

DALTONIA¹

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Daltonia Hook. & Taylor, *Muscol. Brit.* 80 (1818), *nom. cons.*; named after James Dalton (1764–1843), a British clergyman and botanist.

Type: *D. splachnoides* (Sm.) Hook. & Taylor

Autoicous, synoicous, dioicous(?). Plants small to medium-sized, slender, usually tufted. Stems loosely erect, simple or branched, tomentose, regularly spirally inserted. Leaves ovate to linear-lanceolate, keeled abaxially along the costa; base tapering; margin entire; costa thin, single, often extending almost to the apex. Laminal cells epapillose, thin-walled, oval-rhomboidal; basal cells longer; marginal cells linear, forming a conspicuous border, narrowed above to 1 cell wide. Rhizoids reddish brown.

Calyptra mitrate, with a deeply fringed base. Seta rough distally. Capsules erect to inclined, oval to oval-oblong; annulus absent; operculum rostrate, long-sulcate. Peristome: exostome teeth linear-subulate, reflexed when moist, papillose, with a zig-zag median line; endostome segments as long as the teeth, papillose, keeled; cilia absent.

A mainly tropical to subtropical genus of about 50 species in South America, Africa and Asia and South America; two species in eastern Australia.

Reference

Streimann, H. (2000), Taxonomic studies on Australian Hookeriaceae (Musci). 3. The genera *Calypstrochaeta*, *Daltonia*, *Hookeriopsis* and *Sauloma*, *J. Hattori Bot. Lab.* 88: 101–138.

Key

Leaves twisted and contorted when dry; leaf margin plane **1. *D. contorta***
Leaves erect or slightly flexuose when dry; leaf margin recurved **2. *D. splachnoides***

1. *Daltonia contorta* Müll.Hal., *Syn. Musc. Frond.* 2: 660 (1851)

T: Java, [Indonesia], *C.L. von Blume*; holo: B *n.v.* (destroyed).

Illustrations: B.C.Tan & H.Robinson, *Smithsonian Contr. Bot.* 75: 12 (1990); H.Mohamed & H.Robinson, *Smithsonian Contr. Bot.* 80: 15 (1991); H.Streimann, *op. cit.* 124, fig. 13.

Monoicous. Plants small to medium-sized, to 15 mm long, dull green to brownish green, simple, rarely branched, with reddish stems. Leaves crowded, erect, strongly twisted or contorted when dry, erect-spreading when moist; lanceolate to ovate-lanceolate, 2.5–4.0 mm long, 0.63–0.75 mm wide, long-acuminate; margin entire, plane; costa strong, extending to three-quarters of the leaf length, c. 65 µm wide at the base. Upper laminal cells oval to rhomboidal, 17–23 × 3–5 µm; median cells slightly shorter and broader; basal cells almost rectangular near the border, more irregular towards the costa, 30–75 × 7–12 µm, reddish across the base; border c. 6 cells wide (25–37 µm). Rhizoids smooth to very weakly papillose, c. 2.5 mm long, 15–20 µm wide; cells c. 150 µm long.

Perichaetial leaves sparse, oblong-lanceolate, 0.64–0.80 mm long, 0.16–0.30 mm wide, ecostate. Laminal cells rhomboidal; upper cells slightly thick-walled above, 23–30 × 6–8 µm; median cells 37–50 × 7–10 µm; basal cells slightly larger; median and basal juxtacostal

¹ Now in the family Daltoniaceae [Goffinet, B., Buck, W.R. & Shaw, A.J. (2012), *Classification of the Bryophyta*. <http://www.eeb.uconn.edu/people/goffinet/Classificationmosses.html>].

Cite as: H.Streimann, *Australian Mosses Online. 11. Hookeriaceae: Daltonia*. http://www.anbg.gov.au/abrs/Mosses_Online/Daltonia.pdf (2012)

cells longer and broader, to $112 \times 15 \mu\text{m}$; leaf base reddish; border weak, 1 cell wide above, 2 cells wide below. Calyptra c. 1.1 mm long. Seta 5–8 mm long, smooth to papillose. Capsules erect to suberect, 1.0–1.5 mm long, ovoid to cylindrical; operculum 0.5–0.8 mm long. Peristome: exostome teeth c. $350 \mu\text{m}$ long, c. $75 \mu\text{m}$ wide at the base; endostome segments c. $12 \mu\text{m}$ at the base. Spores 15–20 μm diam., slightly papillose.

Known from logs and tree bases in wet, stunted, montane forest in north-eastern Qld. Also in Sri Lanka, Malaysia, Indonesia, Taiwan, the Philippines, Fiji and the Hawaiian Islands.

