

**Fissidens serratus** Müll.Hal., *Bot. Zeitung (Berlin)* 5: 804 (1847)

Type: Java, Indonesia, *Zollinger 2100*; holo: *n.v.*

Illustrations: A.Noguchi, *Illustrated Moss Fl. Japan* 1: 87, fig. 31A (1987); A.Eddy, *Handb. Malesian Mosses* 1: 67, fig. 55 (1988); I.G.Stone, *J. Bryol.* 18: 175, fig. 3 (1994); R.A.Pursell, *Fissidentaceae, Fl. Neotropica Monogr.* 101: 186, fig. 99 (2007).

**Plants** minute, golden, (1.0–) 2.5–5.0 mm long. **Stems** usually simple, rarely branched; in section either with a narrow central strand of 3 or 4 narrow thin-walled cells, or central strand lacking; rhizoids brown, weakly papillose, basal on stems. **Leaves** erecto-patent, not overlapping, in 6–10 pairs, lanceolate; upper leaves 0.5–1.0 mm long, 0.16–0.24 mm wide; **apex** acute; **margins** evenly serrate, or in part crenulate or entire, similar on the vaginant laminae except at the base where often  $\pm$ entire; **vaginant laminae** reaching c. 1/2 leaf length, rounding to the junction on the lamina between costa and margin, partly open; **dorsal lamina** tapered to the base or abruptly rounded; **lamina cells** hyaline with distinct firm walls, convex, unipapillose, quadrate to hexagonal, 10–15  $\mu$ m wide; in the vaginant laminae similar, except larger (to 30  $\mu$ m long) at the base, elimbate or occasionally with a few narrow thin-walled elongated cells proximally; **costa** of *bryoides*-type, stout, percurrent to short-excurrent, often bent at the junction of the vaginant laminae and sometimes dividing the lamina unequally, the dorsal side equal to or slightly wider than the ventral side at mid-leaf.

?**Diocious**. **Perigonia** not seen. **Perichaetia** terminal; **perichaetial leaves** erect, to 1.2 mm long, vaginant laminae open, margin indented and widened to form a shoulder where the cells are longer. **Sporophyte** not seen. **Calyptra** smooth.

[Images](#)

Very rare and depauperate in north-eastern Qld.

Also in India, Sri Lanka, Java and Japan.

*Specimens examined*: Qld: Bicton Hill, near Mission Beach, *I.G.Stone 24833* (MEL); Windsor Tableland, *I.G.Stone 16072* (MEL); near Bishop Peak, 26 km SE Cardwell, *H.Streimann 28754* (CANB).

The foregoing description has been compiled from Australian material collected at three localities on rocky earth banks. The collections are very meagre and lack sporophytes.

*Fissidens serratus* is characterised by the small to very small plants; acute to narrowly acute leaf apices; percurrent to short-excurrent costa; margins of the vaginant laminae distinctly and mostly evenly serrate; and lamina cells with a distinct central papilla.

Iwatsuki & Suzuki (1982) described the sexuality and sporophyte of the species as follows:

**Rhizautoicous** or **autoicous**. **Perichaetia** terminal. **Setae** 1.4–3.5 mm long, smooth. **Capsules** ovate to short-cylindrical, erect and symmetrical; theca 0.2–0.3 mm long; **exothecial cells** quadrate, thin-walled, weakly collenchymatous. **Operculum** long-conical to rostrate, 0.2–0.4 mm long. **Peristome** spirally thickened above, densely covered by minute papillae below. **Calyptra** campanulate, c. 0.4 mm long, almost smooth to very slightly scabrous above. **Spores** 13–16  $\mu$ m diam., almost smooth.

A few perichaetia are present in *Stone 16072*, but while these plants have very similar morphology to *Stone 24833* and *Streimann 28754*, the surfaces of the lamina cells are convex and lack papillae. They appear to have been initially misidentified by Stone and represent another closely related taxon, *F. flabellulus* Thwaites & Mitt., which Eddy (1988) considered to be a synonym of *F. serratus*.

Occasionally a few narrow, elongate and thin-walled cells can be present at the proximal margin of the vaginant laminae of stem leaves (Fig. I, J). This, together with the serrate margins of the leaves, has led to confusion with *F. tenellus* Hook.f. & Wilson.

There are differing opinions on the identity and circumscription of *F. serratus*, the type of which has not been located. Müller (1851) placed *F. wilsonii* (Müll.Hal.) Mont. ex Paris into synonymy with *F. serratus*, but later (Müller, 1859) he regarded them as distinct due to the much larger peristome teeth of *F. wilsonii*. However, most authors, including Iwatsuki &

Suzuki (1982) and Eddy (1988), place *F. wilsonii* into synonymy of *F. serratus*, and some (e.g. Fleischer, 1904; Eddy, 1988) also included the smooth- or mammillose-celled *F. flabellulus* as a synonym.

Iwatsuki & Suzuki (1982) described and illustrated the leaves of *F. serratus* with an evenly serrate margin throughout, papillose cells with clear and moderately thick walls, and an essentially smooth calyptra. They included *F. wilsonii* and *F. sparsus* as synonyms of *F. serratus*. However, the types of the 2 species do not match the description of *F. serratus*. Thus, isotypes of *F. wilsonii* (NY) and *F. sparsus* Thér. & Broth (H-BR) have distinctly enlarged tothing on the vaginant laminae, the walls of the lamina cells are not very clear, and the calyptras are papillose. Pencil drawings by Mitten accompanying the isotype of *F. wilsonii* show conspicuous and uneven tothing on the vaginant laminae and a distinctly papillose calyptra. Further comparison is required with *F. tenellus*, a species with which *F. serratus* has often been confused.

### [Bibliography](#)