

Fissidens linearis Brid., *Musc. Rec.*, Suppl. 4: 187 (1819)

Type: "In Nova Hollandia [Australia] inter *Pterigophylli jungermannoidis* radices caespitose vivit. Herb. Du Font. 1803"; holo: B.

Plants dull green, densely gregarious. **Stems** simple or branched, 1.5–5.0 mm long, with weak axillary nodules; in section with a narrow central strand; rhizoids red, basal but commonly along buried parts of stems. **Leaves** in 5–22 pairs, erecto-patent, increasing in size upwards, to 1.5 mm long, 0.25–0.30 mm wide, oblong or linear-lanceolate; **apex** acute to acuminate, occasionally arcuate; **margins** papillose-crenulate; **vaginant laminae** to mid-leaf or more, partly open, sometimes weakly limbate on the upper leaves; **dorsal lamina** tapering to the base; **laminal cells** subquadrate to irregularly 5–6-sided, 5–8 µm wide, to 10 µm wide near the costa; papillose, with 4–6 or more papillae per cell; **costa** of *bryoides*-type, subpercurrent to slightly excurrent.

Polyoicous. **Perichaetia** terminal; **perichaetial leaves** scarcely differentiated from stem leaves in shape; proximal third of vaginant laminae bordered by 1–4 rows of smooth clear elongate cells; juxtacostal cells larger. **Setae** yellow to light brown, 1.5–4.0 mm long. **Capsules** erect, symmetrical, narrowly oval; theca 0.3–0.6 mm long; **exothecial cells** ±quadrate, strongly collenchymatous. **Operculum** rostrate, c. 2/3 the length of the theca. **Peristome** of *scariosus*-type; teeth c. 30–38 µm wide at the base. **Calyptra** cucullate, smooth to scabrous. **Spores** 8–15 µm diam.

Occurs in W.A.(?), N.T., Qld, N.S.W., A.C.T., Vic., Lord Howe Island and Norfolk Island.

Also known from Japan, Korea, Taiwan, New Caledonia and New Zealand.

The inflorescence is variable, but commonly synoicous with one antheridium occurring with archegonia. Plants can also be autoicous or rhizautoicous. Deciduous axillary male and female branches are frequently seen in tangled red rhizoids at the bases of older plants.

Details of the synonymy were provided by Stone (1991), and subsequently amended (Stone, 1994a).

Two varieties are known from Australia.

Costa usually percurrent, occasionally short-excurrent..... var. **obscurirete**

Costa usually ending short of the apex, often obscured there by papillose..... var. **linearis**

Fissidens linearis Brid. var. **linearis**

Fissidens arcuatulus Broth. & Watts, *vide* I.G.Stone, *J. Bryol* 16: 238 (1900a), *nom. illeg.*; *F. allisonii* Dixon & Sainsbury, *J. Bot.* 71: 216 (1933); *F. aeruginosus* var. *allisonii* (Dixon & Sainsbury) I.G.Stone, *J. Bryol.* 18: 163 (1994). Type: on ground beyond Robin's farm, Lord Howe Is., *W.W. Watts 118*; holo: H-BR; iso: NSW.

Fissidens humilis Dixon & Watts, *Proc. Linn. Soc. New South Wales* 41: 384 (1916). Type: Newcastle, N.S.W., Mar. 1910, *C.J. Burgess 51*; holo: BM; iso: MEL, NSW.

Conomitrium coarctatum Müll.Hal., *Gen. Musc. Frond.* 76 (1901), *nom. nud.*; *F. coarctatus* Watts & Whitel., *Proc. Linn. Soc. New South Wales, Suppl.* 27: 23 (1902), *nom. nud.*

Illustrations: G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 84, fig. 7; 87, fig. 8; 89, fig. 9 (1976), as *F. humilis*; D.G.Catcheside, *Mosses of South Australia* 82, fig. 21 (1980), as *F. humilis*; I.G.Stone, *J. Bryol.* 16: 237, fig. 2f–x; 238, fig. 3a–u (1990), as *F. aeruginosus* var. *arcuatulus*; J.Beever, B.Malcolm & N.Malcolm, *The Moss Genus Fissidens in New Zealand: an illustrated key* 28 (2002); H.Streimann, *The Mosses of Norfolk Island* 83, fig. 36 (2002).

Leaves in mid-stem 0.75–1.15 mm long, 0.2–0.4 mm wide, mostly 4–6 times longer than wide. **Costa** subpercurrent, often concealed below the clear apical cell by papillose lamina cells, sporadically percurrent; **vaginant laminae** frequently elimbate, except in perichaetial leaves which are short-bordered proximally by clear rectangular to prosenchymatous cells. **Spores** 8–15 µm diam.

[Images](#)

Occurs in Central Australia (southern N.T.) and from Cape York in Qld south through N.S.W., A.C.T. and into western Vic. Also in Lord Howe Island and Norfolk Island. Grows on soil and rock.

Also in northern New Zealand and probably elsewhere under other names.

