



## *Lasioloma krishnasinghii* (Ascomycota: Pilocarpaceae), a new foliicolous lichen from the Andaman and Nicobar Islands, India

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**ABSTRACT:** *Lasioloma krishnasinghii*, a new foliicolous lichen is described from the Andaman and Nicobar Islands, India. It is characterized by 8-spored asci, cylindrical, 11–15-septate, 61–80 × 7–9 µm ascospores, and filiform, centrally branched, 61–91 × 2–3.5 µm conidia.

**KEY WORDS:** Foliicolous lichenized fungi, Lecanorales, taxonomy, tropical evergreen forests, Great Nicobar Island.

### INTRODUCTION

*Lasioloma* R. Sant. is a tropical genus mostly of foliicolous comprising 10 species, four of which are corticolous (Lücking and Sérusiaux, 2001; Lücking, 2008; van den Boom *et al.*, 2018; Lücking *et al.*, 2021). The genus is characterized by the dispersed to rarely continuous, smooth or irregular thallus, with a well-developed, woolly prothallus, pilose apothecial margin, anastomosing paraphyses and transversely septate conidia with 2–4 branches originating from a single point (Santesson, 1952; Lücking and Sérusiaux, 2001; Lücking, 2008; Lücking *et al.*, 2021). *Lasioloma arachnoideum* (Kremp.) R. Sant., *L. phycophilum* (Vain.) R. Sant. and *L. trichophorum* (Vain.) R. Sant. are the three species currently known from India. Of these, *L. arachnoideum* (Kremp.) R. Sant. and *L. trichophorum* (Vain.) R. Sant. are also known from the Andaman and Nicobar Islands (Singh and Sinha, 2010; Singh and Pinokiyo, 2014).

During the recent ongoing floristic review of the lichens of the Andaman and Nicobar Islands, India the authors recognized over 550 species of lichens including 134 foliicolous species from the Islands. Among the foliicolous lichens, the family Pilocarpaceae shows highest numbers with 10 genera and 40 species. While investigating foliicolous lichens, a large number of new records for India as well as the Islands have already been published (Jagadeesh Ram 2015; Jagadeesh Ram and Sinha 2018a,b; 2020). In the present paper, the authors describe and illustrate an undescribed species of *Lasioloma* as new to science from the evergreen forest of the Great Nicobar Island.

### MATERIALS AND METHODS

A specimen collected by one of the authors (TAMJR) from Great Nicobar Island deposited in MH (holotype) and the duplicate as isotype in PBL were examined.

External morphological features were observed with an Olympus SZ61 stereomicroscope. Thin hand-cut sections of thalli, ascomata and campylidia were mounted in water and examined with a Nikon Eclipse 50i light transmission microscope. Spot tests were carried out by 10% aqueous potassium hydroxide solution (K), aqueous calcium hypochlorite solution (C), and para-phenylenediamine in Steiner's solution (P). Iodine reactions of hymenial layer was checked with Lugol's iodine. Lichen substances were studied by thin layer chromatography using solvent A (Orange *et al.*, 2001).

