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Abstract: *Verrucaria corallensis* sp. nov. is described from intertidal rocks in north-eastern Queensland, and the endemic *V. operculata* P.M.McCarthy is transferred to *Bagliettoa* A.Massal.

NEW SPECIES

Verrucaria corallensis P.M.McCarthy, sp. nov.

Fig. 1

Thallus epilithicus, effusus vel determinatus, continuus, griseoviridis vel viridiater aut griseoater, nigropunctatus vel jugatus, 20–40(–50) μm crassus, madefactus gelatinosus. Perithecia convexa, hemisphaerica vel subglobosa, (0.17–)0.23(–0.30) mm diametro. Involucrellum 35–60 μm crassum. Centrum 0.10–0.17 mm diametro. Periphyses 15–20 \times 1.0–1.5 μm . Asci 35–44 \times 10–16 μm . Ascospores elongatae-ellipsoideae vel fusiformes, (13–)16.5(–20) \times (3.5–)4.2(–5.0) μm .

Type: Australia, Queensland, 13 km NE of Mossman, Rocky Point, 16°23'06"S, 145°25'01"E, alt. 0 m, on wave-splashed (at high-water) intertidal sandstone, P.M.McCarthy 2651, 1.viii.2006 (holotype CANB; isotypes BRI, CANB).

Thallus crustose, epilithic, effuse to determinate, c. 5–20 mm wide, medium greyish green to greenish black or greyish black, \pm smooth, continuous or very sparingly rimose, 20–40(–50) μm thick, becoming greener and gelatinous when wetted, with sparse to very numerous black orbicular to oval punctae 15–40 μm wide, or the punctae coalescing to form simple, branched or anastomosing jugae, these 25–50 μm wide and acutely ridged or flat-topped. *Cortex* absent; mycobiont cells hyphal or paraplectenchymatous, 2–3 μm wide. *Algal cells* green, in irregular columns, vertically slightly elongate, 4–8 \times 3–5(–6) μm . *Prothallus* absent; blackened basal layer discontinuous (punctae and jugae) or absent. *Perithecia* very numerous, semi-immersed to almost superficial, usually solitary, mostly hemispherical, occasionally convex, subglobose or moderately to grossly distorted, (0.17–)0.23(–0.30) mm diam. [$n = 40$], usually dull black, occasionally glossy, not overgrown by the thallus. *Perithecial apex* smooth and rounded, or with an uneven surface. *Ostiole* inconspicuous or, commonly, a crater-like 20–40 μm diam. depression. *Involucrellum* greenish black in thin section, extending down to excipulum-base level, 35–60 μm thick at the base. *Centrum* globose to depressed-ovate, 0.10–0.17 mm diam. *Subhymenium* 10–15 μm thick. *Excipulum* 10–15 μm thick, with a greenish black outer zone and a hyaline to pale greenish inner zone. *Periphyses* 15–20 \times 1.0–1.5 μm , simple to sparingly branched. *Paraphyses* absent. *Hymenial gel* Lugol's I+ red-brown. *Asci* 8-spored, clavate to cylindroclavate, 35–44 \times 10–16 μm . *Ascospores* simple, hyaline, narrowly ellipsoid to short-fusiform, or more elongate and with the distal or both ends rounded, massed in the ascus, (13–)16.5(–20) \times (3.5–)4.2(–5.0) μm [$n = 92$]; contents usually finely granulate and frequently guttulate. *Conidiomata* absent.

Etymology: From the Latin *corallum* (coral) and the suffix *-ensis* (denoting place, locality), in reference to the new species being collected on the Australian coast of the Coral Sea.

Remarks

Marine and maritime species of *Verrucaria* are especially diverse and abundant at cool-temperate and even colder latitudes. Six intertidal species are known from Australia: *V. halizoa* Light., *V. maura* Wahlenb., *V. meridionalis* P.M.McCarthy, *V. microsporoides* Nyl., *V. striatula* Wahlenb. and *V. subdiscreta* P.M.McCarthy (McCarthy

2001). These are commonly subjected to wave or splash action, but they are rarely if ever submerged for longer periods. Intertidal species of *Verrucaria* appear to be very uncommon in the tropics, presumably due to their inability to tolerate the extremes of saturation and desiccation on tropical coasts, possibly further complicated by daily wet-season downpours of rainwater. Only one species was known previously from coastal Queensland, i.e. *V. halizoa*, which was collected by R.W. Rogers from coral at Heron Island on the southern Great Barrier Reef.

Verrucaria corallensis is characterized by a very thin, green to blackish thallus with minute, carbonaceous dots (punctae) and ridges (jugae), small but prominent perithecia and unusually elongate ascospores. The pantemperate *V. striatula* is the only other Australian taxon with thallic ridges. However, that species has a continuous to rimose thallus, and its ascospores are ellipsoid to subglobose and 7–11 × 4–7 μm (McCarthy 2001). The thallus of *V. subdiscreta* is usually areolate and minutely punctate, the ascomata are smaller, and the ascospores, although often rather elongate, are significantly smaller than those of *V. corallensis* (9–15 × 4.0–6.5 μm; McCarthy 2001). *Verrucaria halizoa*, the other marine species known from Queensland, lacks punctae and jugae, and produces ascospores measuring 7.5–12.0 × 4.5–6.5 μm (McCarthy 2001), while the European *V. amphibia* R.Clem. has a thallus and carbonaceous ridges rather similar to those of *V. corallensis*, but the former has 0.4–0.5 mm diam. perithecia and 7–10 μm wide ascospores (Hawksworth *et al.* 1992). The new lichen is known only from the type locality in north-eastern Queensland, where it was abundant on a large sandstone outcrop on a beach near Rocky Point; the outcrop was partly inundated and heavily splashed at high tide. Although no other lichens were found at this site, the new species grew on moderately shaded surfaces adjacent to blackish, crustose Rhodophyta, crustose Corallinaceae (Rhodophyta) and a species of *Ralfsia* *s. lat.* (Phaeophyta). Several barnacles were also seen at the same vertical level on the outcrop.

