



Fig. 1. *Sarcogyne humicola* (holotype). Scale: 1 mm.

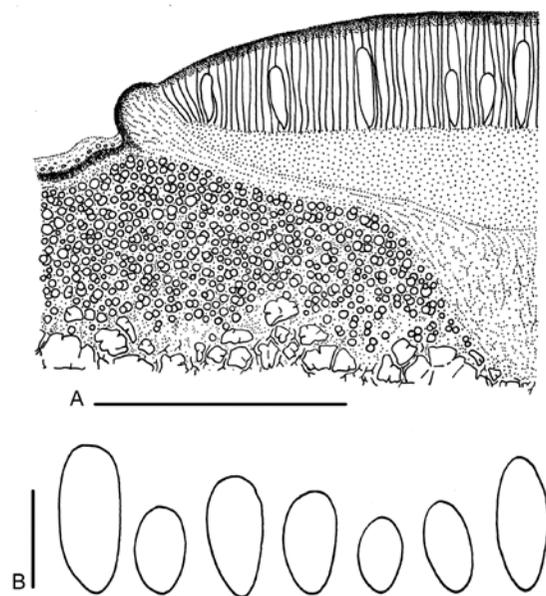


Fig. 2. *Sarcogyne humicola* (holotype). A, Vertical section of part of an apothecium and the adjacent thallus (semi-schematic); B, Ascospores. Scales: A = 0.2 mm; B = 5 μ m.

A new species of buellioid lichen (Caliciaceae, Ascomycota) from Otago, South Island, New Zealand

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Abstract

Buellia springvalensis Elix & A.Knight is described as new to science. It occurs on quartz pebbles in the saline Springvale Scientific Reserve in Central Otago, South Island, New Zealand, and is characterized by small, *Buellia*-type ascospores, an aeruginose epihymenium and the presence of psoromic acid.

Introduction

This paper continues our investigation of *Buellia*-like lichens in New Zealand. For the more recent additions, see Blaha *et al.* (2016), Elix & Mayrhofer (2016, 2017, 2018, 2021), Elix *et al.* (2017), Elix & Knight (2017) and references cited therein. In this paper, we describe a new species of *Buellia* in the broad sense. Methods are as described in the papers cited above.

The new species

Buellia springvalensis Elix & A.Knight, sp. nov.
MycoBank No.: **MB 840261**

Fig. 1

Similar to *Buellia macularis* Zahlbr., but differs in having smaller ascospores, 10–[11.8]–16 \times 5–[6.5]–9 μ m, and in containing psoromic acid rather than norstictic acid.

Type: New Zealand, South Island, Otago, Springvale Scientific Reserve, 45°12'18"S, 169°12'08"E, 180 m alt., on quartz pebbles on Miocene mudstone, *A. Knight s.n.*, 9.xii.2020 (holotype – OTA 071080; isotype – CANB).

Thallus crustose, to 20 mm wide and 0.2 mm thick, rimose to rimose-areolate; areoles 0.2–0.5 mm wide, rounded, flat or weakly convex, contiguous; upper surface grey-white to pale yellow-grey, dull, often roughened; prothallus usually conspicuous, black, surrounding the thallus, sometimes stellate-fimbriate, to 0.5 mm wide; medulla white, lacking calcium oxalate ($H_2SO_4^-$), I–; photobiont cells 7–14 μ m wide. *Apothecia* 0.1–0.5 mm wide, lecidine, immersed, then adnate to sessile; disc black, flat to weakly convex, epruinose. *Excipulum* distinct, persistent, cupuliform, in section 25–70 μ m thick, the outer zone greenish black to brown-black, K–, N+ red-violet or red-brown, the inner zone pale brown. *Epihymenium* 8–12 μ m thick, dark brown to aeruginose, K–, N+ red-violet. *Hypothecium* 60–80 μ m thick, pale brown to chestnut-brown. *Hymenium* 50–65 μ m thick, colourless, not interspersed. *Paraphyses* 1.5–2 μ m wide, simple to moderately branched, with apices 5–6 μ m wide and aeruginose-brown caps. *Asci* *Bacidia*-type, 8-spored. *Ascospores* *Buellia*-type, 1-septate, olive-brown to brown, broadly ellipsoid, 10–[11.8]–15 \times 5–[6.5]–9 μ m, rarely constricted at the septum, with obtuse ends, uniformly thin-walled; outer spore-wall microrugulate. *Pycnidia* rare, immersed, urceolate to globose. *Conidia* bacilliform, 3–5 \times 0.7–1 μ m.

