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Normandina pulchella is readily identified by its distinctive blue-green colour and its ear-like squamules, which have raised and strongly inrolled margins. It colonizes a range of substrata, including rock, tree bark, moist humus, leaves, and even other lichens, and it's moderately tolerant of air pollution. It often produces dense patches of moss-green soredia on the surface and margins of its squamules, but ascomata and conidiomata are unknown. Occasional reports of perithecia have mostly been dismissed as fruiting bodies produced by *Lauderlindsaya borneri* or other lichenicolous Ascomycetes. Often overlooked because of its small size, it's nearly cosmopolitan in its distribution.

1 mm 

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***Acanthothecis consocians* (Nyl.) Staiger & Kalb**

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Abstract

Acanthothecis consocians (Graphidaceae) is reported for the first time from Australia. Previously known from tree bark elsewhere in the eastern Palaeotropics, the species was collected on the twig of a rainforest tree in Christmas Island, an Australian territory in the north-eastern Indian Ocean.

Introduction

Acanthothecis Clem. (Graphidaceae) is a genus of about 40 mostly corticolous species found mainly in the subtropics and tropics, and characterized by pale lirellae lacking carbonization, with spiny or warty periphyses, paraphyses with spiny apices, and oblong, thin-walled ascospores with cylindrical locules (Staiger & Kalb 1999, 2004; Archer 2009; Muskavitch & Lendemer 2016). Eight species are known from Australia, most occurring in the subtropics and wet-tropics (Archer 2009; Archer & Elix 2009; Kantvilas 2010). In this contribution, the eastern Palaeotropical *A. consocians* (Nyl.) Staiger & Kalb is reported from Christmas Island.

Acanthothecis consocians (Nyl.) Staiger & Kalb, *Mycotaxon* **73**, 97 (1999)
Graphis consocians Nyl., *Bulletin Société Linnéenne de Normandie*, sér. 2, **2**, 116 (1868)

Thallus pale greyish brown to pale olive-brown, smooth to patchily convex-verruculose, non-rimose, dull to slightly glossy, to 60(–100) µm thick, thinly corticate, containing calcium oxalate (H₂SO₄ +). *Algae Trentepohlia*; cells rounded to ± ellipsoid, 7–16 µm in maximum extent. *Prothallus* not apparent. *Apothecia* lirelliform, scattered or contiguous, sometimes clustered but not overlapping, adnate to subsessile, mostly elongate, straight, curved or sinuous, simple to sparingly branched, with blunt or pointed ends, (0.6–)1.3(–2.2) mm long, (0.15–)0.3(–0.45) mm wide [*n* = 25]; disc slit-like or more open, pale pinkish brown, smooth, concave, epruinose. *Thalline margin* initially concolorous with the thallus and smooth, finally white and with a minutely roughened surface, 80–120 µm thick, containing abundant calcium oxalate (H₂SO₄ +). *Proper excipulum* cupulate, pale yellowish brown, paraplectenchymatous, 25–35 µm thick laterally, with periphyses directed from the inner edge upwards and into the hymenium, these 12–17(–20) µm long, 2.5–3.5(–4.5) µm wide, hyaline, abundantly short-spinose and tuberculate, the apices slightly swollen; excipulum base pale yellowish brown, 10–15(–20) µm thick. *Epihymenium* hyaline and not apparent, or pale brown. *Hymenium* 50–70 µm thick, hyaline, non-amyloid, not interspersed with granules or oil globules, although the paraphyses can have granular inclusions. *Hypothecium* pale yellowish brown, 10–15 µm thick, not interspersed, 1–. *Paraphyses* simple, strongly conglutinate in water, loosening in K, 0.8–1(–1.2) µm thick; apices slightly swollen, hyaline to brownish and with minute spines or tubercles. *Asci* narrowly clavate to clavate-cylindrical, 8-spored, 44–58 × 8–11 µm [*n* = 8], *Graphis*-type; apex broadly rounded; wall KI–. *Ascospores* (4–)6(–8)-locular, hyaline, oblong to oblong-fusiform, fusiform or oblong-cylindrical, usually straight, with rounded or subacute ends, 1–, KI–, (12–)14.5(–17) × (3–)4(–5) µm [excluding the epispore; *n* = 38]; epispore smooth, *c.* 1–2 µm thick at maturity (spores viewed outside the asci); locules cylindrical; post-mature ascospores remaining hyaline. *Pycnidia* not seen. [Figs 1 & 2]
Chemistry: No substances detected in the thallus or lirellae by TLC (Elix 2020).

