

# *Phylloblastia blechnicola* (Ascomycota, Verrucariaceae), a new leaf-inhabiting lichen from southern Victoria, Australia

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## Introduction

The foliicolous (leaf-inhabiting) lichen genus *Phylloblastia* Vain. (Ascomycota, Verrucariaceae) is most diverse in the Neotropics and Australia, less so in western Europe, tropical Africa, South-east Asia and Malaysia. Seven of the 14 known species occur in the wet-tropics and subtropics of eastern Australia, as well as Lord Howe Island and in warm-temperate forest in south-eastern New South Wales (Lücking 2008; McCarthy 2010).

*Phylloblastia* is characterised by its thin and often inconspicuous thallus, a chlorococcoid photobiont and minute, orange to greenish brown or blackish perithecioid ascomata that are usually enclosed within a spreading involucrellum and have a broad, deep apical depression. Paraphyses are lacking, but periphyses are present, as are fissitunicate 8-spored asci and usually elongate multiseptate ascospores (Lücking 2008; McCarthy 2010). Primary species-level diagnostic characters include the colour and dimensions of perithecia and the extent of involucrellar development, together with the size, shape and septation of the ascospores.

In this paper we describe a new species, *P. blechnicola* P.M. McCarthy & Stajsic, which grows on fern pinnae in forest in southern Victoria. It is also the first report of the genus *Phylloblastia* from Victoria.

## Taxonomy

***Phylloblastia blechnicola*** P.M. McCarthy & Stajsic, *sp. nov.*

MycoBank No.: MB803177

*Thallus foliicola, epicuticularis, continuus, pallide vel medie griseoviridis, c. 10–15 µm crassus, c. 0.5–1(–2) mm latus. Algae chlorococcoideae, 4–8(–12) µm diametro, fasciculatae, plerumque sparsae. Perithecia fuscovirides, convexa, (0.16–)0.25(–0.32) mm diametro, apicibus profunde concavis,*

## Abstract

*Phylloblastia blechnicola* P.M. McCarthy & Stajsic (lichenized Ascomycota, Verrucariaceae) is described from pinnae of the fern *Blechnum wattsii* in forest in southern Victoria, Australia.

**Key words:** taxonomy, distribution, lichen, foliicolous

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*convexis ubi madefactis. Involucrellum 20–35 µm crassum. Excipulum hyalinum vel pallide fuscum, 15–20 µm crassum. Periphyses 10–20 µm longae, 2–3 µm latae. Asci 58–74 µm longi, 14–22 µm lati. Ascospores incoloratae, (3–)5(–6)-septatae, (18–)25(–34) µm longae, (4–)5(–6) µm latae, apicibus rotundatis vel subacutis.*

**Type: VICTORIA.** c. 6 km ESE of Warburton, along Mississippi Road c. 1.9 km from its junction with Burns Road, near Big Pats Creek, 37°44'55"S, 145°46'06"E, alt. 230 m, on upper surface of living pinnae of *Blechnum watsii*, in creek valley in open forest with *Eucalyptus radiata* and *Acacia dealbata*, 29.viii.2010, V. Stajsic 5777 & J. Eichler (holotype: MEL 2355655A).

*Thallus* crustose, epiphyllous, epicuticular, pale to medium greyish green, usually determinate and solitary, c. 0.5–1(–2) mm wide, often forming minute patches around single perithecia, c. 10–15 µm thick, ecorticate; surface continuous, matt, ± smooth to minutely uneven. *Algae* chlorococcoid; cells 4–8(–12) µm diam., scattered and very sparse to densely clustered. *Thalline hyphae* long-celled, forming a reticulum; cells 12–25 × 2.5–5(–6) µm, with thin, hyaline to medium brown walls. *Prothallus* not apparent. *Perithecia* moderately numerous, solitary, scattered, (0.16–)0.25(–0.32) mm diam. [*n* = 30], medium greenish brown, shallow-convex when wet, the base spreading and the apex becoming broadly and deeply concave when dry; concavity 0.08–0.17 mm wide; ostiole inconspicuous or slightly darker than the surrounding tissue, 20–30 µm wide. *Involucrellum* paraplectenchymatous, 20–35 µm thick, medium greenish brown in thin section, extending to excipulum base level. *Centrum* subglobose to depressed-obovate. *Excipulum* hyaline to pale brown, 15–20 µm thick, consisting of elongate, thin-walled periclinal hyphae. *Subhymenium* 15–25 µm thick. *Paraphyses* absent. *Periphyses* simple to sparingly branched, 10–20 × 2–3 µm. *Asci* fissitunicate, 8-spored, broadly ellipsoidal, obclavate or clavate-cylindrical, 58–74 × 14–22 µm [*n* = 20], usually with a broad, truncate or convex ocular chamber; ascus wall IKI–; ascoplasma IKI+ orange-brown to red-brown (with or without pre-treatment in KOH). *Ascospores* usually ± massed in a single fascicle in the ascus, colourless, transversely (3–)5(–6)-septate, oblong to oblong-cylindrical or fusiform-ellipsoidal, straight or slightly curved, with rounded or subacute ends, not or scarcely constricted at the septa, (18–)25(–34) × (4–)5(–

