

DESCRIPTION OF *Cladia sullivanii* (Müll. Arg.) MART. (Plate 2)

Primary thallus unknown. Pseudopodetia dying at base, 2.5–11cm tall, .5–4mm diam.; subcylindric, angular, or somewhat flattened; colour stramineous and black, brown, or pale greenish grey; corticate, dull, opaque; spongy when moist, rigid when dry; branching dichotomous and sympodial; branches patent or suberect; sterile apices blunt or obtusely cornute; axils closed; podetial walls much perforated; perforations circular, oval, or elongate in several series but fewer and less regular than in *C. retipora*. Medulla thin, usually black and visible through the fenestrations. Apothecia minute, .25–.3mm diam., peltate, dark brown or black, aggregated or singly on ultimate branchlets. Spermagonia terminal on separate podetia, circ. .03mm diam., ostiole .006–.01mm, K– or faintly K+. Divaricatic acid when present diagnostic; P–.

DISTRIBUTION:—Eastern Australia, Tasmania, and New Zealand south of the Volcanic Plateau in North Island.

HABITATS. Subalpine peat bogs, and lowland peat soils and heaths.

The type form of *C. sullivanii* is wholly subalpine. The type plants were collected on the Grampian Mountains by Mr D. Sullivan and were named for him by Dr J. Müller (Argov.). They differ from *C. retipora* not only in colour but also in habit and fenestration pattern, in the black colour of the central canal, and in the chemical substances present. Tasmanian specimens labelled *C. retipora* var. (L. 601, and L. 602) loaned to me by the Director of the National Herbarium at Sydney prove to be typical *C. sullivanii*, not previously recorded from Tasmania. They were collected in 1901 by Mr A. H. Lucas on Mount Wellington and at Greeneston. Two very distinct varieties occur in New Zealand—*C. sullivanii* var. *sullivanii* the type form, always brown or stramineous and black, robust, and forming spongy cushions in subalpine bogs; and var. *compacta* var. nov., never brown or brown and black, but greenish grey, more slender and more compact, and never spongy.

*Cladia sullivanii* (Müll. Arg.) Mart. var. *compacta* var. nov.

(Holotype in Herbarium, Botany Dept., D.S.I.R., Lincoln, Canterbury, N.Z.)

Plantae 2.5–6cm altae, 2–10cm diam., confertae. Podetia virescenti-cinerascentia, base aliquando leviter fuscentia; 1–2mm diam., dichotome irregulariter; superne sat dense ramosa. Foramina minutae, vulgo numerosae, aliquando paucae, irregulariter.

Plants rarely over 6cm tall and forming compact cushions. Podetia grey or ashy-green, darkening at base, 1–2mm diam., slender at base, thicker above and more densely branched. Perforations small, numerous or few, irregularly arranged. Medulla black wholly or partially. Vainio and other European botanists believed *C. retipora* to be brown in colour and regarded *C. sullivanii* as possibly conspecific with *C. retipora*.

DISTRIBUTION. Peat bogs and peat soils on the Southland Plains as at Awarua, Makarewa, Pukerau, Kuriwao, etc.—a lowland variety.

In var. *compacta* the plants remain fairly rigid even when moist, whereas in the typical variety they become quite soft and spongy. The black medulla is usually evident in some if not all podetia. The wall perforations may be numerous, or relatively few, or may be absent altogether in some podetia as in *C. aggregata*. In *C. retipora* the fenestration pattern is truly clathrate, but this is scarcely so in *C. sullivanii*, and never so in *C. aggregata*. Some forms of *C. aggregata* closely approach var. *compacta* of *C. sullivanii*, but there is rarely any difficulty in distinguishing them. Spermagonia and apothecia are commonly present, though the latter are sometimes immature or abortive.