Acanthothecis consocians is characterized by its delicate, white lirellae, a yellowish brown, cupulate proper excipulum, a non-interspersed hymenium, and small, narrow 4–8-locular ascospores. It was previously known from tree bark at the type locality in New Caledonia (Staiger & Kalb 1999; photograph by A.W. Archer in A. Aptroot, *Pictures of Tropical Lichens*, <https://www.tropicallichens.net/specieslist.aspx>), as well as the Solomon Islands (Archer 2007), Papua New Guinea (Staiger & Kalb 1999), Thailand (Kalb & Kalb 2017) and India (Makhija & Adawadkar 2007). While the Australian specimen matches previous accounts of the species in terms of ascomatal morphology and anatomy, including the thalline margin and proper excipulum, periphyses and hymenial structures, Staiger & Kalb (1999) reported the thalli of the type and Papua New Guinean specimens to be considerably paler (white to yellowish), while Makhija & Adawadkar (2007) stated that collections from India had pale white thalli. In a further complication, published accounts of thalline and ascomatal chemistry also point to some variability in this species. Thus, the ascomata of the holotype were said to contain trace amounts of psoromic acid (Staiger & Kalb 1999) or to lack lichen substances (the type specimen annotated by M. Nakanishi, *vide* Staiger & Kalb 1999), to have ascomata with major concentrations of psoromic acid (in Thailand, *vide* Kalb & Kalb 2017) or, as in the Australian material, to completely lack lichen substances (also in India, *vide* Makhija & Adawadkar 2007).

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SPECIMEN EXAMINED

Christmas Island: ● *c.* 700 m N of Grants Well, 10°28.52'S, 105°39.14'E, alt. 260 m, on bark of centimetre-wide twig in moderately dense primary forest [associated with *Hemithecium implicatum* (Fée) Staiger, *Porina tetracerae* (Ach.) Müll.Arg. and *Pyrenula nitidula* (Bres.) R.C.Harris], *P.M. McCarthy 1457 pr. p.*, 28.vii.2000 (CANB).

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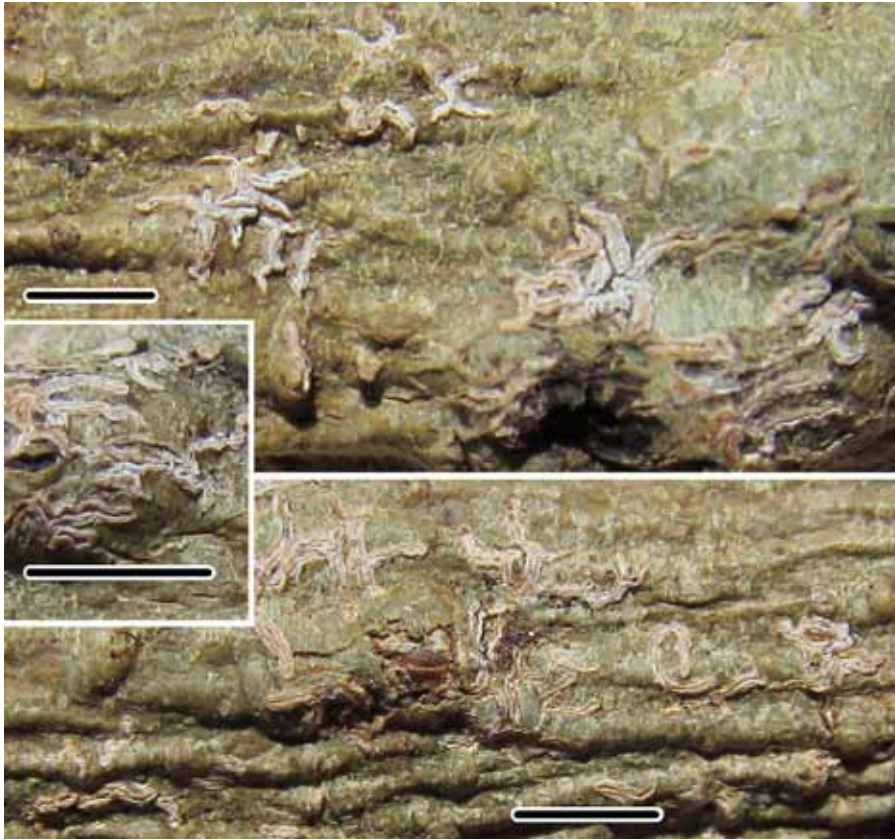


