



BIBBYA ¹

Gintaras Kantvilas ²

Bibbya J.H.Willis, *Vict. Naturalist* 73: 125 (1956).

Type: *B. muelleri* (F.Wilson) J.H.Willis [= *B. bullata* (Meyen & Flot.) Kistenich, Timdal, Bendiksby & Ekman]

Thallus crustose to squamulose, with a well-developed cortex and epinecral layer; isidia and soredia absent; upper surface with or without pores or pseudocyphellae, occasionally with a pruina of calcium oxalate. Photobiont a unicellular green alga with \pm globose cells 6–15 μm diam. Ascomata apothecia, biatorine, sessile, basally constricted. Disc plane to convex, black, occasionally pruinose. Proper exciple usually persistent, \pm concolorous with the disc, in section annular, with a red-brown, K+ crimson-red outer edge, mostly hyaline within, composed of radiating, branched, thick-walled hyphae, sometimes interspersed with calcium oxalate. Hypothecium hyaline to dark brown. Hymenium hyaline, overlain by a red-brown, K+ crimson-red, N- epithecium, occasionally with greenish pigments also present. Paraphyses sparingly branched, 2–2.5 μm thick; apices capitate, to 4–6 μm wide, with gelatinous, pigmented outer caps. Asci clavate, 8-spored, of the *Bacidia*-type: tholus well-developed, amyloid, with a weakly amyloid, conical *masse axiale* and a short, conical ocular chamber. Ascospores simple or, more commonly, transversely septate up to 7 times, hyaline, narrowly ellipsoid, bacilliform or fusiform-acicular, thin-walled, non-halonate. Conidiomata pycnidia, immersed. Conidia filiform, often curved, 12–20 \times 1 μm . Chemistry: containing no substances of taxonomic significance identifiable by TLC.

A genus of 11 species found on rocks and soil, widely distributed throughout the world. *Bibbya* is a segregate of *Toninia*, a large and variable genus characterised chiefly by a crustose to squamulose thallus, biatorine to lecideine apothecia, *Bacidia*-type asci, weakly conglutinated paraphyses, and usually transversely septate, hyaline ascospores. *Bibbya* was reinstated chiefly on the basis of molecular data and is difficult to circumscribe by morphological characters. Indeed, the type species, *B. bullata*, is morphologically quite different from most other species of the genus. A critical generic character is the presence of the red-brown, K+ crimson-red apothecial pigment.

Key references: Timdal (1992); Kistenich *et al.* (2018); Cannon *et al.* (2021).

- | | | |
|---|---|-----------------------|
| 1 | Thallus composed of glossy brown, bullate to digitate squamules; ascospores fusiform, 7-septate; growing exclusively on soil and stones in exposed, treeless, alpine habitats | 2 <i>B. bullata</i> |
| | Thallus composed of white to pale grey, plane to convex squamules; ascospores ellipsoid, 1-septate; found on calcareous substrata in dry, lowland habitats | 1 <i>B. australis</i> |

1 *Bibbya australis* (Timdal) Timdal

In S. Kistenich *et al.*, *Taxon* 67: 891 (2018); —*Toninia australis* Timdal, *Opera Bot.* 110: 45 (1992).

Thallus squamulose; squamules scattered or contiguous, white to pale grey, \pm orbicular, occasionally effigurate, plane to convex, to 4 mm wide, 0.5–1 mm thick, lacking pores or pseudocyphellae, interspersed with crystals of calcium oxalate; upper surface entire or fissured and pruinose. Apothecia to 1.2 mm diam., black, usually faintly white-pruinose; disc persistently plane; proper exciple persistent, in section 50–60(–100) μm

1 This work can be cited as: Kantvilas G (2024). *Bibbya*, **version 2024:1**. 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/bibbya/>

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

thick, red-brown at the outer edge. Hypothecium hyaline throughout, or faintly pigmented in an upper, subhymenial band, typically massive and 150–200 µm thick, containing calcium oxalate. Hymenium 60–80 µm thick, often with crystals of calcium oxalate; epithecium 6–10 µm thick, deeply red-brown, K⁺ crimson-red. Asci (45–)53–65 × 12–14 µm. Ascospores 1-septate, narrowly ellipsoid or sometimes a little oblong, 12–14.5–17(–18) × (3–)3.5–4.2–5(–5.5) µm. Pycnidia not seen.

