

A new corticolous species of *Lasioloma* (lichenized Ascomycota, Pilocarpaceae) from north-eastern Queensland

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Abstract

Lasioloma corticola P.M. McCarthy is described from the bark of *Casuarina* in a montane rainforest margin in north-eastern Queensland, Australia. It is characterized by having conidia with 4 or 5 branches diverging from a single point, the branches (5–)7–9(–11)-septate and 25–60 × 1.5–2.5 µm.

Introduction

Species of the genus *Lasioloma* R.Sant. (Pilocarpaceae) have a corticolous or foliicolous thallus with an often pilose or woolly prothallus, a chlorococcoid primary photobiont, with or without cephalodia containing cyanobacteria, sessile biatorine apothecia with a paraplectenchymatous exciple, branched and anastomosing paraphyses in an amyloid hymenium, *Byssoloma*-type asci, and transversely septate to muriform ascospores. The conidiomata are campylidia, sessile and hood-like, while the particularly diagnostic conidia have 3–5 filiform branches originating from a single point, each branch being transversely septate. Nine species are currently accepted; three are corticolous and predominantly Neotropical, while six others are foliicolous and mainly Palaeotropical to pantropical (Santesson, 1952; Aptroot *et al.* 1997; Santesson & Lücking, 1999; Lücking & Sérusiaux, 2001; Breuss 2002; Lücking 2008; van den Boom *et al.* 2018). Four foliicolous taxa are known from tropical Queensland, *viz.* the pantropical *L. arachnoideum* (Kremp.) R.Sant. (also in Christmas Island, Indian Ocean) and the Palaeotropical *L. phycophilum* (Vain.) R.Sant., *L. phycophorum* (Vain.) R.Sant. and *L. trichophorum* (Vain.) R.Sant. In this paper, a new species is described from *Casuarina* bark in north-eastern Queensland.

Lasioloma corticola P.M. McCarthy, sp. nov.
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Figs 1 & 2

Thallus crustose, corticolous, very thin, off-white to very pale greyish green; prothallus not apparent. Apothecia lacking. Campylidia ± erect to tilted and hood-like at maturity, (0.48–) 0.95(–1.45) mm wide, to 1.1 mm tall; outer convex surface medium to dark grey; inner concave surface dull black. Conidia with 4 or 5 branches radiating from a single point; branches filiform and ± straight, or arcuate and often recurved, (5–)7–9(–11)-septate, 25–60 × 1.5–2.5 µm.

Type: Australia. Queensland, Atherton Tableland, Mt Baldy, 4 km SW of Atherton, 17°17'S, 145°27'E, 1080 m alt., on bark of *Casuarina* along the margin of regrowth rainforest, *J.A. Elix 16326 & H. Streimann*, 25.vi.1984 (holotype – CANB).

Thallus crustose, epiphloeodal, effuse to determinate, continuous to sparingly rimose, smooth to faintly rugulose or minutely and inconspicuously verruculose, dull to slightly glossy, off-white with a greenish tint to very pale greyish green, 30–70 µm thick, ecorticate, but with a discontinuous, hyaline necral layer 5–10 µm thick, non-amyloid (I–), not containing calcium oxalate (H₂SO₄–); cephalodia and isidia absent. *Algae* dominating the thallus, green, chlorococcoid, 7–12 µm wide; interstitial hyphae 2.5–4 µm wide. *Medulla* whitish or nondescript. *Prothallus* not apparent. *Apothecia* lacking. *Campylidia* moderately numerous, initially flattened and folded, then erect or tilted at *c.* 45° towards the substratum, concavo-convex and hood-like when mature, finally collapsed, tattered and perforated; mature campylidia (0.48–) 0.95(–1.45) mm wide [*n* = 42], to 1.1 mm tall, tapering towards a bluntly pointed apex, pulpy and gelatinous when saturated with water; outer convex surface smooth, medium to dark grey

(darker above, paler below); inner concave surface dull black. Sectioned campylidium externally hyaline and prosoplectenchymatous, 20–30 µm thick at the apex when dry, *c.* 50 µm thick when saturated, this external zone 30–70 µm thick at the base when dry, *c.* 100 µm thick when saturated. *Conidiogenous layer* greyish black in thin section, paraplectenchymatous, 10–20 µm thick; conidiophores rounded to somewhat angular, thick-walled, 4–6(–7) µm wide and dark grey-brown, or more elongate and 5–8 × 2–3 µm. *Conidia* concentrated towards the inner base of the hood-like campylidium, hyaline, with 4 or 5 branches radiating from a single point, the structure appearing to remain intact after release from the campylidium (*i.e.* not fragmenting); branches filiform and ± straight, or arcuate and often recurved, (5–)7–9(–11)-septate, (25–)41(–60) × 1.5–2.5 µm [*n* = 35], not constricted at the septa; ends rounded, but attached to the conidiophore by the free end of one of the branches which appears truncate once detached, the remaining 3 or 4 branches forming a tight fascicle while the conidium remains attached, diverging only after it is released.

Chemistry: no substances detected by TLC (Elix 2014).

Etymology: The specific epithet refers to the new species growing on bark.

