

**A new species of *Anisomeridium* (Monoblastiaceae)
from Kangaroo Island, South Australia**

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Abstract: *Anisomeridium austroaustraliense* sp. nov. (Monoblastiaceae) is described from *Allocasuarina*-dominated woodland on Kangaroo Island, South Australia. It has an effuse, silvery whitish to pale grey and largely endophloeodal thallus, minute, solitary perithecioid ascomata with a thin involucrellum and a comparatively dark excipulum, and small, hyaline, isolocular, biseriata, 1-septate ascospores.

The cosmopolitan genus *Anisomeridium* (Müll.Arg.) M.Choisy (Monoblastiaceae) includes almost 100 mostly corticolous species with a crustose thallus, a trentepohlioid photobiont, usually solitary, black, perithecioid ascomata, a cellular involucrellum, an apical or excentric ostiole, mainly distally anastomosing pseudoparaphyses, fissitunicate asci with a well-defined ocular chamber and colourless, 1(–3)-septate ascospores (Harris 1975, 1995). Sixteen species are known from Australia (McCarthy 2016), the genus being most diverse in the wet tropics and subtropics.

In this paper, the diminutive *Anisomeridium austroaustraliense* is described as new from the bark of a dead understorey tree in coastal woodland on Kangaroo Island, South Australia.

Methods

Observations and measurements of photobiont cells, ascomatal anatomy, asci and ascospores were made on hand-cut sections mounted in water and 10% KOH (K). Asci were also observed in Lugol's Iodine (I), with and without pre-treatment in K.

Anisomeridium austroaustraliense P.M.McCarthy & Kantvilas, sp. nov. Fig. 1

Mycobank No.: MB817118

Characterized by the effuse, silvery whitish to pale grey, endophloeodal or very thinly epiphloeodal thallus and a trentepohlioid photobiont; solitary perithecioid ascomata 0.18–0.35 mm diam., with a rather thin, black, cellular involucrellum and an apical ostiole; distally anastomosing pseudoparaphyses; asci measuring 56–75 × 12–17 µm, with a tuberculate to broadly convex ocular chamber and 8 biserially arranged, medially 1-septate ascospores of 12–18 × 5–8 µm.

Type: Australia, South Australia, Kangaroo Island, Ironstone Hills, 35°44'S, 137°57'E, alt. 70 m, on bark of a dead understorey tree in *Allocasuarina*-dominated woodland, G.Kantvilas 382/15, 3.x.2015 (holotype — HO 580935).

Thallus crustose, endophloeodal to very thinly epiphloeodal, effuse, silvery white to pale grey, 0.5–3(–5) mm wide and up to 20 µm thick when subepiphloeodal, ecorticate, UV–. *Photobiont* *Trentepohlia*, cells sparse or patchily abundant, 8–15 × 7–12 µm; interstitial hyphae 2–3 µm thick. *Prothallus* not apparent. *Ascomata* perithecioid, numerous, semi-immersed in the substratum to almost superficial, mostly solitary, occasionally paired or in clusters of 3 or 4, strongly convex to subconical or subglobose, smooth, dull black, circular to slightly elliptic in outline, (0.18–)0.26(–0.35) mm wide [*n* = 100];

apex often becoming plane or slightly excavate with age. *Ostiole* apical, inconspicuous or in a shallow, concave depression that is concolorous with or a little paler than the ascomatal wall. *Ascomatal wall* 25–40(–50) µm thick near the apex and laterally, up to 70 µm thick at the base, greenish black to jet-black in section, cellular and hyphal, not incorporating bark cells, extending down to excipulum-base level, contiguous with the excipulum or converging a little at the base, not overgrown by the thallus; surface smooth to minutely and irregularly uneven. *Excipulum* 10–15 µm thick, of elongate, periclinal hyphae, dark brown apically and laterally, pale to medium orange-brown at the base. *Hymenium* non-amyloid, I+ orange-brown, not interspersed with granules or oil globules. *Subhymenium* c. 10 µm thick. *Pseudoparaphyses* 1–1.5(–2) µm wide, long-celled, with abundant, mainly distal anastomoses; apices not swollen, occasionally hooked. *Asci* 8-spored, narrowly or broadly cylindrical or cylindroclavate, 56–75 × 12–17 µm; apex rounded; ocular chamber of immature asci tuberculate, remaining tuberculate or becoming broadly convex at maturity. *Ascospores* hyaline, narrowly ellipsoid to oblong-ellipsoid, 1-septate, occasionally slightly constricted at the median septum, irregularly biseriata in the ascus, (12–)15(–18) × (5–)6.5(–8) µm [*n* = 100]; apices rounded to subacute; contents clear or guttulate; perispore usually lacking, occasionally up to 2 µm thick. *Pycnidia* not seen.

Etymology: The epithet *austroaustraliense* refers to the discovery of the new species in South Australia.

Remarks

The diagnostic attributes, outlined above, confirm the integrity of *Anisomeridium austroaustraliense*. While it is rather similar to the almost cosmopolitan *A. bifforme* (Borrer) R.C.Harris, the latter has larger ascomata [0.3–0.5(–0.6) mm] with a thicker involucrellum (50–100 µm), a paler excipulum and longer asci (60–130 × 9–15 µm) containing spores in a uniseriate arrangement (Harris 1975, 1995; Coppins *et al.* 2009). The similarly widely distributed *A. polypori* (Ellis & Everh.) M.E.Barr is comparable to *A. austroaustraliense* in its thin, effuse thalli and small ascomata with a thin involucrellum. However, even in the absence of pycnidia, which are distinctively conical with an ostiolar neck in the former, its ascospores differ significantly from those of the Australian lichen, being longer and narrower (12–23 × 3–6 µm), with a markedly submedian septum (Harris 1975, 1995; Coppins *et al.* 2009).

