



## GYALECTA<sup>1 2</sup>

Gintaras Kantvilas<sup>3</sup>

*Gyalecta* Ach., *Kongl. Svenska Vetensk.-Akad. Handl.* 29: 228 (1808).

Type: *G. geoica* (Wahlenb.) Ach.

= *Belonia* Nyl., *Actes Soc. Linn. Bordeaux* 21: 346 (1857); type: *B. russula* Nyl.

Thallus crustose, effuse, sometimes patchy and inconspicuous; prothallus absent. Photobiont *Trentepohlia*, with cells  $\pm$  globose or ellipsoid, 9–20  $\mu\text{m}$  wide, crowded together and mostly not in chains. Ascomata apothecia, superficial or rather immersed in the thallus, biatorine and with the disc plane, concave or urceolate, pale pink to orange to brown-black, often waxy and  $\pm$  translucent or, in some species, perithecioid and the disc obscured by the markedly incurved exciple. Proper exciple cupulate, composed of short-celled hyphae 3–6  $\mu\text{m}$  wide. Hymenium hyaline, KI+ blue. Paraphyses simple, thread-like, not capitate. Asci narrowly cylindrical to clavate, 8–48-spored, of the *Gyalecta*-type, with a thin, KI+ blue wall and a non-amyloid, poorly developed tholus. Ascospores transversely 2- or more-septate or muriform, filiform to fusiform to ellipsoid, hyaline, non-halonate. Conidiomata pycnidia, not known for most species; conidia thread-like, curved. Chemistry: nil.

A widespread genus of about 30–40 species, found mainly in temperate areas. It grows on calcareous or siliceous rocks, wood or bark, or over bryophytes; several species are associated with old forests. The genus was traditionally applied to species with apothecioid ascomata and 8-spored asci, but molecular work by Baloch *et al.* (2010) led to the transfer to *Gyalecta* of species with  $\pm$  perithecioid ascomata (previously included in *Belonia*) and those with multispored asci (*Pachyphiale*, not present in Tasmania). Two species, both of the *Belonia*-type, occur in Tasmania. Babbington & Mitten (1859) also recorded *Gyalecta jenensis* (Batsch) Zahlbr. [as *G. cupularis* (Hedw.) Schaer.] from Tasmania, but no authentic collections of this species have been located, and the record is presumed to be based on a misidentification.

*Gyalecta* is one of several genera of small, crustose lichens present in Tasmania that can be difficult to distinguish from each other. *Coenogonium* also has a *Trentepohlia* photobiont and similar asci, but differs chiefly in having 1-septate ascospores. Both *Gyalidea* and *Absoconditella* have a chlorococcoid photobiont; in the former, the hymenium is KI+ red-brown, the asci are entirely non-amyloid and the ascospores are thinly halonate, whereas in the latter, the hymenium is KI- and the asci have a thickened, non-amyloid tholus. A further genus, *Cryptodiscus*, has a photobiont of globose cells, grouped in a gelatinous sheath (*Gloeo-cystis*), a KI+ blue hymenium, and asci with a thickened, amyloid tholus.

Key references: McCarthy & Kantvilas (1997); Coppins & Malcolm (1998); Messuti *et al.* (1999); Gilbert *et al.* (2009); Baloch *et al.* (2010).

1 Apothecia pink to orange-brown; ascospores 35–45-septate, with apices blunt or acute and the cells broader than long

1 *G. pellucida*

Apothecia brown-black; ascospores 11–21-septate, with apices distinctly hooked and the cells  $\pm$

2 *G. uncinata*

1 This work can be cited as: Kantvilas G (2023). *Gyalecta*, version 2023:1. In MF de Salas (Ed.) *Flora of Tasmania Online*. 3 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/lichen-genera/gyalecta/> (accessed 7 December 2023).

2 This treatment was supported by the Australian Biological Resources Study's National Taxonomy Research Grant Program (grant no. 4-EHINNOL).

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

longer than broad

### 1 *Gyalecta pellucida* (Coppins & Malcolm) Baloch & Lücking

*Lichenologist* 45: 725 (2013); —*Belonia pellucida* Coppins & Malcolm, *Lichenologist* 30: 563 (1998).

Thallus whitish or pale greenish grey, very thin, patchy and scurfy. Ascomata perithecioid, convex to subglobose, pale pink to orange-brown, 0.2–0.3 mm wide, semi-immersed and partially enveloped by the thallus, with a minute, central, pore-like opening; proper exciple in section reddish brown at the uppermost edge, hyaline elsewhere, 40–60 µm wide laterally and in the upper part. Paraphyses c. 1 µm thick. Asci 8-spored, 80–100 × 8–11 µm. Ascospores filiform, (60–)70–85 × 2.5–4 µm, c. 35–45-septate, blunt or acute at the apices, slightly constricted at the septa; cells broader than long. Conidiomata not found.

Extremely rare in Tasmania, but also very inconspicuous and therefore possibly overlooked. This is one of several uncommon, corticolous lichens associated with *Melaleuca ericifolia*-dominated swampy woodland. It appears to be similarly rare in New Zealand, where it is known only from the type locality. At first glance, it can be mistaken for a species of *Porina*, although in that genus, the ascomata are true perithecia and no species have such long ascospores.