Qld: Millaa-Millaa Falls, Mt Fisher, *I.G.Stone 15732* (MELU); Mt Bellenden Ker, *I.G.Stone 16785, 16850, 16854* (MELU).

All Australian collections were fertile (August and September).

2. *Daltonia splachnoides* (Sm.) Hook. & Taylor, *Muscol. Brit.* 80 (1818)

Neckera splachnoides Sm., *Engl. Bot.* 36: 2564 (1813). T: “Secawn mountain near Dublin”, [Ireland]; holo: BM.

Distichophyllum pusillum Hook.f. & Wilson, in J.D.Hooker, *Fl. Tasman.* 2: 221 (1859). T: Mt Wellington, Tas., *A.F.Oldfield 67*; holo: BM.

Distichophyllum novae-zelandiae Mitt., *J. Linn. Soc., Bot.* 4: 95 (1860). T: near Wellington, New Zealand, *Stephenson*; holo: NY *n.v.*

Illustrations: A.J.E.Smith, *Moss Flora of Britain and Ireland* 513 (1978); H.Streimann, *op. cit.* 126, fig. 15; B.Malcolm, N.Malcolm, J.Shevock & D.Norris, *California Mosses* 222 (2009).

Synoicous or autoicous. Plants small, the stems reddish brown, 5–10 mm long, green to yellowish green, glossy, darker when dry, simple or branched. Leaves crowded, flexuose when dry, erecto-patent when moist, narrow, linear-lanceolate to elliptic-lanceolate, 1.45–3.50 mm long, 0.20–0.45 mm wide; apex gradually acuminate; margin entire, recurved on both sides; costa extending to three-quarters or more of the leaf length, 25–38 (–50) μm wide at the base. Laminal cells thin- to moderately thick-walled; apical cells linear, c. $50 \times 5 \mu\text{m}$; upper and median cells irregular, hexagonal to narrowly and irregularly rhomboidal to short-fusiform, $25\text{--}35 \times 6\text{--}10 \mu\text{m}$; basal cells more rectangular, lax, $25\text{--}38 \times 6\text{--}12 \mu\text{m}$; cells at the basal angles reddish, rounded, inflated; border well-defined, mostly 1–3 cells wide, to 6 cells wide at the base. Rhizoids reddish, smooth to very finely papillose, branched, to 2.5 mm long, 13–25 μm wide; cells c. 100–125 μm long.

Perigonia and perichaetia lateral; outer perigonal leaves linear-lanceolate, 1.0–1.1 mm long, 0.25–0.40 mm wide; inner leaves ovate, 0.68–1.00 mm long, 0.19–0.30 mm wide, ecostate; margin entire; laminal cells rhomboidal to linear-rhomboidal, c. $75 \times 10 \mu\text{m}$; basal and upper cells shorter; median cells larger, with a weak border of longer narrower cells. Antheridia 5–10 per antheridium, 200–300 μm long; paraphyses sparse. Outer perichaetial leaves lanceolate; inner leaves ovate, 0.6–0.8 mm long, 0.14–0.20 mm wide, acute, ecostate. Archegonia c. 100 μm long. Calyptra 0.9–1.3 mm long. Seta reddish, 4–12 mm long. Capsules ovoid, erect or inclined, 0.70–1.25 mm long; exothecium cells collenchymatous, thickened; operculum 0.6–1.3 mm long. Peristome: exostome teeth reflexed outward when moist, narrowly lanceolate, 400–500 μm long, c. $50 \mu\text{m}$ wide at the base; endostome segments filiform, 20–25 μm wide at the base; basal membrane low. Spores slightly papillose, 12–15 (–20) μm diam.

This moss has a disjunct Australian distribution, occurring in the wet tropics of north-eastern Qld, as well as cool-temperate rainforest and *Eucalyptus*-dominated forest in southern Vic. and Tas. Also in the British Isles, Madeira, West Africa, Papua New Guinea, New Zealand and California.

Qld: Mt Bellenden Ker, *I.G.Stone 16788, 16801* (MELU). Vic.: Badgers Ck, Healesville, *G.A.M.Scott 15/5* (MELU); Moonlight Gully, Warragul, *I.G.Stone 14494* (MELU); Turtons Rd, 9 km E of Beech Forest, *H.Streimann 2451* (CANB, L). Tas.: Mount Field Natl Park, *D.H.Vitt 29116* (CANB); Heemskirk R., c. 1.5 miles [2.4 km] SW of Heemskirk Falls, *D.H.Norris 31523* (H).