

HYPNODENDRACEAE

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Hypnodendraceae Broth., in H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3(2): 1166 (1909).

Type: *Hypnodendron* (Müll.Hal.) Lindb.

Spiridentaceae Kindb., *Bot. Centralbl.* 76: 85 (1898). T: *Spiridens* Nees

Cyrtopodaceae M.Fleisch., *Musci Fl. Buitenzorg* 3: 655 (1908). T: *Cyrtopus* (Brid.) Hook.f.

Dioicous. Plants medium-sized to very tall pleurocarps, lacking a basal creeping part (except in *Bescherellia*), in dendroid species often forming miniature forests, in species with unbranched or weakly branched plants forming compact masses. Main innovations basal; dendroid species often with weak distal innovations sprouting from the fronds. Plants unbranched, sparingly branched, irregularly pinnate, or stipitate and bearing a pinnate palmate or umbellate frond. Stems rigid, projecting from the substratum, strongly tomentose at the base; central strand distinct, often broad. Paraphyllia absent. Pseudoparaphyllia absent or present and foliose. Leaves in frondose species anisomorphous. Stem leaves often plicate; costa strong, ending in the leaf apex to long-excurrent, abaxially smooth or toothed; margin entire to dentate, serrate or spinose, occasionally with geminate teeth, pluristratose in *Bescherellia* and *Spiridens*; median leaf cells isodiametrical to linear, smooth or prorate; alar cells differentiated or not.

Male plants often smaller than female ones. Gametoecea lateral, situated along stems and branches, in dendroid plants often clustered in the centre of the frond and located near the base of strong frond branches. Calyptra cucullate, smooth. Seta smooth, mostly long, but almost lacking in *Spiridens*. Capsules obconical to cylindrical, mostly slightly curved, often sulcate; annulus present in *Hypnodendron* and *Mniodendron*; stomata phaneroporously. Operculum conical, apiculate or rostrate. Peristome double, bryoid, occasionally reduced. Spores globose, 10–25 µm diam., finely papillose.

Until recently, Hypnodendraceae was widely regarded as a family of morphologically similar frondose pleurocarps. However, Bell *et al.* (2007), aided by molecular analysis and cladistics, greatly revised the circumscription of this and related families. Consequently, the non-frondose Cyrtopodaceae (*Cyrtopus* and *Bescherellia*) and Spiridentaceae (*Spiridens* and *Franciella*) were subsumed into the Hypnodendraceae, while *Hypnodendron* was itself divided into five genera, two of which are known from Australia (*Hypnodendron s. str.* and *Mniodendron*). *Braithwaitea*, reluctantly retained in the Hypnodendraceae by Touw (1971), was accommodated in a family of its own, and *Sciadocladus*, a subgenus in Touw's revision, was transferred to the Pterobryellaceae.

References

Bell, N.E., Quandt, D., O'Brien, T.J. & Newton, A.E. (2007), Taxonomy and phylogeny in the earliest diverging pleurocarps: square holes and bifurcating pegs, *Bryologist* 110: 533–560.

Ramsay, H.P. (1987), Cytological and other studies on the Hypnodendraceae, *Mem. New York Bot. Gard.* 45: 135–153.

Touw, A. (1971), A taxonomic revision of the Hypnodendraceae (Musci), *Blumea* 19: 211–354.

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Key to Genera

- 1 Plants unbranched or irregularly branched; cells in the acumen of the leaves \pm isodiametric; leaf border at least partly pluristratose; epiphytic mosses2
- 1: Plants forming pinnate, palmate or umbellate fronds on a distinct stipe; leaf cells elongate to linear; leaf border unistratose, indistinct; mosses growing terrestrial or on rocks, logs and tree bases3
 - 2 Leaves to 12 mm long; stems to 35 cm long; capsules almost sessile **SPIRIDENS**
 - 2: Leaves to 6 mm long; stems to 10 cm long; seta c. 10–20 mm long **BESCHERELLIA**
- 3 Stipe tomentose at the base only; stipe leaves appressed or spreading when moist ... **HYPNODENDRON**
- 3: Stipe completely tomentose; stipe leaves widely spreading to squarrose-recurved when moist **MNIODENDRON**