



CARBONICOLA ¹

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Carbonicola Bendiksby & Timdal, *Taxon* 62: 950 (2013).

Type: *C. anthracophila* (Nyl.) Bendiksby & Timdal

Thallus squamulose; squamules adnate or ascending and attached by one end, corticate on the upper surface, sometimes also corticate below, with or without soredia, lacking a prothallus. Photobiont a green coccoid alga with \pm globose cells 7–15 μm wide. Ascomata apothecia, biatorine, laminal or marginal. Disc at first plane and indistinctly marginate, soon becoming convex and immarginate, brown, epruinose. Proper exciple concolorous with the disc or a little paler, soon excluded, in section annular, composed of conglutinated, thick-walled, short-celled hyphae 4–5 μm wide with narrow lumina. Hypothecium hyaline to pale yellow-brown. Hymenium hyaline to suffused brownish, 1+ blue, overlain by a red-brown, K+ olive-brown epihymenial layer. Paraphyses sparingly branched, 1.5–2 μm thick, with capitate apices. Asci 8-spored, approximating the *Psora*-type: clavate-cylindrical, with an intensely amyloid wall and a well-developed, weakly amyloid tholus penetrated by a more intensely amyloid, rather broad ring-structure; ocular chamber not developed. Ascospores simple or rarely 1-septate, ellipsoid to fusiform. Conidiomata pycnidia, laminal, semi-immersed; wall brown. Conidia filiform. Chemistry: fumarprotocetraric and/or colensoic and 4-O-methylphysodic acids.

A genus of three species, segregated from the superficially similar but unrelated *Hypocenomyce* by a combination of apothecial anatomy, ascus structure, thallus chemistry and molecular data (Timdal 1984; Bendiksby & Timdal 2013). As the name implies, species of the genus have a predilection for charred wood, and are widespread in temperate forests. One species occurs in Australia. The genus is classified in its own, monogeneric family, Carbonicolaceae.

Key references: Timdal (1984); Elix (2009); Bendiksby & Timdal (2013).

1 *Carbonicola foveata* (Timdal) Bendiksby & Timdal

Taxon 62: 951 (2013); —*Hypocenomyce foveata* Timdal, *Nordic J. Bot.* 4: 98 (1984); *Biatora foveata* (Timdal) Hafellner, *Herzogia* 9: 729 (1993).

Squamules glossy chestnut-brown, adnate, plane to convex, usually markedly so, 0.2–0.8(–1) mm wide, to 0.3 mm thick, roundish, dispersed or contiguous but remaining discrete, more rarely fused or overlapping, not sorediate, frequently with an apical, pore-like dimple, forming spreading, diffuse, irregular colonies to 30 cm wide. Apothecia occasional, usually 1 per squamule, to 0.7 mm wide, commencing development in the apical depression of the squamules, becoming thinly marginate with a plane disc, soon convex to subglobose, basally constricted and immarginate, single or fusing in clusters to 1.5 mm wide; disc red-brown, smooth or unevenly dimpled; proper exciple in section deflexed, suffused reddish brown, to 15–30 μm thick. Hypothecium 60–140 μm thick, hyaline to pale yellow-brown, with photobiont cells beneath. Hymenium 40–50 μm thick, hyaline to suffused red-brown, darkest in the uppermost part; paraphyses with

1 This work can be cited as: Kantvilas G (2024). *Carbonicola*, version 2024:1. In MF de Salas (Ed.) *Flora of Tasmania Online*. 2 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/lichen-genera/carbonicola/>

2 Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

apices 3.5–6 µm wide, with an internal brown cap; asci 25–31 × 6–9 µm. Ascospores fusiform, simple, 6–8.9–10.5(–11) × 1.5–2.2–2.5 µm. Pycnidia black to brown-black, c. 0.1 mm wide; conidia filiform 10–14 × 0.8 µm.

Chemistry: colensoic acid, 4-O-methylphysodic acid, plus traces of related substances; medulla K–, KC+ purple, C–, P–, UV+ bluish white.

A common and widespread species in sclerophyll forests where it forms extensive colonies on the charred bark and wood of old eucalypt trunks and logs, almost invariably associated with *Hypocenomyce australis* Timdal. It is similarly widespread on the Australian mainland.

Hunting Grounds, near Dysart, 42°34'S 147°10'E, 400 m, 1981, G. Kantvilas 469/81 & P.W. James (BM, HO); Craigow Hill, 42°49'S 147°24'E, 390 m, 2002, G. Kantvilas 383/02 (HO); Skullbone Plains property, c. 2 km S of Kenneth Lagoon, 42°04'S 146°19'E, 2012, G. Kantvilas 208/12 (HO).

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INDEX

B

Biatora foveata.....1

C

Carbonicola.....1

Carbonicola anthracophila.....1

Carbonicola foveata.....1

Carbonicolaceae.....1

H

Hypocenomyce.....1

Hypocenomyce australis.....2

Hypocenomyce foveata.....1

P

Psora.....1