A widely distributed species in drier parts of southern Africa, Australasia and southern South America; in Australia, it occurs on calcareous substrata. The species is at the periphery of its distribution range in Tasmania where it is known from a single collection from a large, coastal outcrop of soft calcarenite. It is well characterised by its white, squamulose thallus, pruinose, black apothecia, red-brown apothecial pigment and 1-septate ascospores. Its relationship with *B. glaucocarpa* (Timdal) Timdal, described from the Australian Capital Territory and endemic to Australasia, deserves further investigation.

Flinders Island, Killiecrankie Bay, W of township, 39°50'S 147°50'E, 5 m, 2007, G. Kantvilas 145/07 (HO).

2 *Bibbya bullata* (Meyen & Flot.) Kistenich, Timdal, Bendiksby & S.Ekman

Taxon 67: 891 (2018); —*Lecidea bullata* Meyen & Flot., *Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur.* 19, Suppl. 1: 227 (1843); *Toninia bullata* (Meyen & Flot.) Zahlbr., *Beih. Bot. Centralbl.*, Abt. 2, 19: 76 (1905).

Thallus squamulose; squamules mostly contiguous and spreading widely, glossy red-brown to dull brown, smooth or becoming wrinkled when older, epruinose, strongly convex, bullate to digitate, simple or branched, often swollen towards the apices, mostly 1–3 mm wide, to 12 mm tall, dimpled at the apex with punctiform, pore-like pseudocyphellae; calcium oxalate lacking. Apothecia 1–6 mm diam., frequently radially fissured when old, lacking calcium oxalate; disc black to grey-black, epruinose but sometimes appearing ± faintly tomentose, plane to undulate, rarely beoming convex; proper exciple persistent, black to brown-black at the lower edge, in section 50–90 µm thick, red-brown at the outer edge. Hypothecium hyaline to pale yellowish or grey, K[±] pale yellow-brown, 140–250 µm thick. Hymenium 80–100 µm thick; epithecium 10–20 µm thick, deeply red-brown, K⁺ crimson-red, occasionally also with greenish, N⁺ crimson pigment. Asci 60–75 × 12–16 µm. Ascospores (3–)7-septate, fusiform, usually attenuated at the distal end, (30–)34.5–52.6–65 × 3–3.6–4.5 µm. Pycnidia not seen.

Highly localised on shallow soil and stones in exposed, wind-swept, high-alpine habitats. The extensive mats of glossy red-brown, finger-like squamules, sometimes as much as a metre across, are very distinctive. This species is uncommon in Tasmania and found mainly on the highest plateaux of the Central Highlands and at Ben Lomond. It is widespread across the Southern Hemisphere and extends through the Americas to western North America.

Lake Augusta, 41°50'S 146°34'E, 1140 m, 1970, G.C. Bratt 70/223 & M.H. Bratt (HO); Platform Peak summit area, 42°41'S 147°03'E, 970 m, 2016, G. Kantvilas 293/16 (HO); Legges Tor, 41°32'S 147°39'E, 1560 m, 2022, G. Kantvilas 67/22 (HO).

REFERENCES

- Cannon P, Ekman S, Kistenich S, LaGreca S, Printzen C, Timdal E, Aptroot A, Coppins B, Fletcher A, Sanderson N, Simkin J (2021) Lecanorales: Ramalinaceae. *Revisions of British and Irish Lichens* 11 1–82.
- Kistenich S, Timdal E, Bendiksby M, Ekman S (2018) Molecular systematics and character evolution in the lichen family Ramalinaceae (Ascomycota: Lecanorales). *Taxon* 67 871–904.
- Timdal E (1992) A monograph of the genus *Toninia* (Lecideaceae, Ascomycetes). *Opera Botanica* 110 1–137.

INDEX

B	
<i>Bacidia</i>	1
<i>Bibbya</i>	1
	<i>Bibbya australis</i>1
	<i>Bibbya bullata</i>1, 2
	<i>Bibbya glaucocarpa</i>2

Bibbya muelleri.....1

L

Lecidea bullata.....2

T

Toninia.....1

Toninia australis.....1

Toninia bullata.....2