

## ISOCLADIELLA

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*Isocladiella* Dixon, *J. Bot.* 69: 5 (1931); from Greek *iso* (equal), *clados* (a branch) and the suffix *-ella* (diminutive), in reference to the ±pinnate branching.

Type: *I. phyllogonioides* Dixon [= *I. surcularis* (Dixon) B.C.Tan & Mohamed]

Dioicous. Plants robust, grey-green above, reddish brown towards the base, glossy, densely tufted. Stems creeping, densely and subpinnately branched; branches erect to suberect, terete to complanately foliate; central strand lacking. Pseudoparaphyllia filamentous. Flagelliform branchlets to 5 mm long, mostly in upper leaf axils, microphyllous, caducous. Branch leaves imbricate, ovate or ovate-lanceolate, conduplicate, abruptly tapering to the acumen, deeply concave, occasionally asymmetrically cymbiform; margin weakly serrulate at the apex, entire below; costa very short or absent. Mid-laminal cells linear-fusiform [L:W c. 4:1], rather thick-walled; alar region sharply differentiated, with coloured rectangular basal cells; supra-alar cells in 2 rows, quadrate.

Perichaetia on stems; inner perichaetial leaves long-subulate from a sheathing base; margins serrate above. Calyptra cucullate. Seta slender, 10–20 mm long, reddish brown, smooth. Capsules slightly inclined, oblong-ovoid, slightly arcuate, oblong, to 2 mm long, with an umbonate operculum; annulus absent; exothecial cells collenchymatous. Peristome double, diplolepidous-alternate, well developed; exostome teeth 16, linear-lanceolate, to 4 mm long, densely papillose throughout; basal membrane low; segments 16, linear, almost as long as the exostome teeth; cilia absent. Spores 13–18 µm diam., finely papillose. Chromosome numbers not known.

A genus of two species on small tree trunks and branches in semi-disturbed forest in East Asia, Malesia and tropical Australia; one endemic species in north-eastern Qld.

*Isocladiella* most reliably recognised by the presence of flagellate branchlets and, frequently, coloured basal alar cells.

### References

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***Isocladiella watsii*** (Broth.) B.C.Tan, H.P.Ramsay & W.B.Schofield, *Austral. Syst. Bot.* 9: 324 (1996)

*Taxithelium watsii* Broth., in F.Brotherus & W.W.Watts, *Proc. Linn. Soc. New South Wales* 43: 565 (1918). T: Babinda, Qld, Aug. 1917, *W.W.Watts 441*; holo: H-BR; iso: NSW.

Illustration: B.Tan, H.P.Ramsay & W.B.Schofield, *Austral.Syst. Bot.* 9: 326, fig. 3 (1996).

Stems elongate, 2–3 cm long; secondary stems and branches complanate; branches 5–15 mm long, densely pinnate, spreading. Leaves conduplicate, asymmetrical, differentiated, coloured, broadly acute-acuminate, c. 1.7 mm long and 0.5 mm wide, constricted at the base, ecostate; margin erect; apex minutely bluntly serrate. Laminal cells mostly smooth; mid-laminal cells narrowly linear-fusiform, to  $60 \times 5 \mu\text{m}$ , some faintly seriatly papillose; alar region with a row of enlarged thick-walled yellowish basal cells c.  $30\text{--}33 \times 15 \mu\text{m}$ . Flagelliform microphyllous branchlets 2–6 mm long.

Perichaetial leaves lanceolate, long-acuminate. Seta 15–20 mm long, curved at the apex. Capsules to 1 mm long.

Endemic to semi-open forest in north-eastern Qld. This moss twines around narrow stems and twigs and overgrows leaves.

Qld: Innisfail, *I.G.Stone 24717* (MEL); Mount Mackay S.F., *I.G.Stone 22610, 22523C, 22617A* (MEL); track to Kennedy Falls, *W.B.Schofield 90344, I.G.Stone & M.I.Schofield* (NSW); track to Echo Ck, Paluma Range Natl Park, 29 June 2005, *P.Beveridge* (JCU).

*Isocladiella watsii* can be distinguished from *Taxithelium* species by the glossy, distichously complanate branches, the presence of flagelliform axillary branches and the smooth, mostly non-papillose laminal cells. It is similar to *Papillidiopsis* (Sematophyllaceae) in its complanate habit, conspicuously ranked foliage and flagelliform branches, but the latter has weakly to strongly unipapillose laminal cells. In *Isocladiella* the alar cells are quadrate to rectangular and firm-walled in several tiers, those of *Papillidiopsis* form a single row of inflated cells.

Flagelliferous branches tend to be more prominent in the upper leaf axils, but they can also occur lower down on the branches. Contrary to the view that specimens of *Isocladiella* with flagelliferous branches lacked capsules (Tan & Jia, 1999), both flagelliferous branches and capsules are present in *Schofield 89034* (NSW, UBC). In another collection (*I.G.Stone 22523C*, MEL) the leaf apices bore protonemata suggesting that shedding of leaves might also act as in asexual propagation.

Tan *et al.* (1996) noted that the relationship between *I. watsii* and the widespread East Asian and Malesian species, *I. surcularis* (Dixon) B.C.Tan & Mohamed required clarification. While Tan & But (1997) and Tan & Jia (1999) noted two different forms of leaves in *I. surcularis*, depending on geographical location, specimens of *I. watsii* (e.g. *W.B.Schofield 89034*) can have both kinds of leaves in the same collection. *Isocladiella watsii* has longer, narrower, apical laminal cells, and the leaves of flagelliform branchlets have acute to short-acuminate (not long-acuminate) apices; leaf margins are entire with less acuminate apices, and cells have only weakly developed papillae. Furthermore, the basal alar cells are short and quadrate with thick walls in *I. watsii*, but longer and rectangular with thinner walls in *I. surcularis* (Tan & But, 1997; Jia *et al.*, 2005). Additional information on *I. surcularis* is available in Tan *et al.* (2011).