

ACROCLADIACEAE

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Acrocladiaceae R.Tangney *et al.*, *Tropical Bryol.* 31: 168 (2010).

Type: *Acrocladium* Mitt.

Autoicous. Pleurocarpous. Stems creeping, irregularly branched, arising all around the stem. Stems and branches terete-foliate; apices cuspidate. Paraphyllia lacking; pseudoparaphyllia lacking around mature branches; branch primordia *Climacium* type, subtype SO. Leaves ovate to very broadly ovate, weakly to strongly concave, weakly auriculate to auriculate, decurrent; costa absent or short and single or double. Laminal cells linear, pitted; alar cells hyaline, inflated, forming ±rectangular decurrent patches.

Seta long, straight. Capsules inclined, arcuate. Peristome hypnoid.

The monogeneric Acrocladiaceae occurs in Australia, New Zealand, South America and some Subantarctic islands. *Acrocladium*, was initially classified in the Amblystegiaceae by Brotherus (1908). However, following Fleischer (1923) the genus was placed in Lembophyllaceae in the second edition of *Die Natürlichen Pflanzenfamilien* (Brotherus, 1925). Crum (1991) returned *Acrocladium* to the Amblystegiaceae, primarily due to its strong resemblance to *Calliergonella* which, at that time, was considered to be part of that family. Pedersen & Hedenäs (2002) included *Acrocladium* in a very broadly circumscribed Plagiotheciaceae, based on morphological and molecular characters. Molecular analysis by Blöcher (2004) ruled out membership of all aforementioned families, but pointed to a close relationship with Lepyrodontaceae and Stereophyllaceae. Recently, molecular studies by Tangney *et al.* (2010) indicate a sister group relationship between *Acrocladium* and the Lepyrodontaceae, rather than with the Lembophyllaceae or Amblystegiaceae. Consequently, strong differences in the morphologies of *Lepyrodon* and *Acrocladium* resulted in the formal description of Acrocladiaceae (Tangney *et al.*, 2010).

References

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Tangney, R.S., Huttunen, S., Stech, M. & Quandt, D. (2010), A review of the systematic position of the pleurocarpous moss genus *Acrocladium* Mitten, *Tropical Bryol.* 31: 164–170.

ACROCLADIUM

Acrocladium Mitt., *J. Linn. Soc., Bot.* 12: 531 (1869); from the Greek *akros* (a tip or end) and *klados* (a stem or branch), in reference to the cuspidate apices of the stems and branches.

Lecto: *A. auriculatum* (Mont.) Mitt.

Plants medium-sized to ±robust, pale green to yellowish green, forming rough mats. Stems creeping, irregularly branched from all around stem. Stems and branches terete-foliate; apices cuspidate; in cross section with a 3- or 4-layer thick sclerodermis of small thick-walled cells surrounding a cortex of large thinner-walled cells; central strand narrow; rhizoids at bases of branches, occasionally longer rhizoids in sparse scattered bundles along stems and branches; axillary hairs filamentous, consisting of 2 isodiametric to short-oblong slightly tinged basal cells and 4–10 elongate hyaline distal cells. Stem and branch leaves similar, spreading, imbricate, very tightly so at the tips of stems and branches leading to cuspidate tips, ovate to very broadly ovate, almost flat to strongly concave, obtuse to rounded, decurrent; margin plane, entire; costa lacking, short and single or double. Laminal cells linear, smooth, firm- to thick-walled, pitted, shorter towards the apex, slightly shorter and broader towards the insertion; alar cells conspicuously and abruptly differentiated in ±rectangular decurrent patches, rectangular, hyaline, inflated; supra-alar cells irregularly oblong, thin- to firm-walled, not to sparsely and weakly pitted. Asexual propagules absent.

Calyptra cucullate. Sporogones solitary; seta straight, smooth. Capsules long-exserted, inclined, curved, cylindrical, smooth; exothecial cells irregularly rectangular to rounded, firm-walled, shorter in the 4 or 5 rows at the orifice; stomata present at the base of the capsule, phaneropore; annulus revoluble; operculum steeply conical. Exostome teeth narrowly triangular, shouldered, bordered, with a zig-zag commissural line, horizontally striate below, papillose above, trabeculate inside; endostome finely papillose outside, smooth inside, with a high basal membrane; processes keeled, fenestrate; cilia 2 (–3), nodulose. Spores spherical, finely papillose.

