

ZAHLBRUCKNERELLA

Gintaras Kantvilas¹

Zahlbrucknerella Herre, *J. Wash. Acad. Sci.* 2: 384 (1912); honouring the Czech lichenologist Alexander Zahlbruckner (1860–1938).

Zahlbrucknera Herre, *Proc. Wash. Acad. Sci.* 12: 129 (1910), *nom. illeg., non* Reichenb., *Fl. German. Excurs.* 551 (1832).

Type: *Z. calcarea* (Herre) Herre

Thallus filamentous, rosette-forming or tufted, olive, brown or black, attached to the substratum by small basal holdfasts. Filaments branched repeatedly, composed of 2 parts, coherent at first but separating into paired or twin branches. Hyphae in a rectangular arrangement or forming an irregular network within the mucilagenous sheath of the photobiont, both types arising from a basal strand of more densely concentrated hyphae. Basal strand always present in younger parts of the thallus, persisting only in some species. Apothecia lateral; disc orange- to red-brown or dark green, surrounded by a thalline margin. Asci prototunicate, cylindrical, clavate or obclavate, containing 8, 24 or more spores. Paraphyses either richly branched and anastomosing paraphysoids (primary paraphyses) or distinctly septate true paraphyses (secondary paraphyses). Ascospores simple, colourless, ellipsoidal to globose, often with a plasma bridge. Pycnidia lateral, immersed in the thallus; ostiole orange- to red-brown or dark green. Conidia rod-shaped, developing from the tips of unbranched conidiophores composed of elongate cells. Photobiont *Scytonema*, with algal trichomes strongly contorted in the older parts of the thallus.

A saxicolous genus of 11 species, occurring mostly on seepage rocks, the banks of rivers and lakes, and in moist depressions. One species is maritime. Found mainly in the cool- to cold-temperate regions of both hemispheres, with the greatest diversity of species being in the Americas. Only one species is found in Australia. The genus has been revised most recently by Henssen (1977), and this treatment is based on her account and a study of the limited Australian material available.

A.Henssen, Eine Revision der Flechtenfamilien Lichinaceae und Ephebaceae, *Symb. Bot. Upsal.* 18 (1): 77–81 (1963); A.Henssen & H.M.Jahns, *Lichenes. Eine Einführung in die Flechtenkunde* 330–335 (1974); A.Henssen, The genus *Zahlbrucknerella*, *Lichenologist* 9: 17–46 (1977); J.W.Thomson, *American Arctic Lichens 1. The Macrolichens* 488–489 (1984); D.J.Galloway, *Flora of New Zealand Lichens* 621–622 (1985); A.Henssen, *Hertella neozelandica* and *Zahlbrucknerella compacta* (Ascomycotina), two new cyanophilic lichens from the Southern Hemisphere, *Biblioth. Lichenol.* 88: 195–200 (2004); D.J.Galloway, *Flora of New Zealand Lichens – Revised Second Edition 2: 1989–1991* (2007).

Zahlbrucknerella calcarea (Herre) Herre, *J. Wash. Acad. Sci.* 2: 384 (1912)

Zahlbrucknera calcarea Herre, *Proc. Wash. Acad. Sci.* 12: 129 (1910), *nom. illeg.*. T: Black Mountain, Santa Clara Co., California, U.S.A., 1908, A.W.C.T.Herre; holo: F n.v., *fide* Herre *loc. cit.*

Illustrations: A.Henssen, *op. cit.* figs 19–21 (1963); A.Henssen & H.M.Jahns, *op. cit.* 332 (1974); A. Henssen, *op. cit.* figs 19, 20, 22, 24 (1977); J.W.Thomson, *op. cit.* 489; A.Henssen, *op. cit.* 200, fig. 3 (2004).

Thallus minutely filamentous, blackish to dark olive-green, forming rosettes to c. 20 mm wide, or occurring as scattered tufts or areoles, 0.5 mm tall and 0.5–1.0 mm wide. Filaments prostrate, mostly 1–2 mm long when well developed, (30–) 40–60 µm wide, tapering to a point c. 10 µm wide; older basal filaments 60–110 µm wide, with a prominent persistent basal strand to c. 25 µm thick composed of conglutinated rectangular to roundish hyphal cells. Algal trichomes to c. 6 µm thick in the apices of the filaments, looped and contorted elsewhere in the thallus, with cells 10–12 (–20) µm wide. Apothecia to 0.3 mm wide (to 0.4 mm in extra-Australian material), with a persistent thalline margin and a plane dark brown to blackish disc. Proper exciple absent.

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Hymenium 100–130 μm thick, colourless, non-reactive in I with or without pretreatment in KOH. Hypothecium 10–50 μm thick, colourless. Asci cylindrical to clavate, 70–90 \times 10–20 μm , 24-spored. Paraphyses septate, branched and anastomosing, 1.5–2.0 μm thick; apices not noticeably expanded in Australian material. Ascospores simple, hyaline, \pm irregularly globose to ellipsoidal, 7–12 \times 5–8 μm . Pycnidia c. 0.2 mm wide. Conidia 3.0–4.5 \times 1 μm , terminal on long-celled conidiophores (not seen in Australian material).

Chemistry: no substances detected by thin-layer chromatography; all reactions negative.

A rare and inconspicuous species known in Australia only from two Tasmanian localities, it has been recorded from limestone outcrops in native grassland and pasture where it associates with *Placynthium nigrum*. Also known from New Zealand, South Africa and from temperate areas of the Northern Hemisphere.

Tas.: Vale of Belvoir, *G.Kantvilas* 49/93 (HO); Mole Creek, *G.Kantvilas* & *P.James* 366/84A (BM, HO, MB).