



CLAUZADEA ¹

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Clauzadea Hafellner & Bellem., in J. Hafellner, *Beih. Nova Hedwigia* 79: 319 (1984).

Type: *C. monticola* (Ach.) Hafellner & Bellem.

Thallus crustose, frequently immersed in the substratum and inapparent, ecorticate. Photobiont a unicellular green alga with globose cells 6–15 µm diam. Ascomata apothecia, lecideine, internally red-brown, sessile or immersed in pits in the substratum. Disc plane, sometimes convex, black-brown when dry, reddish brown to black-brown when moist, ± glossy, mostly epruinose. Proper exciple persistent, blackish, matt or glossy, in section cupulate, mostly pale to opaque reddish brown, composed of highly conglutinated, compact hyphae. Hypothecium hyaline to reddish brown. Hymenium hyaline, diffusely orange-brown in the uppermost part, not interspersed. Paraphyses branched and anastomosed; apices sometimes moniliform or swollen, and with an internal, brown-pigmented cap. Asci clavate, 8-spored, of the *Porpidia*-type: tholus well-developed, amyloid, with a more intensely amyloid tube structure; ocular chamber not developed. Ascospores simple, hyaline, ellipsoid, halonate, thin-walled. Conidiomata pycnidia, immersed. Conidia bacilliform. Chemistry: no substances detected by TLC.

A genus of four species, occurring mainly in the Northern Hemisphere and confined exclusively to calcareous rocks. The combination of calcareous ecology, the internally brown apothecia, and the *Porpidia*-type asci serve to distinguish it from other, saxicolous, lecideoid genera.

Key references: Galloway (2007); Gilbert & Hawksworth (2009); Meyer (2002).

1 Apothecia immersed in pits in the substratum
Apothecia superficial

1 *C. immersa*
2 *C. monticola*

1 *Clauzadea immersa* (Hoffm.) Hafellner & Bellem.

In J. Hafellner, *Beih. Nova Hedwigia* 79: 319 (1984); —*Verrucaria immersa* Hoffm., *Descr. Pl. Cl. Crypt.* 1: 58 (1790).

Thallus endolithic, inapparent, or at best discernible as a diffuse, paler region of the substratum. Apothecia 0.3–0.5 mm wide, roundish, immersed in shallow pits; proper exciple in section 20–70 µm thick, ± opaque red-brown laterally and at the upper edge, generally pale red-brown to hyaline basally; disc plane to convex, black to brown-black, occasionally pruinose. Hypothecium mostly hyaline, 40–150 µm thick. Hymenium aborted in Tasmanian specimens, reported (Gilbert & Hawksworth 2009) as 45–100 µm thick; paraphyses not moniliform, rather stout, 2–2.5 µm thick, with the apical cells 3–5 µm wide; asci 55–70 × 12–20 µm. Ascospores 10–15(–19) × (6–)7–8(–9) µm; perispore c. 1 µm thick, ornamented when mature. Pycnidia not seen.

Recorded only once in Tasmania, from a limestone outcrop in wet heathland-moorland. This specimen has very abundant apothecia but no fertile asci or ascospores. Consequently, the identification is tentative, but the inapparent, endolithic thallus, the reddish brown, lecideine apothecia, sunken in pits on the limestone

1 This work can be cited as: Kantvilas G (2023). *Clauzadea*, version 2023:1. 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/clauzadea/>

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

substratum, and the mainly laterally brown-pigmented exciple accord closely with collections of this species from the Northern Hemisphere where it is reported to be widespread. It is also known from the southern Australian mainland.

Maxwell River, c. 4 km NW of Lancelot Hill, 200 m, 1985, G Kantvilas 195/85 (HO, M).

2 *Clauzadea monticola* (Ach.) Hafellner & Bellem.

In J. Hafellner, *Beih. Nova Hedwigia* 79: 319 (1984); —*Lecidea lapicida* var. *monticola* Ach., *Kongl. Vetensk-Acad. Nya Handl.* 29: 232 (1808).

Thallus scurfy and minutely rimose, grey, or very thin and apparent as a diffuse, paler region of the substratum. Apothecia 0.3–0.7 mm wide, roundish to rather irregular, sessile; proper exciple in section 50–100 µm thick, opaque red-brown; disc plane to convex, black to brown-black, epruinose. Hypothecium opaque red-brown, hardly differentiated from the exciple. Hymenium 60–70 µm thick; paraphyses 1–2 µm thick, slender, moniliform in the upper part, with the apical cell to 2.5–4 µm wide; asci 55–65 × 12–15 µm. Ascospores 9–11.2–14 × 4–5.1–6 µm; perispore to c. 1 µm thick, remaining smooth and unornamented. Pycnidia not seen.

Cosmopolitan on calcareous substrata; known in Tasmania from a single collection from limestone outcrops in a subalpine grassland. In addition to having sessile rather than immersed apothecia, this species differs from *C. immersa* by having an opaque hypothecium, moniliform paraphyses, and marginally smaller, unornamented ascospores.

Vale of Belvoir, 41°33'S 145°53'E, 800 m, 2017, G. Kantvilas 71/17 (HO).

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