NEW COMBINATION

Bagliettoa operculata (P.M.McCarthy) P.M.McCarthy, comb. nov.

Basionym: [HYPERLINK "http://www.anbg.gov.au/abrs/lichenlist/VERRUCARIACEAE/Verrucaria_operculata.html"](http://www.anbg.gov.au/abrs/lichenlist/VERRUCARIACEAE/Verrucaria_operculata.html) *Verrucaria operculata* P.M.McCarthy, *Muelleria* 7, 324 (1991). Type: South Australia, Eyre Peninsula, 17 km S of Cowell, by the Lincoln Highway, on limestone, R.B. Filson 11794, 23.x.1970 (holotype: MEL).

The genus *Bagliettoa* A.Massal. (Verrucariaceae) is characterized by a lid-like involucrellum with fissures radiating from the ostiole. Until very recently, the genus was subsumed under *Verrucaria*, usually more out of convenience than conviction. However, a recent molecular investigation has confirmed its distinctiveness (Gueidan *et al.* 2007). *Bagliettoa* is represented in Australia by two limestone-inhabiting species, the almost cosmopolitan *B. baldensis* (A.Massal.) Vězda (Syn.: *Verrucaria baldensis* A.Massal.) and the endemic *B. operculata* (McCarthy 1991, 2001). Because the latter has the perithecial morphology and anatomy of *Bagliettoa*, a new combination is made here.

References

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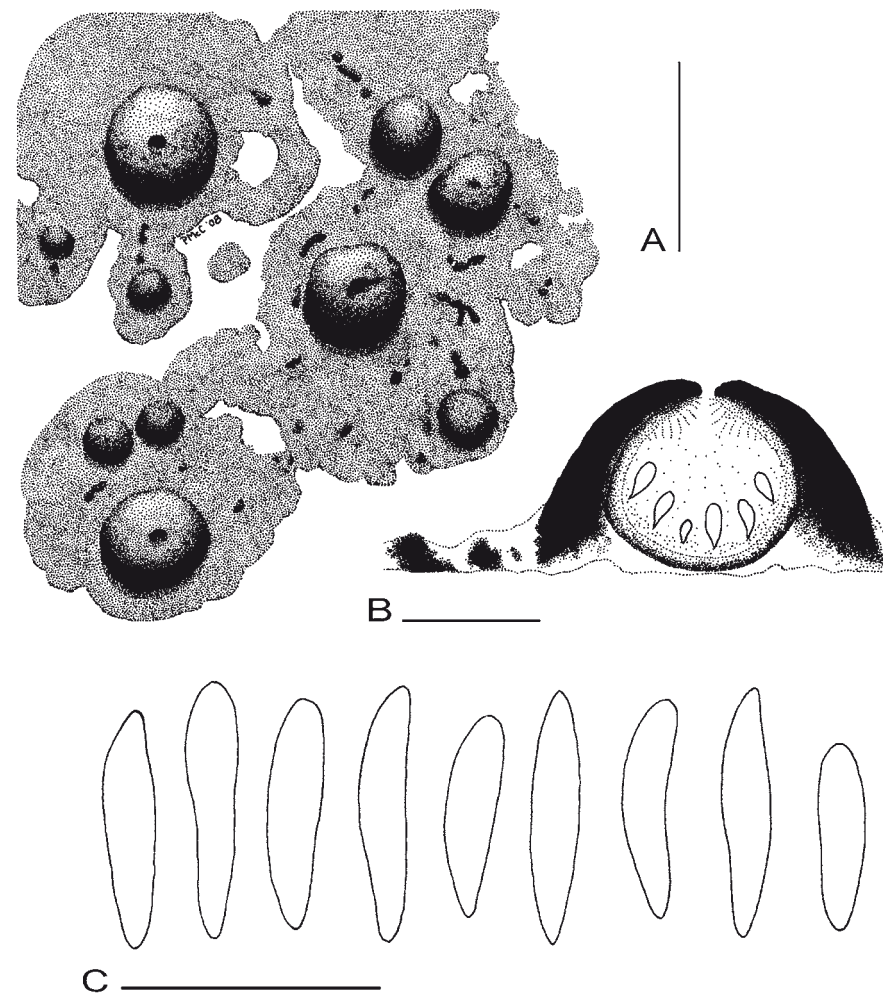


Figure 1. *Verrucaria corallensis* (holotype). A. Habit of thalli and perithecia, with scattered punctae and jugae. B. Sectioned perithecium and adjacent thallus (semi-schematic). C. Ascospores. Scales: A = 0.5 mm; B = 0.1 mm; C = 20 μm.