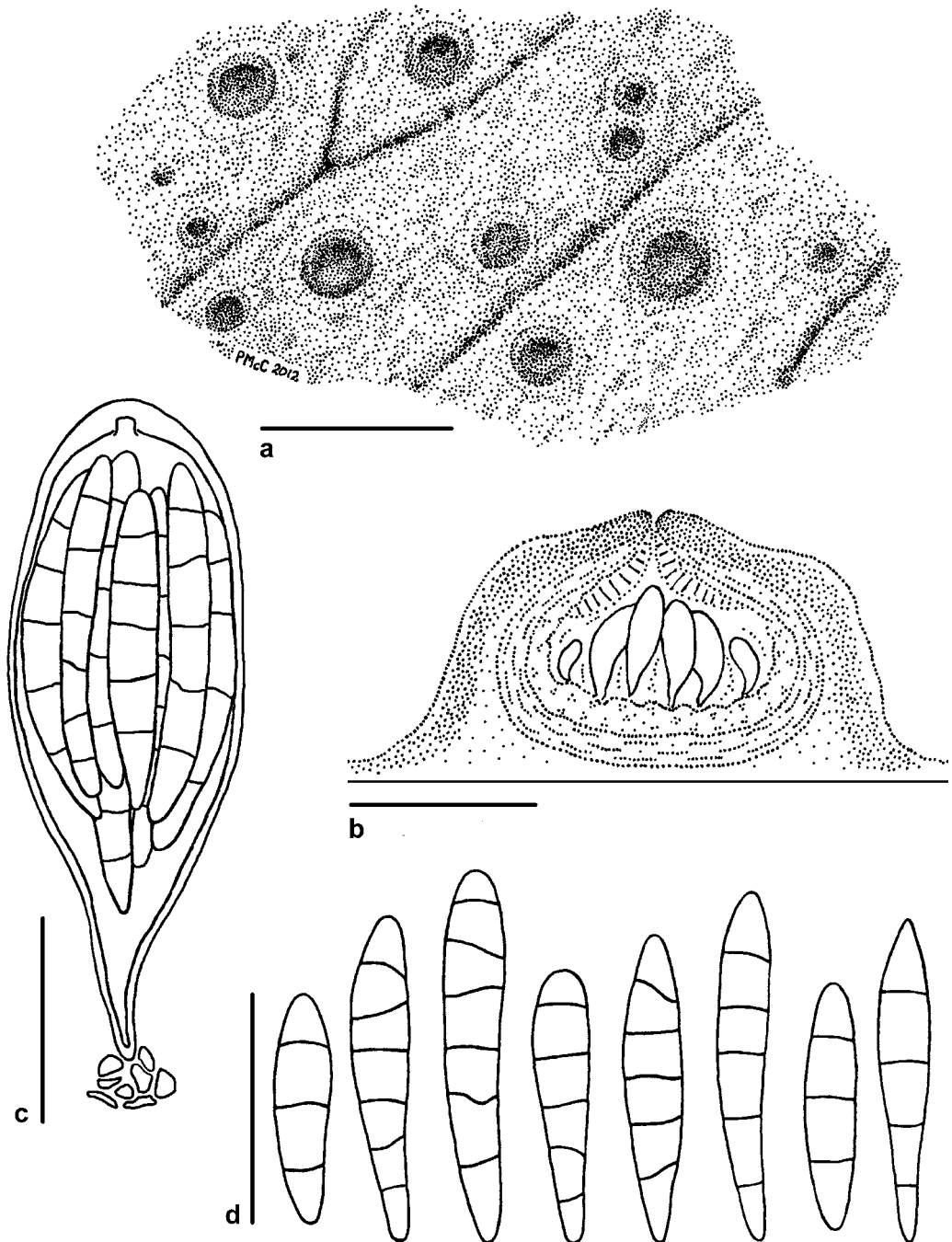
6) µm [*n* = 50]; spore wall thin, lacking an episporium; septa thin, commonly undulate or oblique; apical cells non-mucronate; contents clear. *Pycnidia* not seen. (Fig. 1.)