### TAXONOMIC TREATMENT

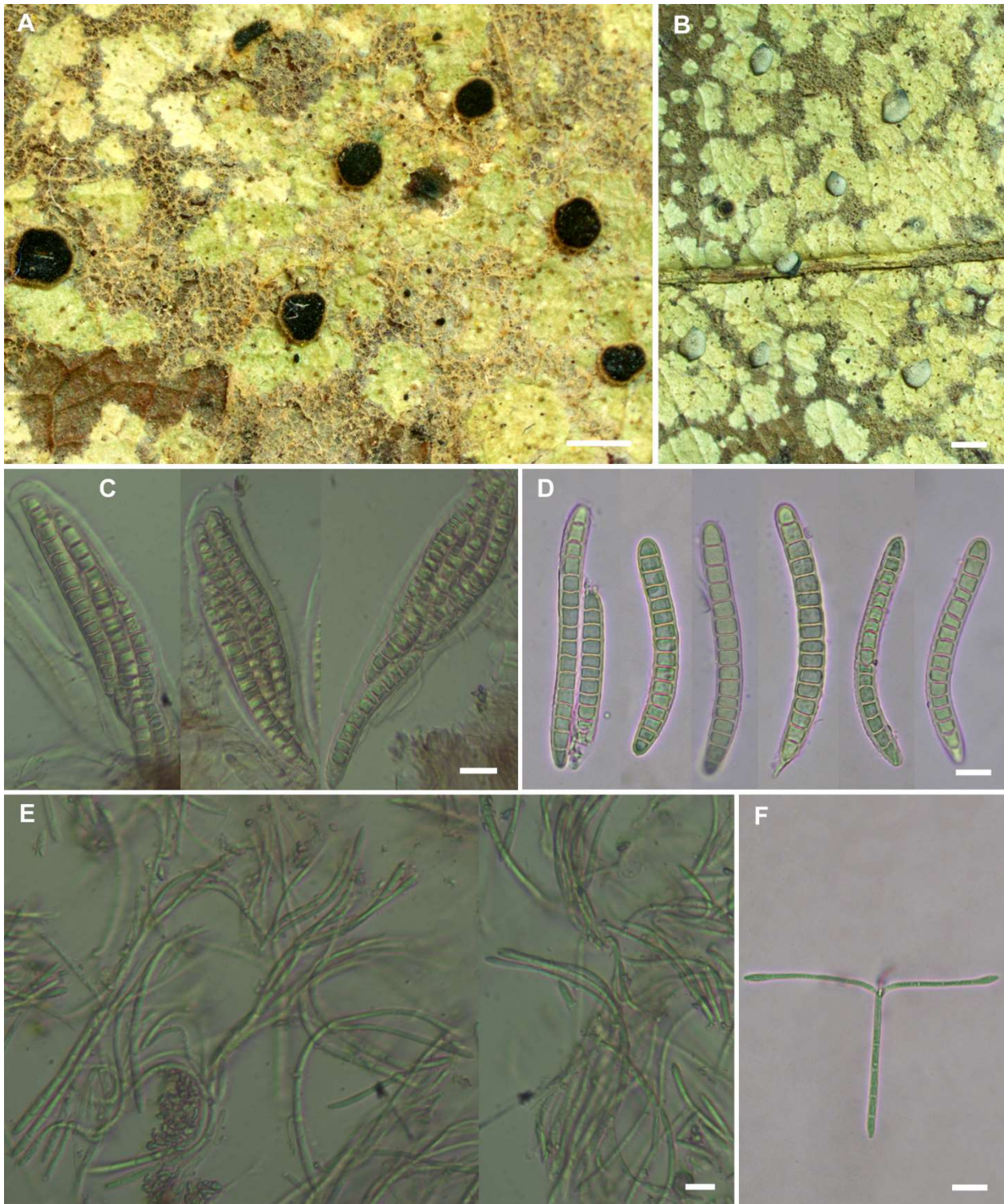
*Lasioloma krishnasinghii* Jagad. Ram & G.P. Sinha, *sp. nov.* **Fig. 1**

Mycobank No.: MB 845314

**Type:** India, Andaman and Nicobar Islands, Great Nicobar Island, East West Road, Shompen Hut area, evergreen forest, 6°58'87.9" N, 93°51'79.5" E, alt. 30 m, 30 May 2014, T.A.M. Jagadeesh Ram 3299 (holotype: MH; isotype: PBL).

**Diagnosis:** *Lasioloma krishnasinghii* with foliicolous thallus, 8-spored asci, 11–15-septate, 61–80 × 7–9 µm ascospores and filiform branched 61–91 × 2–3.5 µm conidia.

