

## HYPNODENDRON

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*Hypnodendron* (Müll.Hal.) Lindb. ex Mitt., in B.C.Seemann, *Fl. Vitiensis* 401 (1873); from the Greek *hypnon* (a kind of moss), adopted in the 18th century for a group of pleurocarpous mosses, and *dendron* (a tree), referring to the tree-like habit of the plants.

*Hypnum* Hedw. sect. *Hypnodendron* Müll.Hal., *Syn. Musc. Frond.* 2: 496 (1851) (excl. subsect. *Flabellaria* Müll.Hal.); *Isoetecium* Brid. sect. *Hypnodendron* (Müll.Hal.) Wilson, in J.D.Hooker, *Fl. Nov.-Zel.* 2: 105 (1854).

Type: *H. junghuhnii* (Müll.Hal.) A.Jaeger

Plants medium-sized to tall, erect or projecting obliquely from the substratum. Distal innovations absent or weak. Stipe tomentose at the base only, occasionally with a few scattered tufts of tomentum. Frond palmate to subumbellate, occasionally pinnate or umbellate. Branches mostly strongly complanate. Stipe leaves mostly appressed to obliquely spreading, smooth; base not decurrent; apex acute to shortly acuminate; margin entire to coarsely serrate; costa ending in apex to short-excurrent; laminal cells smooth to distinctly prorate; marginal cells similar to the inner ones; alar cells usually indistinct. Branch leaves mostly glossy, anisomorphous, asymmetrical, smooth, mostly ovate-oblong; apex mostly acute to weakly acuminate; margin serrate; costa usually percurrent; lamina cells mostly prorate; submarginal cells often indistinctly elongated; alar cells indistinct.

Male gametocia scattered. Capsule thecae costate to sulcate, strongly inclined to horizontal, occasionally cernuous; operculum bluntly rostrate. Spores 10–19 µm diam.

### Reference

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

### Key

Stipe leaves spreading, rounded at the base; alar cells broader than mid-laminal cells; costa strong..... **1. *H. spininervium***  
Stipe leaves appressed to erecto-patent at the apex, not or scarcely narrowed at insertion; alar cells indistinct; costa weak ..... **2. *H. vitiense***

**1. *Hypnodendron spininervium*** (Hook.) A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1877–78: 359 (1880)

subsp. **archeri** (Mitt.) Touw, *Blumea* 19: 277 (1971)

*Isoetecium archeri* Mitt., in J.D.Hooker, *Fl. Tasman.* 2: 206 (1859); *Trachyloma archeri* (Mitt.) Mitt., *J. Linn. Soc., Bot.* 4: 86 (1860); *Hypnum archeri* (Mitt.) Hampe, in F.Mueller, *Fragm., Suppl.* 11: 51 (1881); *Hypnodendron archeri* (Mitt.) A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1877–78: 359 (1880). T: Ovens Ck, Cheshunt, Tas., *W.Archer s.n.*; holo: NY; iso: BM.

*Hypnodendron leiopyxis* Müll.Hal., *Hedwigia* 37: 169 (1898). T: Moe R., Gippsland, Vic., 1881, *J.G.Luehmann s.n.*; holo: ?B n.v. (destroyed); iso: H, JE, S-PA.

[*Hypnum arcuatum* auct. non Hedw.: W.Mitten, *Hooker's J. Bot. Kew Gard. Misc.* 8: 265 (1856) p.p.]

[*Hypnodendron spininervium* var. *arcuatum* auct. non (Hedw.) A.Jaeger: A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1877–78: 359 (1880) p.p.]

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Illustrations: A.Touw, *op. cit.* 274, fig. 20e, i, n–q; G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 343, pl. 64 (1976), as *H. spininervium*.