The new species is known only from the type locality on Kangaroo Island, South Australia, where it grew in low coastal woodland dominated by *Allocasuarina verticillata*. The diversity and abundance of lichens in this type of vegetation tends to be low. The ground surface is typically blanketed by a thick carpet of dead *Allocasuarina* branchlets and seed cones that smothers all lichens apart from occasional, hardy patches of *Cladonia squamules*. The thick, very coarsely furrowed bark of the *Allocasuarina* is also usually poorly colonised, although dead trees can be thickly covered with *Flavoparmelia rufidota* (Hook.f. & Taylor) Hale and *Punctelia pseudocoralloidea* (Gyeln.) Elix & Kantvilas. Thus, the greatest diversity of lichens tends to be on occasional scattered understorey trees and shrubs, or on large rock outcrops elevated above the ground surface. The new species was collected from a dead understorey tree, probably *Bursaria spinosa*, where it was represented only by very sparse, scattered thalli. Associated lichens include *Pertusaria pertractata* Stirt., *Austroparmelia conlabrosa* (Hale) A.Crespo, Divakar & Elix, stunted *Teloschistes chrysophthalmus* (L.) Th.Fr. and *Ramalina* species.

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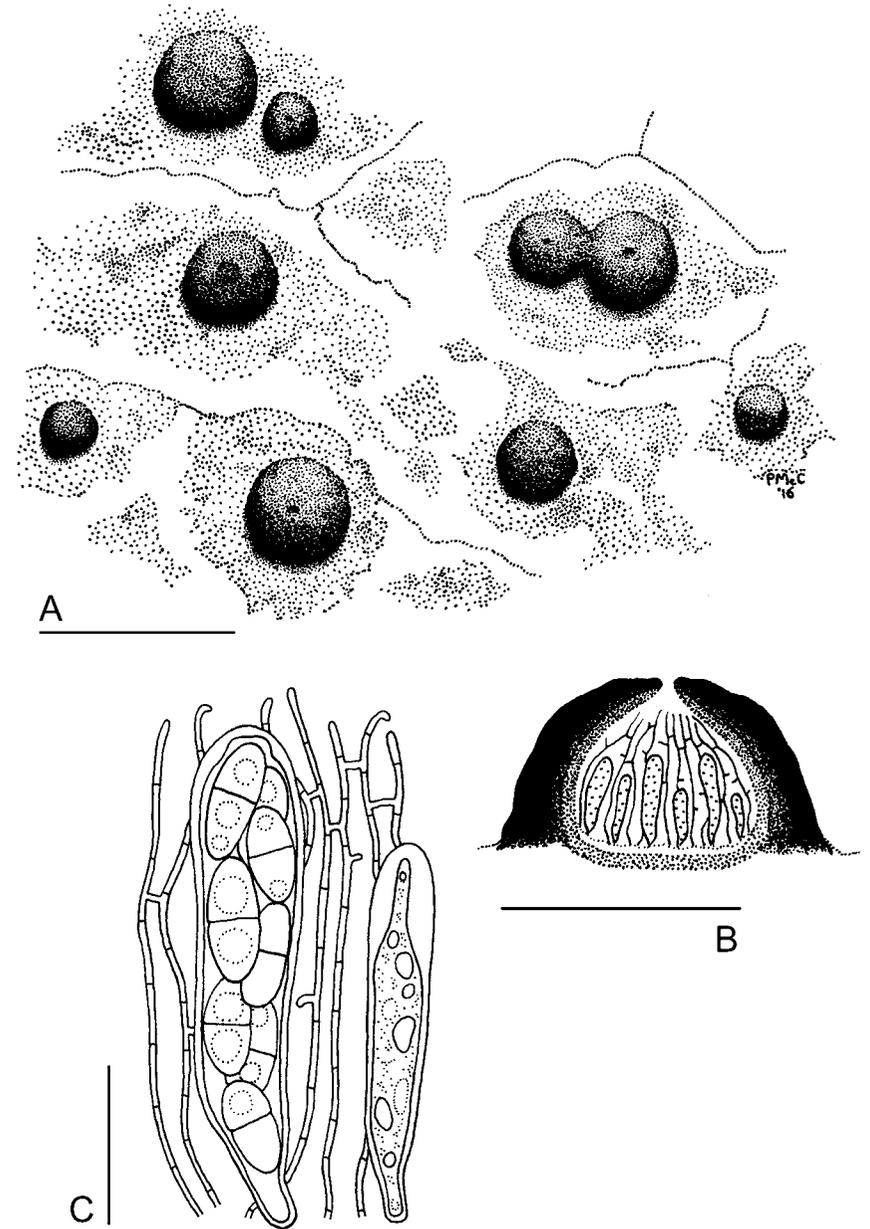


Figure 1. *Anisomeridium austroaustraliense* (holotype). **A**, Habit of thallus and perithecia; **B**, Sectioned perithecium (semi-schematic); **C**, Immature and mature asci (with ascospores) and pseudoparaphyses. Scales: **A** = 0.5 mm; **B** = 0.2 mm; **C** = 20 μ m.