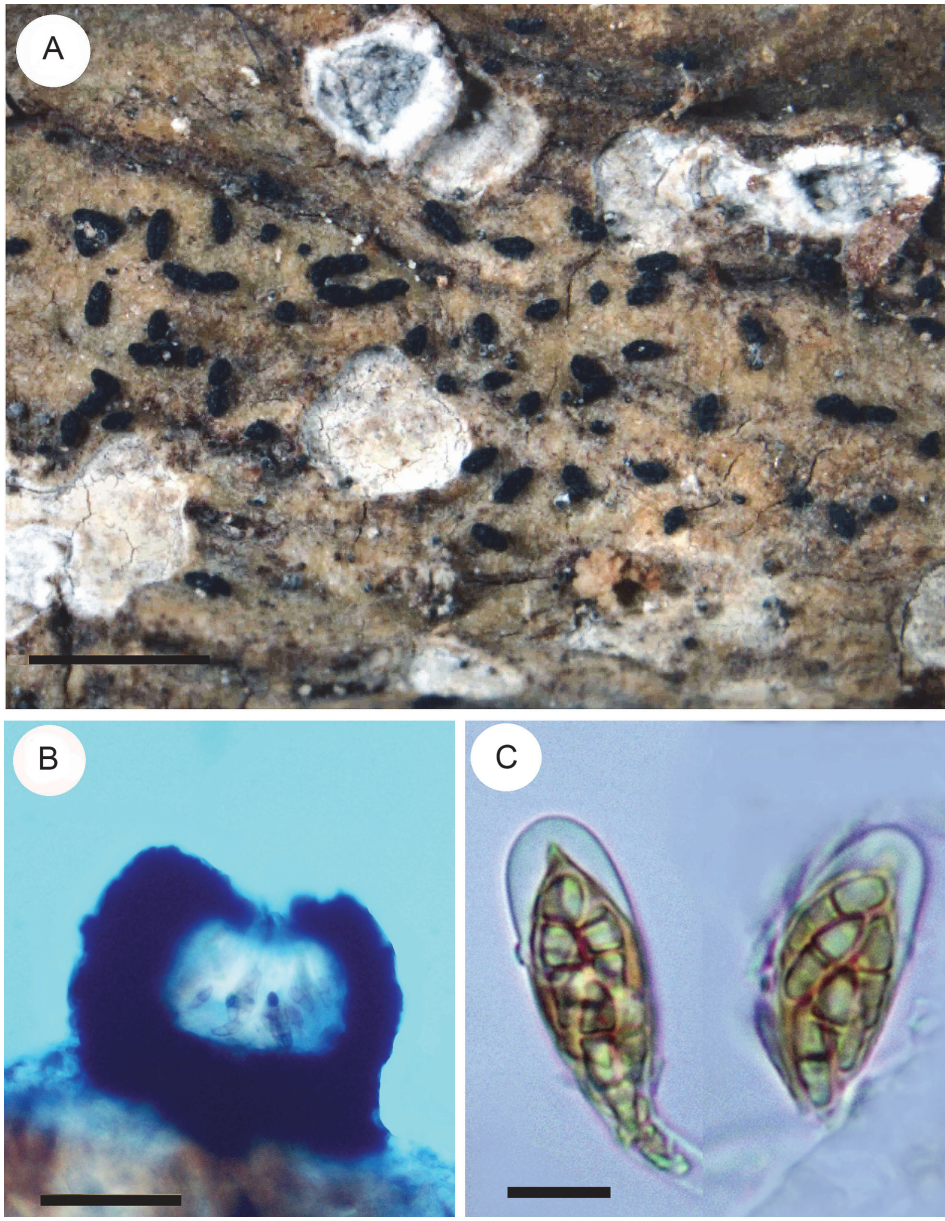

Fig. 1. Melaspilea nitidochapsae (holotype). A = ascomata of *M. nitidochapsae* on the thallus of *Nitidochapsa leprieurii*; B = cross section through an ascoma; C = asci with ascospores. Scale bars: A = 1 mm; B = 100 µm; C = 10 µm

shaped, slightly constricted at the septum, 9.5–11.5 × 3–4 μm; cells as long as wide, I–. Pycnidia not known.

Distribution and habitat: The new species is so far known only from South Andaman Island, where it is growing in shady open places at Dhani-Khari Dam tropical forest area on the thallus of *Nitidochapsa leprieurii*.

Etymology: The species epithet refers to the host name, i.e. lichenised fungus *Nitidochapsa leprieurii* (Mont.) A. Frisch.

Remarks: As mentioned earlier, so far 5 species of *Melaspilea* have been reported on members of Graphidaceae. The new taxon also growing on thelotremoid Graphidaceae taxa, i.e. *Nitidochapsa leprieurii* is well characterised by very short, prominent to sessile lirelliform ascomata having carbonised exciple, which is continuous below the hypothecium and 6–8-spored asci with brown, transversely 1-septate, 9.5–11.5 μm long ascospores. In general appearance and ascospore characters, it closely resembles *Melaspilea epigraphella* (lectotype: Nova Caledonia, Lifu, Loyalty insular, 1864, C. Thiébaut, s.n. H-Nyl-6217; bar code-9507757!), which differs in having laterally carbonised exciple that is absent below the hypothecium and a different host, viz. *Acanthothecis consocians*. It somewhat also resembles *M. epigena*, which has exposed disc and 5.5–7 μm broad ascospores and is lichenicolous on *Reimnitzia santensis* (Perlmutter *et al.* 2015). *Melaspilea amarkantakensis* and *M. insitiva* two other known species of this genus from India (Joshi *et al.* 2016) need not to be confused with this taxon as they use to colonise species of *Pertusaria* and have larger ascospores. The genus should not be confused with *Opegrapha* Ach., which has mostly hyaline, transversely more than 1-septate ascospores and branched and anastomosing paraphysoids.

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