Plants erect or horizontal, dull to somewhat glossy. Fronds pinnate, palmate or irregularly branched, to 3.5 cm diam.; branches complanate. Distal innovations absent or weak. Stipe up to 5 cm long, mostly tomentose at the base only. Pseudoparaphyllia appressed. Stipe leaves deltoid to triangular-ovate, 1.0–2.3 mm long, spreading; base erecto-patent, broadly rounded, insertion concave; apex acute to short-acuminate; costa strong; margin finely serrulate to almost entire; alar cells broader than mid-leaf cells. Branch leaves ovate-oblong, 1.5–2.9 mm long; apex mostly acute, occasionally rather blunt; costa ending in the apex to percurrent; margin serrulate to short-serrate, the teeth simple or mixed with a few geminate ones; mid-leaf cells 35–85 µm long.

Sporophytes up to 8. Seta 1.5–4.0 cm long. Capsules obconical to short-cylindrical, mostly shallowly sulcate, often weakly strumose when deoperculate, 1.5–2.5 (–4.5) mm long; operculum rostrate. Spores 12–17 µm diam.

Endemic to Vic. and Tas. Grows on wet rocks, logs and humus in wet areas of rainforest and in tree fern gullies, from sea level up to 750 m alt.

Vic.: Warburton, Oct. 1904, *W. Guilfoyle s.n.* (MEL 29215).

Often occurring together with *H. vitiense* subsp. *australe*, which usually forms more robust and rigid plants having broadly palmate or subumbellate fronds. Subsp. *spininervium* occurs in New Zealand and Chatham Island; its plants have taller sporophytes and they are somewhat more regularly branched and less glossy. Plants lacking sporophytes cannot be named with certainty.

## 2. *Hypnodendron vitiense* Mitt., in B.C.Seemann, *Fl. Vitiensis* 401 (1873)

T: Fiji Islands, *B.C.Seemann 842*; holotype: NY; isotype: FH.

Plants mostly erect, very glossy. Fronds predominantly palmate, to 6 cm diam.; branches complanate. Distal innovations absent or very weak. Stipe to 9 cm long, tomentose at the base only. Pseudoparaphyllia appressed. Stipe leaves triangular to triangular-ovate, 1.2–2.9 mm long, appressed; acumen often erecto-patent; base appressed, not or only a little narrowed at insertion, the insertion line straight or nearly so; apex acuminate; costa weak; margin entire or nearly so; alar cells poorly differentiated. Branch leaves ovate-oblong, 1.8–2.9 mm long; apex acute to slightly acuminate; costa ending in the apex to percurrent; margin serrate, the teeth simple, or mixed with geminate ones; mid-leaf cells 35–95 µm long.

Sporophytes up to 18. Seta 2.0–4.5 cm long. Capsules narrowly cylindrical, sulcate, not strumose, 3.5–5.5 mm long; operculum rostrate. Spores 12–17 µm diam.

Two weak subspecies have been recognised, and both occur in north-eastern Qld where they appear to intergrade. However, all plants from that area are small and depauperate, and most are difficult to place because of their poor condition.

Stipe leaves broadest above the insertion; geminate teeth in branch leaves absent or few ..... **2a.** subsp. **vitiense**

Stipe leaves broadest at the insertion; geminate teeth usually numerous in branch leaves, rarely sparse ..... **2b.** subsp. **australe**

### 2a. *Hypnodendron vitiense* Mitt. subsp. *vitiense*

Illustration: A.Touw, *op. cit.* 280, fig. 23a, b, f–i, m–o, q, s, u.

Stipe leaves to 2.0 (–2.3) mm long; base not narrowed at the insertion, or slightly narrowed in some leaves. Geminate teeth usually numerous in branch leaves.

Occurs in rainforest and *Araucaria* plantations in north-eastern Qld; grows on rocks in stream beds, in deep shade, from sea level up to c. 1250 m alt. This subspecies is especially common in central and eastern Malesia, Melanesia and Polynesia.

Qld: Atherton Tableland, *B.O. van Zanten 681334* (GRO, L).

All Australian plants are poorly developed.

**2b. *Hypnodendron vitiense* Mitt. subsp. *australe* Touw, *Blumea* 19: 285 (1971)**

T: slopes of Mt Budawang, near Mongarlowe, N.S.W., 28 Sept. 1965, *L.G.Adams 1425*; holo: L; iso: B, BM, CANB, CHR, FH, MEL, NSW, P, TNS, US.

