

## VERRUCARIA

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*Verrucaria* Schrad., *Spicil. Fl. Germaniae* 1: 108 (1794), *nom. cons.*; from the Latin *verruca* (a wart) and the suffix *-aria* (indicating possession), in reference to the prominent perithecia of many species.

Type: *V. rupestris* Schrad.

Thallus crustose, immersed in the substratum or superficial, continuous to areolate or subsquamulose, corticate or ecorticate, with or (usually) without black ridges or puncticulae, with or without a prothallus and hypothallus. Ascospores perithecia, immersed to superficial, with or without a dark greenish brown or dark brown to black involucrellum. Exciple hyaline to  $\pm$ black. Asci 8-spored, clavate to cylindroclavate. Ascospores simple, colourless.

A genus of c. 300 species found mainly in warm-temperate to Arctic-alpine regions of both Hemispheres; less diverse and common in arid and wet-tropical areas. Species grow on maritime, aquatic and non-aquatic rocks, rarely on soil and (not in Australia) on bark. Thirty-four species are currently known in Australia, mainly from eastern and south-eastern coastal and hinterland areas. Nevertheless, the genus must be regarded as still rather poorly known, since most species are known from no more than a handful of sites and many collections remain unidentified.

*Verrucaria* is distinguished from other crustose genera of Verrucariaceae by its simple ascospores. However, the genus requires a thorough world-wide revision because the circumscription of most species, and especially their variability, is poorly understood. Thus, for example, hundreds of taxa have been described from central and southern Europe, often based on overly subtle differences in thallus habit, colour and anatomy and perithecial structure and dimensions.

R.Santesson, Amphibious pyrenolichens I, *Ark. Bot.* 29A(10): 1–67 (1939); T.D.V.Swinscow, Pyrenocarpous lichens: 13. Fresh-water species of *Verrucaria* in the British Isles, *Lichenologist* 4: 34–54 (1968); G.Clauzade & C.Roux, Likenoj de Okcidenta Eŭropo. Ilustrita determinlibro, *Bull. Soc. Bot. Centre-Ouest*, n.s., numéro spécial 7: 1–893 (1985); P.M.McCarthy, Notes on Australian Verrucariaceae (Lichenes): 2, *Muelleria* 7: 317–332 (1991); D.L.Hawksworth, P.M.McCarthy & A.Fletcher, *Lich. Fl. Great Britain & Ireland* 630–642 (1992); P.M.McCarthy, Aquatic species of *Verrucaria* in eastern Australia, *Lichenologist* 27: 105–126 (1995).

### Biogeographical Affinities

Australian species of *Verrucaria* are dominated by an antitropical element and by small, but significant southern Australasian and endemic groups. Field-work in the future will almost certainly see the reclassification of some "endemic" species to "southern Australasian", while the endemic component will itself be replenished. Note the small or non-existent pantropical and Palaeotropical/Pacific groups and the contrasting affinities of *Porina* species (see above).

**Cosmopolitan** (1): *praetermissa* ( $\pm$ )

**Antitropical** (17): *baldensis*, *calciseda*, *compacta*, *dufourii*, *fusconigrescens*, *glaucina*, *halizoa* ( $\pm$ ), *hochstetteri*, *hydrela*, *lecideoides* var. *minuta*, *margacea*, *maura*, *microsporoides*, *muralis*, *nigrescens*, *papillosa*, *striatula*

**Pantropical** (0): —

**Palaeotropical/Pacific** (1): *mundula* var. *mundula* ( $\pm$ )

**Southern Pantemperate** (0): —

**Southern Australasian** (5): *aucklandica*, *inconstans*, *meridionalis*, *phaeoderma*, *subdiscreta*

**Endemic  $\pm$ tropical** (1): *mundula* var. *deminuta*

**Endemic  $\pm$ temperate** (8): *australiensis*, *austroalpina*, *operculata*, *puncticulata*, *solicola*, *subtholocarpa*, *tholocarpa*, *tuberculiformis*

**Anomalous** (1): *tasmanica* (known only from Tasmania and New Guinea)