Remarks

Even in the absence of ascomata, the new species is readily characterized by the size and septation of its 4- or 5-pronged conidia, *i.e.* the branches being (5–)7–9(–11)-septate and 25–60 × 1.5–2.5 µm. By contrast, another sterile corticolous species, *L. appendiculatum* Breuss from Costa Rica, has much shorter, 4-branched conidia, each with 2–4 septa and with two branches having distinctly cylindrical appendices *c.* 5 µm long (Breuss 2002). The corticolous *L. pauciseptatum* v.d.Boom, from Suriname, has a blue-black prothallus and pale blue-tinged campylidia to 0.8 mm wide, while the conidial branches are 1–6-septate and 45–55 × 2–2.5 µm (van den Boom *et al.* 2018). Finally, although the corticolous *L. stephanellum* (Nyl.) Lücking & Sérus., from the Neotropics and West Africa, lacks campylidia, it can be distinguished from the Australian lichen by having a yellowish thallus, a pale yellow medulla and a distinctive, whitish, arachnoid prothallus (Lücking & Sérusiaux 2001).

Lasioloma corticola is known only from the bark of *Casuarina* sp. in montane rainforest in north-eastern Queensland.

Acknowledgement

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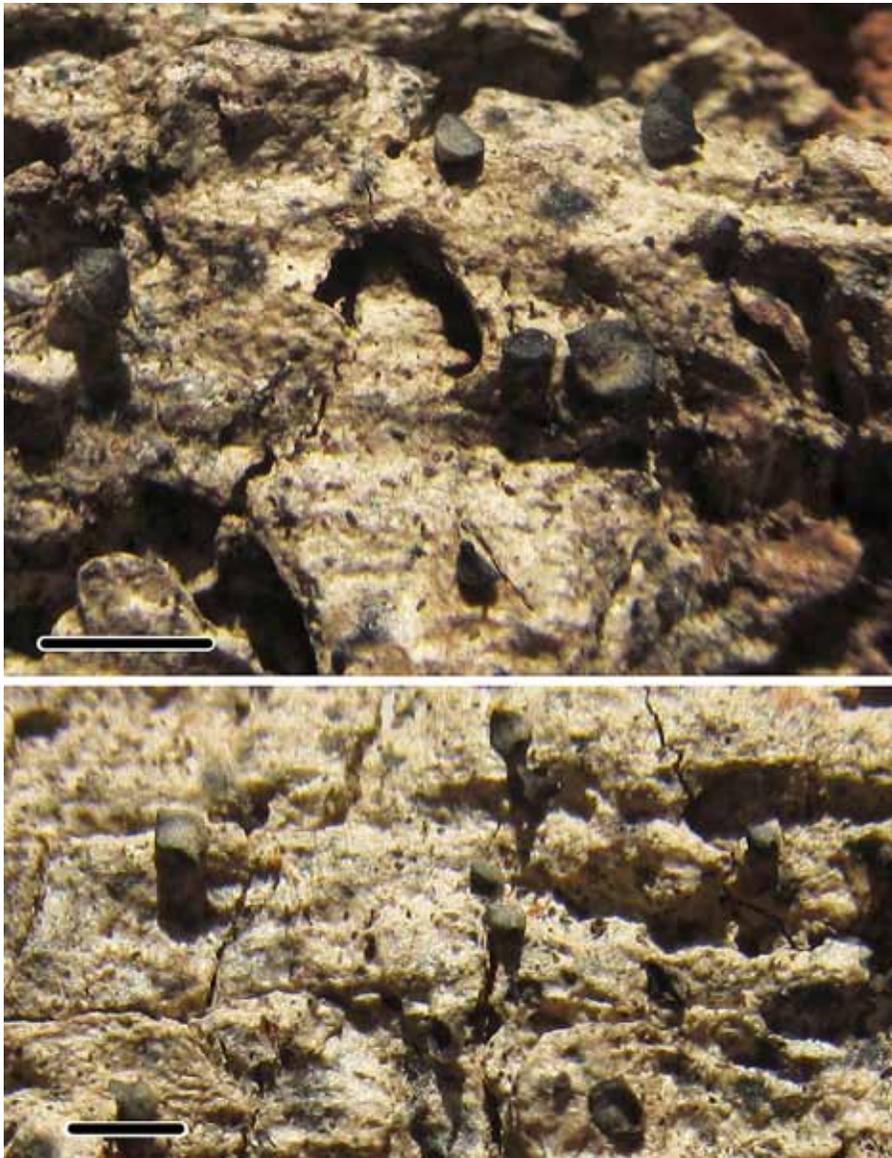


Figure 1. *Lasioloma corticola* (holotype). Scales: 2 mm.

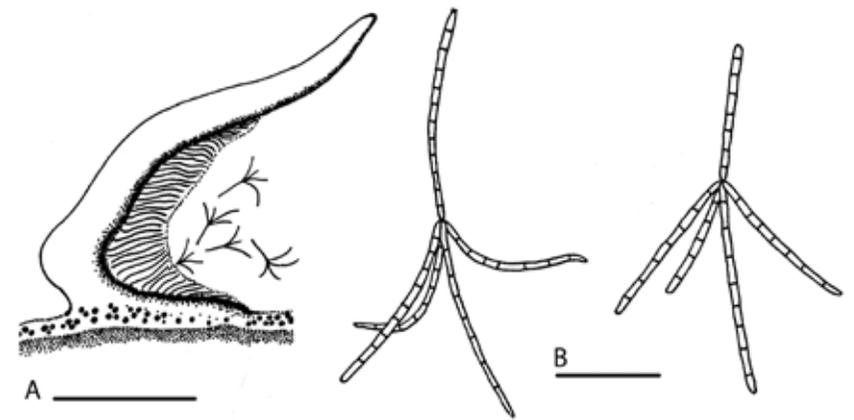


Figure 2. *Lasioloma corticola* (holotype). A, Vertical section of a mature campylidium (semi-schematic). B, Conidia. Scales: A = 0.2 mm; B = 20 μ m.