**Description:** *Thallus* foliicolous, up to 35 mm across, dispersed, formed by small, slightly convex, rounded to irregular, partly confluent patches, somewhat uneven, smooth, greenish yellow to greyish green, with a thin cartilaginous cortex and whitish medulla, up to 40 µm thick; prothallus well-developed between aliferous thallus patches, loosely woven, brownish grey to greyish white. *Cephalodia* not observed. *Apothecia* biatorine, sessile, constricted at the base, rounded, 0.5–1 mm diam., found on the prothallus or at the margins of the thallus patches; disc plane, becoming slightly convex, dark greyish brown, epruinose; margin distinct, pale grey to



**Fig. 1.** *Lasioloma krishnasinghii* (holotype). **A.** Thallus with woolly prothallus and ascomata. **B.** Thallus with woolly prothallus and Campylidia. **C.** Asci with ascospores. **D.** Ascospores. **E & F.** Conidia. Scales: A & B=1 mm, C–F=10  $\mu$ m.

chamois coloured, laterally pilose with numerous hairs, up to 80  $\mu$ m long, hairs tapering, 6–9  $\mu$ m wide, with very thick walls. *Excipulum* hyaline in marginal part, 40–70  $\mu$ m thick laterally, cells 6–10  $\mu$ m diam., in basal part 80–

100  $\mu$ m thick, cells 8–12  $\mu$ m diam. *Epithemium* thin, pale brown, 5–10  $\mu$ m thick. *Hymenium* hyaline, 90–130  $\mu$ m high, I+ dark blue. *Hypothecium* brown, 30–60  $\mu$ m thick. *Paraphyses* branched and anastomosing, 1–1.5  $\mu$ m



wide. *Asci* clavate, 8-spored,  $90\text{--}130 \times 18\text{--}28 \mu\text{m}$ . *Ascospores* hyaline, cylindrical, 11–15-septate, with slight constrictions at septa,  $(61\text{--})68.2\text{--}71.3\text{--}77.0(80) \times (7\text{--})7.8\text{--}8.25\text{--}8.7(9) \mu\text{m}$  ( $n=24$ ). *Campylidia* sessile, 0.5–1.1 mm broad; lobe dark grey to slightly bluish grey, with whitish grey pruina. *Conidia* filiform, with 2–4 branches originating from single point, 3–6-septate along the main branch and 2–3 septate along the side branches, with narrowly clavate ends,  $(61\text{--})73.5\text{--}82.1\text{--}90.7(91) \times (2\text{--})2.4\text{--}2.8\text{--}3.2(3.5) \mu\text{m}$  ( $n=21$ ). *Photobiont* chlorococcoid, cells 4–8  $\mu\text{m}$  diam.

**Chemistry:** Thallus K<sup>-</sup>, C<sup>-</sup>, KC<sup>-</sup>, P<sup>-</sup>; no lichen substances detected by TLC.

**Remarks:** *Lasioloma krishnasinghii* is characterized by 8-spored asci, cylindrical, 11–15-septate,  $61\text{--}80 \times 7\text{--}9 \mu\text{m}$  ascospores, and filiform branched  $61\text{--}91 \times 2\text{--}3.5 \mu\text{m}$  conidia. *Lasioloma inexpectatum* R. Sant. & Lücking known from the Ivory Coast (tropical West Africa), is the only other foliicolous species having 8-spored asci and transversely septate ascospores, but differs in having 7-septate, much smaller  $25\text{--}30 \times 3.5\text{--}7 \mu\text{m}$  ascospores (Santesson and Lücking, 1999; Lücking *et al.*, 2021). *Lasioloma spinosum* Hafellner & Vězda is also foliicolous, but differed from *L. krishnasinghii* in having 2–4-spored asci and submuriform ascospores, but other features seem to resemble each other (Lücking and Sérusiaux, 2001). The other foliicolous species have mostly single-spored asci with submuriform to richly muriform ascospores (Lücking and Sérusiaux, 2001). *Lasioloma pauciseptatum* van den Boom is another 8-spored species in the genus, but corticolous and has ellipsoid submuriform ascospores (van den Boom *et al.* 2018). The new species is so far known from the type locality. Lücking and Sérusiaux (2001) pointed out that south-east Asia is the centre of diversity of the genus, and notably this is another species added from the same region.

**Etymology:** The species is named in honour of our teacher, a renowned Indian Lichenologist, Dr Krishna Pal Singh (K.P. Singh) who was Additional Director at the Botanical Survey of India and worked on foliicolous lichens of India and lichens of Northeast India.

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