

**Fissidens flabellulus** Thwaites & Mitt., *J. Linn. Soc., Bot.* 13: 324 (1873)

T: Ceylon [Sri Lanka], *G.H.K.Thwaites* 142; holo: NY.

Rhizautoicous or autoicous, also dioicous. Plants minute, usually flabelliform. Stems to c. 0.5–1.3 mm long, soft, thin-walled; axillary nodules hyaline, distinct. Rhizoids smooth, growing from the base of the stem. Leaves in 2–6 pairs, lanceolate, 0.6–1.2 mm long, 0.1–0.3 mm wide; apex acute to acuminate. Costa percurrent to excurrent. Vaginant laminae c. half the leaf length, joining on lamina mid-way between costa and margin or nearer the margin; proximal part with or without a unistratose intramarginal border of narrow rectangular to prosenchymatous cells 40–80 µm long; dorsal lamina tapered or rounded, reaching the insertion. Margin serrate. Laminal cells smooth, weakly convex, hexagonal and isodiametric, c. 10–15 µm diam., similar in distal part of vaginant laminae but longer proximally.

Male plants with 2–5 pairs of leaves. Perichaetial leaves to 1.5 mm long and 0.35 mm wide; vaginant laminae shouldered below a long, often deep, indentation, with cells oblong and margin intermittently serrate proximally. Setae terminal, 2–3 mm long. Capsules ovate, erect, ±symmetrical; theca 0.30–1.00 mm long, 0.25–0.60 mm wide; exothecial cells with slightly thickened longitudinal walls; stomata few, phaneropore.

Occurs in rainforest in eastern Qld and in the eastern Palaeotropics. Two varieties are known from Australia.

Vaginant laminae with an intramarginal border of elongate cells; capsules c. 0.45–1.00 mm long ..... var. **eachamensis**

Vaginant laminae lacking an intramarginal border of elongate cells; capsules 0.30–0.35 mm long..... var. **flabellulus**

**Fissidens flabellulus** Thwaites & Mitt. var. **flabellulus**

Illustrations: I.G.Stone, *J. Bryol.* 18: 177, fig. 4 (1994).

Rhizautoicous or autoicous, apparently also dioicous. Stems c. 0.5–1.3 mm long. Leaves in 2–6 pairs, 0.6–1.0 mm long, 0.10–0.25 mm wide; apex acute to acuminate. Costa percurrent to excurrent. Vaginant laminae c. half leaf length; proximal part lacking a unistratose intramarginal border of narrow rectangular to prosenchymatous cells. Margin serrate. Perichaetial leaves in 2–5 pairs. Capsules 0.30–0.35 mm long.

Occurs in rainforest in north-eastern Qld from Cooktown and Cardwell; grows on soil. Also in Sri Lanka, Malesia, New Caledonia, China and Japan.

Qld: Helenvale, S of Cooktown, *I.G.Stone* 19232 *p.p.* (MELU); Lake Eacham Natl Park, Atherton Tableland, *I.G.Stone* 25525 (MELU).

**Fissidens flabellulus** Thwaites & Mitt. var. **eachamensis** I.G.Stone, *J. Bryol.* 18: 177 (1994)

T: L Eacham, Lake Eacham Natl Park, Atherton Tableland, Qld, on soil banks, *I.G.Stone* 25528; holo: MEL.

Illustrations: I.G.Stone, *J. Bryol.* 18: 178, fig. 5 (1994).

Dioicous or rhizautoicous. Stems to c. 0.5 mm long; axillary nodules collapsing readily. Leaves in 3–5 pairs, 0.9–1.2 mm long, 0.2–0.3 mm wide; apex acute. Costa percurrent to usually slightly excurrent. Vaginant laminae half or more of the leaf length; proximal part with a unistratose intramarginal border of 2–4 rows of narrow rectangular to prosen-

chymatous cells 40–80  $\mu\text{m}$  long. Margin serrate above, in vaginant laminae with large occasionally distant teeth or entire. Perichaetial leaves in 2 pairs. Capsules c. 0.45–1.00 mm long.

Occurs in north-eastern Qld, from near Cooktown south to Cardwell and in the south-east of the State. Grows on soil in rainforest; appears to be more common than the type variety.

Qld: Kirrama Range, near Cardwell, *I.G.Stone 16993* (MELU); Paynter Ck, near Nambour, *I.G.Stone 13276* p.p. (MELU).

Distinguished from var. *flabellulus* by the presence of an intramarginal border of elongate cells in the vaginant laminae.