Selected specimens examined: N.T.: Standley Chasm, 1979, *J.H. Willis* (MEL). Qld: Cania Gorge, *I.G. Stone 21019* (MEL); Bunyip St., Burleigh Heads, *K. Cafarella (I.G. Stone 21729)* (MEL). N.S.W.: Cooks R., Hamilton 1156 (NSW). **[Add A.C.T. record]** Vic.: Monkey Ck, Bruthen, *R. Clark 17* (MEL); Natural Bridge, Mount Eccles Natl Park, *I.G. Stone 26060* (MEL).

Very variable in plant size and the length to width ratio of the leaves, occasionally grading towards the New Zealand endemic var. *angustifolius* (Dixon) I.G. Stone, which also has a subpercurrent costa. Occasional plants, in which the costa is subpercurrent in some leaves and percurrent in others, appear to intergrade with var. *obscurirete*.

The combination *F. aeruginosus* var. *allisonii* was made by Stone (1994a) to replace the illegitimate name *F. aeruginosus* var. *arcuatulus*, but it is superfluous as *F. aeruginosus* var. *arcuatulus* was already synonymised with *F. linearis* var. *linearis* by Stone (1991: 404, *vide* H. Streimann & N. Klazenga, *Catalogue of Australian Mosses* 76, 2002).

In the *aeruginosus* expression a large proportion of plants have narrow leaves with a long-acuminate apex and a vaginant lamina up to half the leaf length. In the *arcuatulus* expression the majority of leaves are broader, with an acute apex and vaginant lamina mostly more than half the leaf length. There is, however, much variation in these features, even on the same plant.

In the Sydney region the leaves of the *arcuatulus* expression are mostly only 4 times as long as wide and the vaginant lamina 2/3 the leaf length. Leaves of Northern Territory specimens are often shorter in relation to their width (Catcheside, 1980), sometimes only 3.5:1, with the apical lamina more oblong than lanceolate and with a broader apex.

Fissidens linearis Brid. var. **obscurirete** I.G. Stone, *J. Bryol.* 16: 403 (1991)

Fissidens obscurirete Broth. & Paris, in V.F. Broth. & Paris, *Öfvers. Förh. Finska Vetensk.-Soc.* 51(17): 7 (1909); *F. aeruginosus* Hook. f. & Wilson var. *obscurirete* (Broth. & Paris) I.G. Stone, *J. Bryol.* 16: 241 (1990). Type: Yahoué, New Caledonia, *A. Le Rat 948*; holotype: H-BR.

Fissidens microhumilis Dixon, *Proc. Roy. Soc. Queensland* 53: 24 (1941). Type: Upper Mowbray R., Qld, Mrs. Sparvell 5873; holotype: BM.

Illustrations: Z. Iwatsuki & T. Suzuki, *J. Hattori Bot. Lab.* 51: 464, fig. 18, 1–26 (1982), as *F. obscurirete*; Z. Iwatsuki & T. Suzuki, *J. Hattori Bot. Lab.* 67: 277, fig. 3, 1–15 (1989), as *F. obscurirete*; I.G. Stone, *J. Bryol.* 16: 240, fig. 4a–t (1990), as *F. aeruginosus* var. *obscurirete*.

Resembles var. *linearis*, except the **costa** is percurrent, occasionally short-excurrent (especially in perichaetial leaves) and sporadically subpercurrent in lower leaves. The **limbidium** is longer on perichaetial leaves, and it is often present on most leaves (but the two can be difficult to separate). **Spores** 8–10 µm diam.

Images

Occurs in northern N.T. and in eastern Australia from Cape York Peninsula, Qld to northern N.S.W. Grows on soil and rock in wet forest, mostly at low altitudes.

Also known from Korea, Japan, Taiwan and New Caledonia.

Selected specimens examined: N.T.: Doctors Gully, Darwin, *H. Streimann 39565* (CANB). Qld: Lockerbie, Cape York Penin., *I.G. Stone 25570 p.p.* (MEL); Mitcha Ck, Palmerston [Wooroonooran] Natl Park, *I.G. Stone 24107* (MEL); CREB track N of Daintree R., *M. Thorsborne & I.G. Stone 17612* (MEL). N.S.W.: Pimlico, *W.W. Watts Q5145* (NSW).

Although the leaf shape is similar, *F. linearis* var. *obscurirete* differs from var. *linearis* in the percurrent costa, and leaves as long and narrow as the *aeruginosus* expression have not been seen. The limbidium on the vaginant laminae is sometimes better developed, extending to the junction, and it can also occasionally occur on lower leaves and on sterile shoots. The lamina cells can be slightly smaller than for var. *linearis*, but there is considerable variation

in cell size, even on the same plant. In Australia, var. *obscurirete* appears to be less common than var. *lineare*.

Stone (1990a) noted that the varieties appear inseparable on either stem or leaf anatomy, areolation, inflorescence or sporophytic features.

[Bibliography](#)