**Additional specimens examined: VICTORIA.** Otway Range, Johanna, Red Johanna Road, 38°44'47"S, 143°24'37"E, alt. 76 m, on upper surface of pinnae of *Blechnum watsii*, V. Stajsic 4838, 8.xi.2008 (MEL); same locality, V. Stajsic 6401, N.G. Karunajeewa, R. & E. Mayfield, 26.viii.2012 (MEL).

**Distribution and habitat:** This new foliicolous lichen is known from two localities in southern Victoria, viz. the type locality near Warburton (east of Melbourne), and from private property at Johanna, in the Otway Range (south-western Victoria). At the type locality it grows in a creek valley, in damp open forest dominated by *Eucalyptus radiata* Sieber ex DC., with an understorey of *Acacia dealbata* Link subsp. *dealbata*, *Blechnum nudum* (Labill.) Mett. ex Luer., *Blechnum watsii* Tindale, *Cyathea australis* (R.Br.) Domin, *Dicksonia antarctica* Labill., and *Pomaderris aspera* Sieber ex DC. At the Johanna site it occurs in a gully near a creek, in tall open forest dominated by *Eucalyptus cypellocarpa* L.A.S. Johnson and *Eucalyptus obliqua* L'Hér., with an understorey of *Acacia melanoxylon* R.Br., *Blechnum watsii*, *Coprosma quadrifida* (Labill.) B.L. Rob., *Cyathea australis*, *Olearia argophylla* (Labill.) Benth. and *Tetrarrhena juncea* R.Br. A limited search for additional populations of the new species was carried out across the Otway Range in late August 2012, without success. At the Johanna site the extent of *Blechnum watsii* is no greater than approximately 3 square metres, with *Phylloblastia blechnicola* found only on a few fronds. A survey of the Warburton area, and other potential sites in Victoria is required to determine the conservation status of the new species; it is currently not known from any conservation reserves.

**Etymology:** The epithet is derived from the fern *Blechnum watsii*, the only known host of the new species.

**Discussion:** *Phylloblastia blechnicola* is characterised by very small and inconspicuous, greenish brown perithecia that are deeply concave apically when dry, combined with comparatively small and elongate, (3–)5(–6)-septate ascospores. The most similar species, *P. alvari* (Herrera-Campos & Lücking) Lücking, is known with certainty only from tropical rainforest in Mexico (Lücking 2008). That



**Figure 1.** *Phylloblastia blechnicola* (holotype): **a.** habit of thalli and perithecia; **b.** vertical section of perithecium (semi-schematic); **c.** mature ascus; **d.** ascospores. Scale bars: a = 0.5 mm; b = 0.1 mm; c, d = 20  $\mu$ m.

lichen has a similarly dispersed thallus, diminutive, apically concave perithecia and 3–7-septate ascospores. However, the ascospores are narrower and more elongate than in *P. blechnicola* (30–40 × 3–4 µm) and the asci are 70–90 × 30–40 µm (Lücking 2008). Among the Australian taxa, the endemic *P. triseptata* (Kalb & Vězda) Lücking has persistently 3-septate ascospores (Vězda & Kalb 1991), while mature ascospores of the pantropical *P. septemseptata* (Vězda) Lücking and the tropical African *P. dispersa* (Vězda) Lücking are 7-septate, and the perithecia are yellow to orange and hemispherical (Vězda 1982; McCarthy & Lücking 2001; Lücking 2008).

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## References

- Lücking, R. (2008). Foliicolous lichenized fungi. *Flora Neotropica Monograph* **103**, 1–867.
- McCarthy, P.M. (2010). New and interesting foliicolous lichens from Australia. *Australasian Lichenology* **66**, 4–15.
- McCarthy, P.M. and Lücking, R. (2001). Additional lichen records from Australia 47. *Pocsia septemseptata*. *Australasian Lichenology* **49**, 18–19.
- Vězda, A. (1982). Foliikole Flechten aus Zaïre(II). Zwei neue Arten der Gattung *Pocsia*. *Folia Geobotanica et Phytotaxonomica Praha* **17**, 387–392.
- Vězda, A. and Kalb, K. (1991). Beiträge zur Kenntnis der foliikolen Flechten australischer Regenwälder III. *Nova Hedwigia* **53**, 215–228.