[*Hypnum arcuatum* auct. non Hedw.: W.Mitten, *Hooker's J. Bot. Kew Gard. Misc.* 8: 265 (1856) p.p.]

[*Trachyloma arcuatum* auct. non (Hedw.) Mitt.: W.Mitten, *J. Linn. Soc., Bot.* 4: 86 (1860)]

[*Hypnodendron arcuatum* auct. non (Hedw.) Lindb. ex Mitt.: W.Mitten, *Trans. & Proc. Roy. Soc. Victoria* 19: 90 (1882)]

[*Hypnodendron spininervium* var. *arcuatum* auct. non (Hedw.) A.Jaeger: *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1877–78: 359 (1880) p.p.]

[*Hypnum spininervium* auct. non Hook.: C.Mueller & E.Hampe, *Linnaea* 26: 503 (1855)]

[*Isoetecium spininervium* auct. non (Hook.) Wilson: J.D.Hooker, *Fl. Tasman.* 2: 206 (1859)]

[*Hypnodendron spininervium* auct. non (Hook.) A.Jaeger: C.Mueller & V.F.Brotherus, *Abh. Naturwiss. Vereine Bremen* 16(3): 509 (1900)]

Illustrations: A.Touw, *op. cit.* 280, fig. 23c–e, k, l, p, r, t; D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 159 (2003) [the diagnostic stipe leaves cannot be seen].

Stipe leaves to 2.9 mm long; base narrowed at insertion. Geminate teeth in branch leaves absent or very few. *n* = 9, *vide* H.P.Ramsay, *Mem. New York Bot. Gard.* 45: 138 (1987).

Occurs in Qld, N.S.W., A.C.T., Vic. and Tas. Grows on wet soil, decaying logs and wet rocks, mostly on stream banks in rainforest, tree fern gullies and wet-sclerophyll forest, from sea level up to 1500 m alt; endemic.

Qld: Pimpama Scrub, Aug. 1887, *C.Wild s.n.* (CANTY, FH, MEL). A.C.T.: Cotter Valley, *N.T.Burbidge 7409* (CANB). Vic.: Beenak, head of Bunyip R., Feb. 1935, *J.H.Willis s.n.* (MEL). Tas.: Mt Wellington, Hobart, *R.G.Robbins 2622* (CANB).

Tall, fruiting plants are most often found in southern N.S.W., Vic., and Tas.

#### Excluded Names

*Hypnodendron arcuatum* (Hedw.) Lindb. ex Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 90 (1882)

*Hypnum arcuatum* Hedw., *Sp. Musc.* 245 (1801).

This species occurs in New Zealand, Campbell Island and perhaps Norfolk Island. All Australian reports checked relate to either *H. vitiense* subsp. *australe* or *H. spininervium* subsp. *archeri*.

*Hypnodendron menziesii* (Hook.) Paris, *Index Bryol.* 604 (1895)

*Hypnum menziesii* Hook., *Musci Exot.* 1: 33 (1818); *Sciadocladus menziesii* (Hook.) Lindb. ex Broth., in H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3(2): 1168 (1909).

Widespread in New Zealand. Single 19th century collections are known from Norfolk Island (*Gunn s.n.*) and Tasmania (*Cunningham s.n.*), but both are most likely mislabeled.

*Hypnodendron planifrons* Müll.Hal., *Hedwigia* 37:170 (1898).

This is a heterotypic synonym of *H. spininervium* subsp. *spininervium* which has been reported erroneously from Australia by E.G.Paris (*Index. Musc.*, 2nd edn, 2: 374, 1904).

*Hypnodendron spininervium* var. *pumilum* Müll.Hal. ex Müll.Hal. & Broth., *Abh. Naturwiss. Vereine Bremen* 16: 509 (1900), *nom. nud.*

Erroneously treated as validly published in H.Streimann & J.Curnow (*op. cit.* 197).

*Hypnodendron whiteleggei* Müll.Hal. ex A.Burges, *Proc. Linn. Soc. New South Wales*  
60: 84 (1935), *nom. nud.*

Erroneously treated as validly published in H.Streimann & J.Curnow (*op. cit.* 198).