

COLLEMA

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Collema G.Weber in Wiggers, *Prim. Fl. Holsat.* 89 (1780), *nom. cons.*; possibly from the Greek *collema* (that which is glued), referring to the strongly hardened gelatin of some species when dry.

Type: *Lichen lactuca* G.Weber = *Collema lactuca* (G.Weber) Wiggers, *nom. illeg.* = *Lichen nigrescens* Hudson = *Collema nigrescens* (Hudson) DC.

Thallus foliose, subfruticose to almost crustose, directly attached to substratum, gelatinous when wet, ecorticate, homoiomerous; mycelium woven throughout a gelatinous cyanobacterial matrix; isidia sometimes present, terete, arising from upper surface of thallus; lobules sometimes present, usually flat, dorsiventral, sometimes \pm terete, arising from margin or from breaks in thallus. Ascomata apothecial, immersed to sessile, sometimes subpedicellate to pedicellate; disc round; thalline exciple enclosing a developed proper exciple; hypothecium pale; paraphyses unbranched. Asci clavate to subcylindrical, 8-spored, unitunicate, I+ blue. Ascospores transversely septate with 1 to many septa or muriform, thin-walled, hyaline. Conidiomata pycnidial, globose, immersed in thallus or in warts. Conidia rod-like.

A genus of 80 species world wide; 19 species occur in the Australian region.

G.Degelius, The lichen genus *Collema* in Europe, *Symb. Bot. Upsal.* 13: 1–499 (1954); G.Degelius, The lichen genus *Collema* with special reference to the Extra European species, *Symb. Bot. Upsal.* 20(2): 1–215 (1974).

- 1 Thallus isidiate, sometimes lobulate
- 2 Thallus lobulate; apothecia not always present
- 3 Thallus without apothecia
- 4 Growing on rock or soil
- 5 Thallus with scattered lobules (some terete) in centre **C. coccophorum**
- 5: Thallus rarely with lobules, densely isidiate **C. novozelandicum**
- 4: Growing on bark
- 6 Thallus ridged and pustulate, olive-green with a brown tinge; isidia globose becoming cylindrical and branched
- 6: Thallus smooth, olive-green; isidia globose becoming elongate and squamiform, simple or sparsely branched
- 3: Thallus with apothecia
- 7 Apothecial disc epruinose; ascospores 4–6-celled
- 8 Ascospores narrowing towards one or both ends; thallus lobules short and small, less than 1 mm wide
- 8: Ascospores with one end narrow and strongly extended; thallus lobules 1–3 mm wide
- 7: Apothecial disc pruinose; ascospores 6–8-celled **C. leucocarpum**
- 2: Thallus without lobules; apothecia usually present in mature specimens, sometimes lobulate on margin

- 9 Isidia nodulate **C. leptaleum**
- 9: Isidia globose, cylindric, coralloid or squamiform
- 10 Isidia squamiform **C. subconveniensi**
- 10: Isidia globose, cylindric or coralloid
- 11 Apothecial disc sometimes pruinose; ascospores $30\text{--}48 \times 3.5\text{--}6.5 \mu\text{m}$
- 11: Apothecial disc epruinose; ascospores either broader or longer than above
- 12 Apothecial margin isidiate or lobulate
- 13 Apothecial margin isidiate **C. rugosum**
- 13: Apothecial margin lobulate **C. pustulatum**
- 12: Apothecial margin without isidia or lobules
- 14 Isidia dense, sometimes covering centre of thallus **C. subflaccidum**
- 14 Isidia sparse **C. japonicum**
- 1: Thallus not isidiate, some species forming small lobules on lobe margins
- 15 Apothecial disc pruinose
- 16 Thallus strongly ridged, pustulate **C. glaucophthalmum**
- 16: Thallus neither strongly ridged nor pustulate
- 17 Thallus smooth, in parts slightly rugose or ridged; apothecia less than 1 mm wide
- 17: Thallus with ridges radiating; apothecia to 1.5 mm wide **C. actinoptychum**
- 15: Apothecial disc epruinose
- 18 Ascospores muriform
- 19 Apothecia always immersed, to 0.4 mm wide **C. pustulatum**
- 19: Apothecia superficial, sessile, to 2.5 mm wide
- 20 Ascospores fusiform to broadly acicular, $30\text{--}56 \times 4\text{--}8.5 \mu\text{m}$ **C. japonicum**
- 20: Ascospores fusiform to broadly ellipsoidal, $20\text{--}40 \times 8\text{--}10.5 \mu\text{m}$ **C. subconveniensi**
- 18: Ascospores not muriform
- 21 Ascospores more than 6-celled
- 22 Thallus deeply ridged and pustulate **C. implicatum**
- 22 Thallus rugose **C. fasciculare**
- 21: Ascospores less than 6-celled
- 23 Ascospores 2–4-celled; on limestone rock and soils **C. coccophorum**
- 23: Ascospores 4–6-celled; on other substrata
- 24 Cells in ascospores equal in size; thallus not lobulate **C. quadriloculare**
- 24: Cells in ascospores unequal in size; thallus lobulate
- 25 Ascospores narrowing towards ends **C. leptaleum**
- 25: Ascospores with one end narrow and strongly extended **C. durietzii**