

Fissidens punctulatus Sande Lac., *Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk.* 13: 2 (1872)

T: Saparoea, [Indonesia], *de Vries*; holo: L n.v., *fide* B.C.Tan & Z.Iwatsuki, *Willdenowia* 18: 599 (1989).

Illustrations: Z.Iwatsuki & M.A.H.Mohamed, *J. Hattori Bot. Lab.* 62: 344, fig. 1 (1987). [probably *F. punctulatus*, not *F. brevilingulatus* E.B.Bartram]

Monoicous. Plants delicate, 1–3 mm tall. Rhizoids red, basal, with ±globose yellowish gold gemmae, also growing from the bases of female innovations. Leaves 5–8-jugate, larger and more crowded above, to 0.8 mm long and 0.2 mm wide, mostly oblanceolate, contracted proximally; apex obtuse. Costa failing c. 2–4 cells below the apex. Vaginant laminae to c. mid-leaf, subequal; limbidium short, 1–3 rows of narrow ±rectangular cells, confined to the upper leaves; dorsal lamina tapered to the base. Laminal cells rounded-quadrate to hexagonal, 7–10 × 5–7 μm, convex, unipapillose; rectangular, 5–10 μm wide and smooth proximally in vaginant laminae. Margin serrulate.

Antheridia terminal, occasionally synoicous. Sporophyte terminal, usually on an axillary innovation over-topping a main branch. Calyptra ±scabrous, conical, 0.40–0.45 mm long. Setae 3.0–3.5 mm long, ±smooth. Capsules ±symmetrical, elliptical, inclined; thecae 0.50–0.55 mm long, 0.30–0.35 mm wide; operculum c. 0.55 mm long, conical-rostrate. Peristome *scariosus*-type.

Occurs at low elevations in north-eastern Qld; grows on silt between roots of *Melaleuca* along seasonal creeks and in swampy areas at low altitudes. Also in Indonesia, Borneo (at high elevations), Peninsular Malaysia, the Philippines and Fiji.

Qld: Rowland's property, Lyons Ck, c. 30 km W of Cooktown, *I.G.Stone* 25469 (MEL); Middle Oakey Ck, c. 30 km W of Cooktown, *I.G.Stone* 25701 (MEL); "Galmará", near Meunga Ck, Cardwell, *I.G.Stone* 18821, 18828 (MEL).

The identification of the Australian specimens is based on the illustrations in Iwatsuki & Mohamed (1987) which were drawn from a Malaysian specimen identified as *F. brevilingulatus* E.B.Bartram, itself based on a Fijian type collection.

Sporophytes have only been seen on lateral innovations in Australian material, and rhizoid gemmae have not been reported for other collections. There is variation in the convexity of the cells, those of sterile plants bulging strongly, while those of fertile individuals are considerably flatter; also in the degree of papillosity of the calyptra. The leaf apex can be broadly obtuse, but it is not cucullate as in *F. cucullatus*, and the presence of oblanceolate leaves is characteristic. *Fissidens subspathulatus* Dixon, from Papua New Guinea, is very similar and it is possibly conspecific with *F. punctulatus*.

According to Prof. Iwatsuki (pers. comm.), the type specimen of *F. punctulatus* is in poor condition.