Chemistry: Thallus K+ yellow, P+ yellow, C–, UV–; containing psoromic acid [major].

Etymology: The species is named after the type locality.

Remarks

Buellia springvalensis is characterized by the crustose, grey-white to pale yellow-grey, rimose to rimose-areolate thallus, often with a roughened upper surface, by the immersed to sessile, lecideine apothecia, the fimbriate-stellate, black prothallus, a non-amyloid medulla, the aeruginose, N+ red-violet epihymenium, the *Buellia*-type ascospores, $10\text{--}15 \times 5\text{--}9 \mu\text{m}$, bacilliform conidia, $3\text{--}5 \mu\text{m}$ long, and the presence of psoromic acid. It superficially resembles *B. macularis*, but that species differs in having larger ascospores, $12\text{--}18 \times 8\text{--}10 \mu\text{m}$, longer conidia, $5\text{--}7 \mu\text{m}$ long, and in containing norstictic acid. *Buellia springvalensis* also resembles the Australian *B. cravenii* Elix, a species with an aeruginose, N+ red-violet epihymenium and containing psoromic acid. However, *B. cravenii* has longer ascospores, $12\text{--}[14.3]\text{--}19 \mu\text{m}$ long, and contains atranorin (Elix 2020).

The new species is known only from the type locality, where it is locally common on exposed quartz pebbles. Associated lichens include *Buellia macularis* and *Xanthoparmelia subprolixa* (Nyl. ex Kremp.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch.

Acknowledgements

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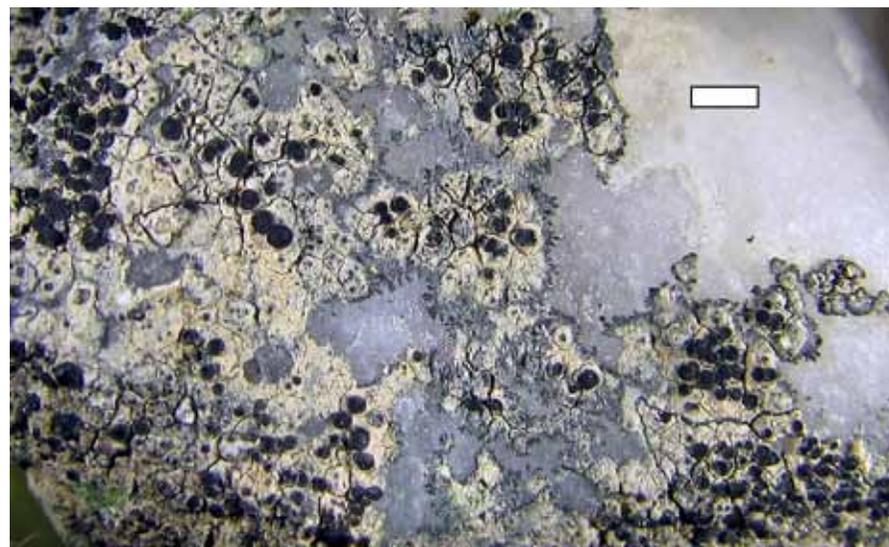


Fig. 1. *Buellia springvalensis* (A. Knight s.n., OTA 071080). Scale = 1 mm.