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A new record of *Sarcographina* from India.

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ABSTRACT

Sarcographina cyclospora Müll. Arg., which was hitherto known from Australia, China, Japan, Sri Lanka and Vietnam, is reported here for the first time from India. The species is characterized by pale brown to olivaceous grey thallus; lirellate ascomata immersed in pseudostromata like elevated pale thalline areas; uncarbonised excipulum; clear hymenium; brown to dark brown, (–6.3) 8–11.5 (–13.8) × 6–8.8 µm ascospores and presence of psoromic acid.

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Background:

The genus *Sarcographina* was established by Müller Argoviensis (1887) for the taxa with stromatic lirellae and pigmented muriform ascospores based on the species *Sarcographina cyclospora*. Later, Staiger (2002) in her generic review of the family *Graphidaceae* recognized *Sarcographina* as a synonym of *Gymnographina* and proposed three combinations in the genus *viz.*, *Gymnograpa cyclospora* (Müll. Arg.) Staiger, *Gymnograpa eludens* (Stirt.) Staiger and *Gymnograpa hereterospora* (Nyl.) Staiger. However, Archer (2005, 2009), Lücking (2007) reduced the genus *Gymnographina* under the synonymy of *Phaeographis* and reestablished the genus *Sarcographina*.

According to the circumscription of Lücking & Rivas-Plata (2008), the genus *Sarcographina* Müll. Arg. is characterized by corticated thallus with abundant calcium-oxalate crystals; well branched and aggregated lirellae immersed in pseudostromata like pale thalline areas; uncarbonised excipulum; non-inspersed and non-amyloid hymenium; dark-brown ascospores with thin walls and presence of psoromic acid.

As a part of the study of lichens in the state of Odisha, an interesting collection of *Graphidaceae* was made by the author from Paralakhemundi Forest Division in July 2016 and after critical examination, it was identified as *Sarcographina cyclospora* Müll. Arg., which was known from Australia, China, Japan, Sri Lanka and Vietnam, and is reported here from India for the first time.

Materials and Methods:

Morphological examination of the specimen was carried out under a stereo zoom microscope (Nikon SMZ 1500) while anatomical characters were examined under a compound microscope (Magnüs MLX - Tr). The lichen chemicals were investigated with Thin Layer Chromatography (TLC) in solvent system A, following White & James (1985). The spot tests were performed with the usual chemical reagents K, C and P. The lichen specimen was also examined under UV light (365 nm).

Sarcographina cyclospora Müll. Arg., Flora 70: 425. 1887. *Glyphis cyclospora* (Müll. Arg.) Shirley, Proc. Roy. Soc. Queensland 6: 215. 1889. *Gymnographa cyclospora* (Müll. Arg.) Staiger, Biblioth. Lichenol. 85: 268. 2002. (Figure 1. A–C).

Thallus corticolous, epiphloeodal, finely cracked, irregular at out line, delimited by thin black prothallus, 4.5 cm diam.; surface pale brown to olivaceous grey, smooth to verruculose. Thallus in section 150–180 µm thick above the bark, 9–11 µm thick upper cortex, 35–50 µm thick photobiont layer, clusters of large calcium-oxalate crystals embeded in the upper part of

photobiont layer; photobiont green, a species of *Trentepohlia*.

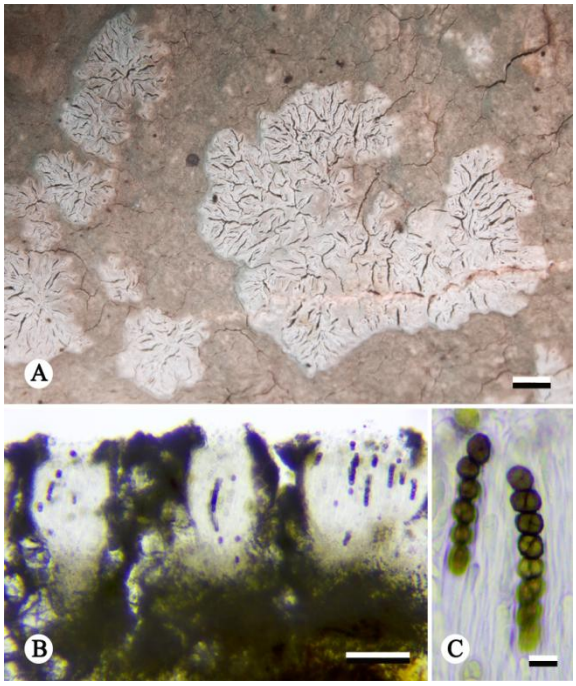

Fig. 1: *Sarcographina cyclospora*. A. thallus with ascomata; B. cross section of ascomata; C. ascospores. Scale: A = 1 mm; B = 100 µm; C = 10 µm.

Ascomata lirelliform, stellate, white, less than 1 to 2.8 mm long, 0.07–0.1 mm broad, rounded at the ends, lirellae seperated from its surrounding thallus by a deep slit and immersed in grayish-white pseudostromata like thalline areas, which is slightly elevated from surrounding thallus; disc concealed to slit like; excipulum complete, uncarbonized, hyaline to pale brownish; labia straight to slightly convergent, entire, surface covered with hyaline hyphae; epihymenium blackish, 3.6–6 µm thick, surface covered with blackish granules; hymenium hyaline, clear, 90–120 µm high, I–; subhymenium hyaline, 16–25 µm high; paraphyses simple to sparsely branched, tips with brown granules. Asci clavate. Ascospores 8 per ascus, mostly uniseriate, sometimes sub-biseriate, globose to subglobose when monolocular to tetralocular and oblong-ellipsoid to oblong or ellipsoid with narrow at lower end when transversely septate to submuriform (1–3 × 0–1 speptate when submuriform), initially distoseptate and subeuseptate to euseptate at maturity, (– 6.3) 8 – 11.5 (– 13.8) × 6–8.8 µm, 0.6–1 µm thick spore wall, brown to dark brown, I–.

Chemistry:

Thallus K+ brownish, C–, P+ yellow, UV−; psoromic acid (major), grey trace near Rf class 4 detected by TLC.

Distribution:

Australia, China, Japan, Sri Lanka and Vietnam. It is now reported here from India.

Habitat:

In Odisha, this species was found to be growing on a tree bark in a reserve forest area, in shady and humid conditions.

Specimen examined:

Odisha, Gajapati district, Paralakhemundi Forest Division, Koinpur Beat, near stream, 08 July 2016, *G. Swarnalatha* 238 (BSID).

GPS Co-ordinates:

18°56′44.58″ N 84°20′31.26″ E, elevation 619 m,

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