

**Fissidens bryoides** Hedw., *Sp. Musc. Frond.* 153 (1801)

*Heterodon bryoides* (Hedw.) Raf., *Med. Repos.*, ser. 2, 5: 350 (1801). Type: '*Hypnum bryoides* fronde simplicissima pinnata lanceolata, apice pedunculifera. Linn., *Sp. Pl.* 2, p 1588, n. 4' (in Hedwig's script); lecto: G, *fide* R.A.Pursell, *Bryologist* 89: 36, 37 (1986).

Illustrations: H.C.Gangulee, *Mosses of Eastern India* 2: 471, fig. 216 (1971), as var. *schmidii*; Z.Iwatsuki & T.Suzuki, *J. Hattori Bot. Lab.* 51: 456, pl. 10 (1982), as var. *schmidii*; A.Noguchi, *Illustrated Moss Flora of Japan* 1: 67, fig. 21 (1987); A.J.Sharp, H.Crum & P.M.Eckel, *The Moss Flora of Mexico* 1: 58, fig. 38 (1994); J.E.Beever & I.G.Stone, *New Zealand J. Bot.* 37: 652, fig. 5 (1999); R.A.Pursell, *Fl. Neotrop. Monogr.* 101: 76, fig. 36 (2007); J.E.Beever, *Flora of New Zealand. Mosses online*. <http://www.nzflora.info/publications.html> Fissidentaceae, Pl. 6 (2014).

**Plants** light to dark green. **Stems** unbranched to sparingly branched, 0.5–3.0 mm long, to 1.5 mm wide with leaves; rhizoids basal and axillary, smooth, reddish; axillary nodules hyaline and weakly differentiated; in section the central strand weak or scarcely evident and with the outer 1 or 2 rows of cells smaller and thicker-walled. **Leaves** in up to 20 pairs, lanceolate to oblong-lanceolate or oblong-lingulate, mostly 0.4–0.6 mm long, 0.15–0.20 mm wide; **apex** acute to short-acuminate or obtuse-apiculate; **margins** entire, often weakly serrulate near the apex, limbate; **limbodium** complete, except at the apex and base of dorsal lamina, 1–3-stratose, confluent with the costa or ending a few cells below the apex, occasionally only on vaginant laminae of most leaves or only perichaetial leaves, rarely absent; **vaginant laminae** reaching 1/2–2/3 leaf length, mostly acute, closed; **dorsal lamina** tapering to the base, often short-decurrent on stem, occasionally ending above insertion; **laminal cells**  $\pm$ hexagonal, 4–7  $\mu$ m wide, 4–8 (–15)  $\mu$ m long, becoming longer in proximal part of vaginant laminae; surface smooth, flat to slightly bulging; **costa** of *bryoides*-type, ending a few cells below apex to percurrent or very short-excurrent.

[Images](#)

Pursell (2007) described fertile plants as follows:

**Monoicous (rhizautoicous)**. **Perigonia** and **perichaetia** terminal on stems; naked antheridia sometimes in leaf axils; **perichaetial leaves** slightly longer than stem leaves. **Sporophytes** 1 or 2 per perichaetium. **Seta** smooth, 1.4–10.0 mm long. **Capsules** erect, symmetrical or  $\pm$ inclined,  $\pm$ arcuate, 0.2–1.2 mm long; **exothecial cells** quadrate to oblong,  $\pm$ collenchymatous; **peristome** of *bryoides*-type. **Calyptra** cucullate, smooth, to 0.5 mm long. **Spores** 10–20  $\mu$ m diam., finely papillose to smooth.

Only a few sterile plants have been collected in north-eastern Qld, identified as var. *schmidii* (Müll.Hal.) R.S.Chopra & S.S.Kumar by Ilma Stone; grows on wet, shaded, weathered basalt in rainforest.

*Fissidens bryoides sens. lat.* occurs widely in the circumpolar, temperate, subtropical and tropical regions of the world.

In New Zealand it is regarded as a single highly variable species (Beever, 2014).

*Selected specimens examined*: Qld: Wrights Ck, Lake Eacham Natl Park, I.G.Stone 25529 p.p., 25483 (MEL).

Pursell (2007) noted: "*Fissidens bryoides* is notoriously variable in leaf shape, limbodium, position of the gametangia, and attitude of the capsule. There is no dearth of names that have been introduced to reflect the many expressions. All expressions, however, are monoicous, often with naked axillary antheridia, and characterized by a limbodium or uni- to tristratose cells, laminal cells 7–16  $\mu$ m long, distinct, typically unistratose, smooth, plane to slightly bulging and in transverse section no deeper than wide, exserted capsules, and a *bryoides*-type peristome. *Fissidens bryoides* s. str., i.e., with axillary, gemmiform perigonia, has not been found in the Neotropics."

Beever & Stone (1999a) provide an account of *F. bryoides* in New Zealand, where the species is autoicous and sporophytes are found. It differs from the dioicous *F. leptocladus*, in having axillary perigonia, a narrower hyaline costa, larger lamina cells, the tumescent nature of which can give the erroneous impression of them being mammillose or unipapillose. In the Australian specimens examined, the axillary hyaline nodules are weakly differentiated and

easily overlooked. In New Zealand *F. bryoides* has been collected from highly modified habitats with the suggestion of it being adventive.

Li & Iwatsuki (2001) suggested that *F. bryoides* var. *schmidii* is dioicous and the lamina cells are small (4–7 µm long), mammillose, thin-walled and obscure. While the lamina cells of the Australian material examined are thin-walled and 4–10 mm long, the surface is clearly not mammillose, nor are the lamina cells obscure or difficult to revive from dried herbarium material.

Iwatsuki & Suzuki (1982) reported var. *schmidii* from calcareous habitats in Japan, but no sporophytes were found. They and Gangulee (1971) noted that lamina cells are irregularly collapsed when dry and are difficult to restore. The cells were distinctly mammillose and the cell walls obscure because of the convexity of the surface.

#### [Bibliography](#)