Fissidens brassii E.B.Bartram, *Farlowia* 1: 41 (1943)

Type: Tarara, Wassi Kussa R., Western Province, Papua New Guinea, *L.J.Brass 8753*; holo: FH; iso: MEL.

Plants 2–6 mm tall. **Stems** with a narrow central strand of small thin-walled cells. **Leaves** in 3–20 pairs, bract-like below, larger distally, oblong-ligulate; apex obtusely rounded, to c. 1 mm long; **margins** crenulate. **Vaginant laminae** joining 2/3 or more up the leaf, c. half open; cells occasionally oblate, not enlarged proximally; **dorsal lamina** terminating abruptly on the costa some distance above the insertion or tapering to the base. **Laminal cells** convex, ±hexagonal, 5.5–10.0 µm wide, multipapillose. **Costa** of *bryoides*-type.

Dioicous. **Perigonia** terminal. **Perichaetia** terminal; **perichaetial leaves** 1.1–1.6 mm long; **vaginant laminae** open to almost closed; **limbidium** of 1 or 2 rows of short-oblong cells, failing below the junction; **dorsal lamina** terminating abruptly on the costa, well above it, or reaching the leaf base. **Setae** smooth, 2.0–3.5 mm long. **Capsules** oblong, 0.45–0.50 mm long; **exothecial cells** ±quadrate to hexagonal, thin-walled, the corners not or ±collenchymatous. **Operculum** conical, short-beaked, to 0.3 mm long. **Peristome** of *bryoides*-type. **Spores** 15–18 µm diam.

Grows on soil and termite mounds in monsoonal savannah forest and desert canyons in the arid central regions and in northern and north-western Australia.

Also known from New Guinea.

Two varieties ocur in Australia.

Dorsal lamina failing abruptly far above the leaf insertion in perichaetial leaves and most stem leaves .... var. **brassii**

Dorsal lamina reaching the base of perichaetial leaves and, often, reaching the insertion of stem leaves..... .... var. **hebetatus**

Fissidens brassii E.B.Bartram var. **brassii**

Plants to 2 mm tall. **Leaves** in c. 6 pairs, mostly ligulate, 0.7–1.0 mm long, 0.15–0.25 mm wide; **vaginant laminae** reaching 1/2–2/3 the leaf length; **dorsal lamina** usually terminating abruptly on the costa 1/3 or more above the leaf insertion in most leaves (vegetative and perichaetial); **lamina cells** 5.5–8.0 µm wide.

Male shoots short or elongate, swollen at the apex, with numerous terminal antheridia. **Calyptra** cucullate, c. 0.4 mm long. **Setae** c. 3.0–3.5 mm long. **Capsules** c. 0.45 mm long; **exothecial cells** thin-walled. **Operculum** conical-rostellate, to 0.3mm long. **Spores** 15.0–17.5 µm diam.

Images

Occurs in the Darwin area and in Arnhem Land, northern N.T.

Also known from New Guinea.

Selected specimens examined: N.T.: Kakadu Natl Park, *I.G.Stone 23333* (MEL); Rapid Ck, Darwin, Jan. 1965, *V.Pedersen p.p.* (MEL).

Fissidens brassii var. *brassii* differs from the more common var. *hebetatus* in the dorsal lamina of the perichaetial leaves terminating abruptly on the costa 1/3 or more above the insertion.

Fissidens gardneri Mitt. is similar, but the leaves are in 4 or 5 pairs, narrowly lingulate with a rounded-obtuse apex; the dorsal lamina is gradually narrowed towards the base and ceases shortly above or is slightly decurrent; the vaginant lamina reaches to about mid-leaf; margins are crenulate throughout; the costa ends below the apex and is often shortly forked above; lamina cells are obscure, small and 4–6 µm, thin-walled and minutely multipapillose; the limbidium reaches to about half the length of the vaginant lamina and consists of 3 or 4 rows of large rectangular to linear, thick-walled and non-papillose cells. That species is

rhizautoicous, with small perigonia adhering to the base of female plants; perichaetia are terminal, the setae are 1.5–2.5 mm long; capsules erect, cylindrical, 0.45–0.55 × 0.25–0.35 mm; operculum rostrate; peristome c. 0.15 mm long and spirally thickened above; spores 9–13 µm diam.

Fissidens brassii E.B.Bartram var. **hebetatus** (Catches.) I.G.Stone, *J. Bryol.* 18: 161 (1994)

Fissidens hebetatus Catches., *Mosses of South Australia* 77 (1980). Type: Nourlangie Camp, Alligator River, N.T., on termite mound in shade, *M.Lazarides & L.Adams 303*; holo: CANB 162836.

Illustrations: D.G.Catcheside, *op. cit.* 78, fig. 18, as *F. hebetatus*.

Plants gregarious, 2–5 mm long. **Leaves** in 3–20 pairs, 0.5–1.0 mm long above and 0.15–0.30 mm wide, oblong-lingulate; **apex** rounded or obtuse. **Vaginant laminae** reaching 1/2–2/3 the leaf length; **dorsal lamina** usually tapering to the base, except in lower leaves; **lamina cells** irregularly hexagonal, 8–10 µm diam.

Setae terminal, to 2 mm long. **Capsules** erect, oblong, c. 0.5 mm long and 0.3 mm wide, rounded at the base; **exothecial cells** ±quadrate to hexagonal, the angles and longitudinal walls thickened. **Operculum** not seen. **Calyptra** not seen. **Spores** 16–18 µm diam.

Images

Occurs in the Kimberley region of northern W.A., in southern and northern N.T. and in western N.S.W.

Grows on soil, sandstone and termite mounds; apparently endemic.

Selected specimens examined: W.A.: Mitchell Plateau, *D.H.Ashton (I.G.Stone 23750 p.p.)* (MEL). N.T.: Kings Canyon, 30 Aug. 1966, *J.H.Willis* (MEL); *loc. id.*, *D.G.Catcheside 76.315* (AD). N.S.W.: Mootwingee Natl Park, *I.G.Stone 8330* (MEL).

Stone (1994a) noted: "In *F. brassii* var. *brassii* the dorsal lamina terminates abruptly half way down the costa on both stem and perichaetial leaves whereas in var. *hebetatus* it mostly reaches to, or almost to, the leaf insertion except in the lowest leaves. Also, in the var. *brassii* the plants are smaller, to 2 mm tall (2–5 mm in var. *hebetatus*) and the leaves more ligulate than in the var. *hebetatus*, where they are frequently lingulate, broadest at the rounded apex. The var. *hebetatus* occurs in shaded niches in desert gorges in Western Australia, the arid centre, and south-western New South Wales but also extends into the monsoonal gallery forests in the northern part of Western Australia and the Northern Territory, overlapping there with the much rarer var. *brassii* in Kakadu N.P. Specimens on termite mounds near Petherick's rainforest in the Northern Territory appear somewhat intermediate, but most specimens are not difficult to separate."

Bibliography