Stanley Peninsula, c. 30 m E of Wells Road, 40°45'S 145°17'E, c. 50 m, 1998, A. Gray s.n. (HO); Cape Portland, Musselroe Wind Farm, northern end of Musselroe Bay, 40°48'36"S 148°06'41"E, sea-level, 2019, G. Kantvilas 239/19 (HO).

### 2 *Gyalecta uncinata* (P.M.McCarthy & Kantvilas) Baloch & Lücking

*Lichenologist* 45: 726 (2013); —*Belonia uncinata* P.M.McCarthy & Kantvilas, *Lichenologist* 29: 489 (1997). Type: Tasmania: Gordon Road, c. 2 km N of Frodshams Pass (Site EW23), 42°48'S 146°24'E, 600 m, on bark of *Cyathodes juniperina* [*Leptocophylla pogonocalyx*], 8 April 1997, G. Kantvilas 96/97 (holo—HO!).

Thallus pale greenish grey to pale green, usually tinged orange-pink when fresh, very thin, scurfy or minutely granular, forming scattered, irregular patches to c. 40 mm wide. Ascomata perithecioid, subglobose, black or brown, rarely pale pink, 0.15–0.35 mm wide, semi-immersed to superficial, with a minute central, pore-like opening; proper exciple black-brown at the uppermost edge, hyaline elsewhere, 50–80 µm wide laterally. Paraphyses 1–1.5 µm thick. Asci 8-spored, 80–110 × 10–13 µm. Ascospores filiform, distinctly hooked at the apices, 50–90 × 2.5–4.4 µm, c. 11–21-septate; cells mostly isodiametric or longer than broad. Conidiomata not found.

An extremely inconspicuous species, widely scattered in wet sclerophyll forest, scrub and cool temperate rainforest, where it occurs in shaded situations on the small branches and stems of understorey plants, sometimes overgrowing leafy hepatics. It is also known from Victoria and southern South America. In the field, the dark, perithecioid fruiting bodies can be mistaken for a *Porina* species, but the hooked ascospores are diagnostic, as is the excipular and hymenial anatomy.

Meadstone Falls, 41°45'S 148°05'E, 420 m, 1999, G. Kantvilas 331/99 (HO); South Sister, 41°32'S 148°10'E, 760 m, 2007, G. Kantvilas 349/07 (HO); Gordon River near Richea Creek, 42°37'S 146°22'E, 450 m, 2008, G. Kantvilas 16/08 (HO).

## REFERENCES

- Babbington C, Mitten W (1859) Lichenes. In JD Hooker, *The Botany of the Antarctic Voyage 3 (Flora Tasmaniae)* 2 343–354 (Lovell-Reeve: London).
- Baloch E, Lücking R, Lumbsch, HT, Wedin M (2010) Major clades and phylogenetic relationships between lichenized and non-lichenized lineages in Ostropales (Ascomycota: Lecanoromycetes). *Taxon* 59 1483–1494.
- Coppins BJ, Malcolm WM (1998) A new *Belonia* from New Zealand and a second record of *B. mediterranea*. *Lichenologist* 30 563–566.

Gilbert OL, James PW, Woods RG (2009) *Gyalecta* Ach. (1808). In CW Smith, A Aptroot, BJ Coppins, A Fletcher, OL Gilbert, PW James, PA Wolseley (Eds), *The Lichens of Great Britain and Ireland*, pp 417–421 (British Lichen Society: London).

McCarthy PM, Kantvilas G (1997) *Belonia uncinata* (Gyalectales), a new species from Tasmania. *Lichenologist* **29** 489–492.

Messuti MI, Vězda A, Lumbsch HT (1999) *Belonia uncinata* (Gyalectales, Ascomycotina) new to South America. *Bryologist* **102** 314–316.

## INDEX

<b>A</b>		<i>Gyalecta geoica</i> .....	1
<i>Absconditella</i> .....	1	<i>Gyalecta jenensis</i> .....	1
<b>B</b>		<i>Gyalecta pellucida</i> .....	2
<i>Belonia</i> .....	1	<i>Gyalecta uncinata</i> .....	2
<i>Belonia pellucida</i> .....	2	<i>Gyalidea</i> .....	1
<i>Belonia russula</i> .....	1	<b>L</b>	
<i>Belonia uncinata</i> .....	2	<i>Leptocophylla pogonocalyx</i> .....	2
<b>C</b>		<b>M</b>	
<i>Coenogonium</i> .....	1	<i>Melaleuca ericifolia</i> .....	2
<i>Cryptodiscus</i> .....	1	<b>P</b>	
<i>Cyathodes juniperina</i> .....	2	<i>Pachyphiale</i> .....	1
<b>G</b>		<i>Porina</i> .....	2
<i>Gloeocystis</i> .....	1	<b>T</b>	
<i>Gyalecta</i> .....	1	<i>Trentepohlia</i> .....	1
<i>Gyalecta cupularis</i> .....	1		