

PTERIGYNANDRACEAE

Niels Klazenga¹

Pterigynandraceae Schimp., *Syn. Musc. Eur.*, 2nd edn, 2: CXIII, 618 (1876).

Type: *Pterigynandrum* Hedw.

Autoicous. Plants small, pleurocarpous, forming rough mats. Stems creeping, pinnately to subpinnately branched, mostly terete-foliate. Paraphyllia lacking; pseudoparaphyllia foliose or lacking. Stem and branch leaves \pm differentiated, ovate-lanceolate to broadly ovate; margin usually serrulate above; costa double, usually well developed, ending at c. 20–50% of the leaf length. Laminal cells short, prorate to papillose; alar cells differentiated.

Capsules long-exserted, inclined to horizontal. Peristome often reduced.

The Pterigynandraceae is a tropical family of six rather small genera. It is characterised by a short double costa, rather short laminal cells with mammillose or papillose ends and differentiated alar cells that often form extensive triangular patches. The peristome is reduced in most genera.

TRACHYPHYLLUM

Trachyphyllum A.Gepp, in W.P.Hiern, *Cat. Welw. Afr. Pl.* 2(2): 298 (1901); from the Greek *trachys* (rough) and *phyllon* (a leaf), in reference to the rough surface of the leaves, caused by the papillose laminal cells.

Type: *T. gastroides* (Duby) A.Gepp

Autoicous. Stems creeping, irregularly subpinnately branched, terete-foliate; in cross section with small firm-walled cells surrounding broader thin-walled cells; central strand lacking. Pseudoparaphyllia small, foliose, caducous. Stem and branch leaves \pm differentiated; stem leaves usually slightly larger, more broadly ovate and with a longer acumen; branch leaves ovate-lanceolate to very broadly ovate, smooth; margin serrulate from c. mid-leaf; costa short and double. Upper laminal cells long-rhomboidal to linear, abaxially with a papilla at the lower and upper ends, thick-walled, not pitted; alar cells numerous, quadrate to subquadrate, forming large triangular patches that often reach the costa and c. 25–67% up the margin.

Perichaetia on creeping stems; perichaetial leaves ovate-lanceolate, c. twice the length of vegetative leaves. Calyptra cucullate, naked, smooth. Seta smooth. Capsules long-exserted, inclined, asymmetrically ellipsoidal; exothecial cells quadrate to rectangular, thin-walled, not collenchymatous; stomata at the base of the capsule, phaneropore; annulus not differentiated; operculum short-rostrate. Peristome: exostome teeth narrowly triangular, shouldered, bordered, with a median zig-zag line outside, horizontally striate below, papillose above; endostome with a moderately high basal membrane; processes keeled, fenestrate; cilia 1–3. Spores spherical to ovoid, papillose.

Trachyphyllum is characterised by the upper laminal cells having a papilla at their lower and upper ends. It has traditionally been placed in the Entodontaceae, probably because of the extensive triangular alar patches and its resemblance to the genus *Erythrodontium* Hampe. Buck (1979) tentatively placed it in the Thuidiaceae.

¹ Royal Botanic Gardens Melbourne, Birdwood Avenue, South Yarra, Vic. 3141.

Buck (1979) recognised two subgenera, subg. *Trachyphyllum*, containing the widespread *T. inflexum* and three African endemics, and subg. *Carinatum* W.R.Buck with three species in southern India and SE Asia. The former is characterised by ovate-lanceolate to broadly ovate leaves, very extensive alar patches and rhomboid laminal cells with prominent papillae, while subg. *Carinatum* has much narrower leaves, with less extensive alar patches and linear upper laminal cells with less prominent papillae. Species of subg. *Trachyphyllum* occur in more xeric habitats, while those of subg. *Carinatum* tend to be more mesic in their preferences.

Reference

Buck, W.R. (1979), A revision of the moss genus *Trachyphyllum* Gepp (Thuidiaceae), *Brittonia* 31: 379–394.

Trachyphyllum inflexum (Harv.) A.Gepp, in W.P.Hiern, *Cat. Welw. Afr. Pl.* 2(2): 299 (1901)

Hypnum inflexum Harv., in W.J.Hooker, *Icon. Pl.* 1: 24 (1836). T: Nepal, *N.Wallich s.n.*; lecto: BM, *fide* W.R.Buck, *op. cit.* 382; isolecto: E.

Leptohymenium papuanum Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 40: 183 (1898); *Trachyphyllum papuanum* (Broth.) Broth., in H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 890 (1907). T: Thursday Island, Torres Strait, Qld, *W.Micholitz 276*; holo: H-BR.

Illustrations: W.R.Buck, *op. cit.* 383, figs 1–7; D.H.Norris & T.Koponen, *Ann. Bot. Fenn.* 27: 6, fig. 21–o (1990); W.R.Buck, D.H.Vitt & W.M.Malcolm, *Key to the Genera of Australian Mosses* 17 (2002).

Plants small, golden or green, dull, growing in rough mats. Stems creeping, subpinnately branched; branches mostly curved when dry, straight and erect when wet, terete-foliate, julaceous when dry. Branch leaves appressed when dry, patent when wet, ovate-lanceolate to very broadly ovate, 0.35–0.70 mm long, 0.15–0.54 mm wide, ±abruptly long-acuminate, broadly concave, smooth; margin weakly serrulate throughout or entire below; costa short and double, ending c. 33–50% of the leaf length. Upper laminal cells long-rhomboidal to elliptical or slightly vermiculate, 15–55 × 5–9 µm, rather thick-walled, not pitted, abaxially with pronounced papillae at the lower and upper ends; alar cells very numerous, subquadrate, isodiametric to oblate, forming extensive triangular patches that usually extend to the costa and along margin to just below the acumen.

Perichaetial leaves ovate-lanceolate, to 1.6 mm long. Seta 8–10 mm long, reddish, smooth. Capsules inclined to almost horizontal, ellipsoidal, 0.8–1.0 mm long, smooth. Peristome: exostome teeth narrowly triangular, weakly shouldered, bordered, with a median zigzag line; endostome with a moderately high basal membrane that is c. 25–33% the height of the exostome teeth; processes slightly shorter than the exostome, keeled fenestrate; cilia 1–3. Spores 13–25 µm, finely papillose.

Occurs in northern W.A., northern N.T. and in eastern Qld north of Rockhampton; in drier forest types or vine thickets or rainforest margins, on rocks, tree bases or on soil, from sea level to 800 m. Also in East Africa, the Comoro Islands, Madagascar, Mauritius, Sri Lanka, India, Nepal, mainland SE Asia, Malesia, Christmas Island and New Caledonia.

W.A.: Lone Dingo Outcrop, Mitchell Plateau, *K.Clayton-Greene [I.G.Stone 5377]* (MEL). N.T.: headwater springs of Green Ant Ck, *J.Russell-Smith 8002* (CANB). Qld: Jourama Falls, *N.Klazenga 6348* (MEL); Alligator Falls, Bowling Green Bay Natl Park, 29 km SE of Townsville, *H.Streimann 56240* (CANB).

Trachyphyllum inflexum is readily recognised in the field by its creeping stems with erect branches that are curled when dry. It is common in the drier forest types along the northern Australian coast, and it is possibly the most common moss in the northern N.T.