

# Varicellaria cacuminum

## SYNONYMS

*Pertusaria montana* Imshaug

## FAMILY

Pertusariaceae

## AUTHORITY

Fryday

## FLORA CATEGORY

Lichen – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Lichens - Crustose

## CURRENT CONSERVATION STATUS

Not Evaluated

## BRIEF DESCRIPTION

Separated from other species of the genus by its saxicolous habit, lack of soralia and abundant apothecia with single-spored asci containing enormous, single-celled ascospores.

## DISTRIBUTION

Known only from rocks on the summits of several mountains on Campbell Island, New Zealand.

## HABITAT

On rocks on the mountain tops of Campbell Island. Associated lichen species in the collections are few but include *Megalaria obludens*, *Miriquidica effigurata*, and small, indeterminate thalli of *Placopsis* sp. and *Trapelia* sp.

## DETAILED DESCRIPTION

**Thallus** creamy white, becoming pinkish in the herbarium; widespreading, several centimetres across, with a well-defined margin, sometimes with a thin indistinct greyish prothallus; areolate-rimose, areoles usually  $\pm$  flat, sometimes irregularly slightly convex, rhomboid with irregular margins, (0.4–)0.6–0.8(–1.2) mm across, 0.4– 0.7 mm thick. In Section: cortical zone 25–50  $\mu$ m thick, brown at the surface becoming paler lower down; photobiont zone c. 100  $\mu$ m thick, interrupted by bundles of medullary tissue; photobiont chlorococcoid, cells 9–15  $\mu$ m diam.; medulla c. 500  $\mu$ m thick, IKI–. **Apothecia** scattered to locally abundant in groups 1–2 cm across, arising from thalline warts 0.4–0.6 mm diam., initially  $\pm$  poriform but expanding to expose a slightly concave, white granular pruinose disc up to 0.4 mm across with a thick, raised thalline margin c. 0.1 mm thick. In Section: **hymenium** 250–350  $\mu$ m high, IKI+ orange-brown, but IKI– after pre-treatment with K, paraphyses abundant, branched and anastomosing c. 1.5  $\mu$ m wide, upper part of hymenium and exciple usually dark brown (K+ golden brown) pigmented. Exciple composed of several layers of cells c. 5  $\mu$ m wide. **Asci**  $\pm$  completely filled by the ascospores except for a small conical space at the apex, no features distinguishable, IKI+ dark blue after pre-treatment with K; ascospores 1/ascus, (178–)241.7  $\pm$  32.9(–315)  $\times$  (50–)86.8  $\pm$  16.58(–112)  $\mu$ m, l/b ratio (2.0–)2.88  $\pm$  0.57(– 4.2), n = 25, wall 10–12  $\mu$ m thick, with a thick stratified outer layer c. 10  $\mu$ m thick and thin inner layer 1–2  $\mu$ m thick, surface smooth with a thick gelatinous episporium. **Conidiomata** rare, immersed in the thallus with only a pale ostiole visible, conidia bacilliform 4–6  $\mu$ m long. **Chemistry**: K–, C+ red, Pd–, UV+ bright pale creamy-yellow; lecanoric acid detected by tlc and GE microcrystal test,  $\pm$ unidentified substance,  $\pm$ atranorin.



## SIMILAR TAXA

The only other species of *Varicellaria* currently reported from New Zealand is *V. velata* (Turner). This species is similar to *V. cacuminum* in having large ascospores in mono-spored asci, but differs, primarily, in its corticolous habit. It occasionally occurs on rock when it can be distinguished from the new species by its apothecia having a fully exposed disc at maturity that is usually coated with farinose pruina giving the impression of a thallus covered with punctiform soralia. The two species also differ chemically having very different reactions under UV light. Whereas *V. velata* only fluoresces dull orange-brown, the new species fluoresces bright pale creamy-yellow, although the substance responsible for this reaction is unknown.

Other species in the New Zealand lichen biota can be distinguished from *V. cacuminum* by thalline chemistry and ascospore dimension. *Pertusaria otagoana* D.J. Galloway is the only species with similar sized ascospores but that species differs in having poriform apothecia enclosed in raised thalline warts with a dark ostiole, and a thallus containing norstictic acid.

## SUBSTRATE

Saxicolous

## ETYMOLOGY

**cacuminum:** cacumen = summit (genitive plural cacuminum = of the summits)

Dr Henry A. Imshaug had annotated the collections *Pertusaria montana*, but this name has subsequently been used for a very different species from China

## ATTRIBUTION

Fact sheet prepared by Marley Ford (3 October 2022). Brief description, Distribution, Habitat, and Features sections copied from Fryday (2022).

## REFERENCES AND FURTHER READING

Fryday A.M. 2022: *Varicellaria cacuminum* (lichenized Ascomycota, Pertusariales), a new species of lichenized-fungi from Campbell Island/Motu Ihupuku, with notes on *Varicellaria* and other *Pertusariales* in New Zealand. *New Zealand Journal of Botany* 60. <https://www.tandfonline.com/doi/full/10.1080/0028825X.2022.2120823>

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/varicellaria-cacuminum/>