Figure 1. *Acanthothecis consocians* (P.M. McCarthy 1457 pr. p.). Scales: 2 mm.

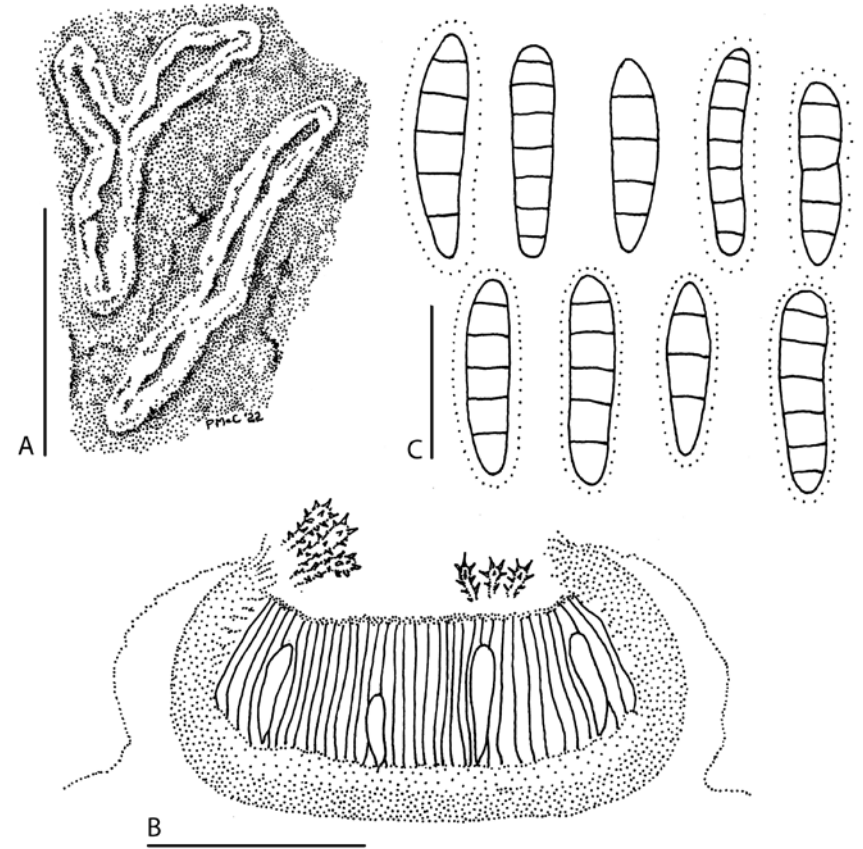


Figure 2. *Acanthothecis consocians* (P.M. McCarthy 1457 pr. p.). A, Habit of lirellae and adjacent thallus; B, Vertical section of an ascoma (semi-schematic), with close-ups of spiny periphyses and paraphysis tips; C, Mature ascospores. Scales: A = 1 mm; B = 0.1 mm; C = 10 μ m.

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