This genus of two species is restricted to high latitudes in South America and Australia, as well as New Zealand and Subantarctic islands. One species occurs in Australia; the second, *A. auriculatum* (Mont.) Mitt., is known from South America.

Acrocladium chlamydophyllum (Hook.f. & Wilson) Müll.Hal. & Broth., *Abh. Naturwiss. Vereine Bremen* 16(3): 507 (1900)

Hypnum chlamydophyllum Hook.f. & Wilson, *London J. Bot.* 3: 552 (1844); *Coelidium chlamydophyllum* (Hook.f. & Wilson) A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1876–77: 318 (1878) [Ad. 2: 384]; *Lembophyllum chlamydophyllum* (Hook.f. & Wilson) Paris, *Index Bryol.* 717 (1896). T: Campbell Island, New Zealand, *J.D.Hooker*; holo: BM.

Illustrations: J.Beever, K.W.Alison & J.Child, *Mosses of New Zealand*, 2nd edn 142, fig 77 (1992); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 51 (2003); R.D.Seppelt, *The Moss Flora of Macquarie Island* 189, fig. 75 (2004).

Plants medium-sized to ±robust, pale green to yellowish green, in rough mats. Stems and branches turgid, curved, with cuspidate tips. Leaves very broadly ovate, 1.2–1.6 mm long, 1.2–1.5 mm wide, strongly concave, obtuse to rounded, decurrent. Laminal cells linear, 55–100 × 5–7 µm, smooth, firm- to thick-walled, pitted.

Seta 16–27 mm long, smooth. Capsules inclined, curved, cylindrical, 2.0–2.5 mm long, smooth. Spores 11–16 µm diam.

Occurs in eastern N.S.W., Vic. and Tas., usually on tree trunks and bases in wet forest, and terrestrial in disturbed grassy areas; found at altitudes up to 1000 m. Also in New Zealand, the Auckland Islands, Campbell Island and Macquarie Island.

N.S.W.: Tuross River Cascades, Southern Tablelands, *J.H. Willis* (MEL). Vic.: between Telegraph Saddle and Sealers Cove, Sealers Cove walking track, Wilsons Promontory, *N.Klazenga 5977* (MEL); near Erskine Falls along Erskine R., Angahook-Lorne State Park, *N.Klazenga 6001* (MEL). Tas.: Olivers Rd, Mersey S.F., *N.Klazenga 5749* (MEL).

Acrocladium chlamydophyllum is easily recognised by its turgid, curved and cuspidate branches. The only species with which it could be confused are *Camptochaete excavata* (Taylor) A.Jaeger and *Lembophyllum clandestinum* (Hook.f. & Wilson) Lindb. ex Paris (both of which lack cuspidate branch apices), and *Calliergonella cuspidata* (Hedw.) Loeske, which has leaves twice or more as long as wide, those of *A. chlamydophyllum* being at most just longer than wide.

Hooker (*Handbook of the New Zealand Flora*, Reeve & Co., London, 1864–1867) and Dixon (*Studies in the Bryology of New Zealand*, John MacKay, Wellington, 1913–1929) considered *A. chlamydophyllum* and the South American *A. auriculatum* to be conspecific, and hence the latter has been recognised in Australia and New Zealand. However, Australian and New Zealand plants differ consistently from South American material in the much broader leaves and the less auriculate leaf bases.

Acrocladium chlamydophyllum was reported from South Australia by Catcheside (*Mosses of South Australia* 319, 1980), but no specific localities were given and no herbarium specimens could be found. However, this moss is not unlikely to occur in the Mount Lofty Ranges and near the border with southern Victoria.

Doubtful and Excluded Names

Acrocladium auriculatum (Mont.) Mitt., *J. Linn. Soc. Bot.* 12: 532 (1869)

See discussion under *A. chlamydophyllum*.

Acrocladium cuspidatum (Hedw.) Lindb., *Musci Scand.* 39 (1879)

This is currently recognised as *Calliergonella cuspidata* (Hedw.) Loeske.

Acrocladium trichocladium Bosw., *J. Bot.* 30: 99 (1892)

I have not been able to track down the type of this name. The only mention of the name is in Burges (*Proc. Linn. Soc. New South Wales* 60: 83–93, 1935), who wrote that W.W. Watts in his manuscript notes considered *A. trichocladium* to be a doubtful species, perhaps belonging to *Wijkia extenuata* (Brid.) H.A.Crum [as *Acanthocladium extenuatum* (Brid.) Mitt.].