

ORTHORRHYNCHIACEAE

Niels Klazenga¹

Orthorrhynchiaceae S.-H.Lin, *J. Taiwan Mus.* 36(2): 74 (1983).

Type: *Orthorrhynchium* Reichardt

Dioicous pleurocarpous mosses. Stems irregularly to ±pinnately branched in a single plane, forming dorsiventral fronds, distichous. Rhizoids smooth to scabrous. Pseudoparaphyllia lacking. Leaves symmetrically conduplicate, cucullate; alar cells not differentiated; costa absent or short and double.

Peristome diplolepeidous, lacking an endostome, but with a well-developed properistome.

The only genus, *Orthorrhynchium*, has traditionally been accommodated in the Phyllogoniaceae. However, Lin (1983) placed it in a family of its own, after it was found to occupy an isolated position in a phenetic analysis of members of the Phyllogoniaceae and other genera that show some gametophytic or sporophytic affinity to that family. Orthorrhynchiaceae is characterised by its neatly distichous shoots with symmetrically conduplicate, boat-shaped leaves and by its diplolepeidous peristome that lacks an endostome.

Reference

Lin, S.-H. (1983), A taxonomic revision of Phyllogoniaceae (Bryopsida). Part I, *J. Taiwan Mus.* 36(2): 37–86.

ORTHORRHYNCHIUM

Orthorrhynchium Reichardt, *Verh. K. K. Zool.-Bot. Ges. Wien* 18: 116 (1868); latinised from the Greek *ortho-* (straight) and *rynchos* (a nose or snout), in reference to the long, straight beak on the operculum.

Type: *O. elegans* (Hook.f. & Wilson) Reichardt

Plants yellowish green to green, small to medium-sized, forming dense mats. Stems ±pinnately to irregularly branched in a single plane, distichous; in cross section with 2 or 3 layers of small thick-walled cells, internally with larger thick-walled cells; central strand lacking. Stem and branch leaves similar, erect-spreading laterally, slightly pointed downwards, alternating and overlapping, oblong, symmetrically conduplicate, cucullate; margin entire throughout to crenulate distally; costa short and double or lacking. Laminal cells linear, slightly vermicular, ±thick-walled; median cells at the leaf apex quadrate to rectangular; alar cells not differentiated.

Perigonia unknown. Perichaetia frequent at the bases of stems and branches; perichaetial leaves oblong-ovate, obtuse, incised or lobed, ecostate. Calyptra cucullate, densely hairy; basal margin lacerate. Capsules short-exserted, erect, campanulate to turbinate, smooth; stomata absent; columella mostly exserted, often with the operculum attached; operculum conical-rostrate with a long straight rostrum. Peristome: exostome teeth triangular, shouldered, perforate, smooth on both faces; properistome 1–4-stratose, columnar to fragmented, adhering to the exostome, smooth, hyaline. Spores spherical, scabrate to verrucose.

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

Orthorrhynchium elegans is Indo-Pacific and Australasian in its range, while the second species of the genus, *O. balanseanum* Müll.Hal., is endemic to New Caledonia.

Orthorrhynchium elegans (Hook.f. & Wilson) Reichardt, *Verh. K. K. Zool.-Bot. Ges. Wien* 18: 115 (1868)

Phyllogonium elegans Hook.f. & Wilson, *London J. Bot.* 3: 548 (1844). T: Bay of Islands, New Zealand, Sinclair; holo: BM; iso: BM, *fide* S.-H.Lin, *op. cit.* 78.

Illustrations: S.-H.Lin, *op. cit.* 81, pl. 5; D.H.Norris & T.Koponen, *Ann. Bot. Fenn.* 24: 209, fig. 7e–i (1987); J.Beever, K.W.Allison & J.Child, *Mosses of New Zealand*, 2nd edn 122, fig. 60 (1992); H.Streimann, *The Mosses of Norfolk Island* 122, fig. 54 (2002); B.Malcolm & N.Malcolm, *Mosses and other Bryophytes, an illustrated Glossary*, 2nd edn 15 (2006).

Plants yellowish green to pale green, silky, forming smooth mats. Stems 3–10 cm long, distichous. Leaves oblong-ovate to lingulate, 0.6–1.7 mm long, 0.4–1.3 mm wide, symmetrically conduplicate, smooth, narrowed towards the insertion; apex rounded to truncate, cucullate. Mid-laminal cells linear, 40–100 × 4–6 µm, slightly vermicular, ±thick-walled, not or scarcely and faintly pitted; apical cells in 3–8 rows along the median line, quadrate to rectangular. Capsules short-exserted, erect.

Occurs in India, Sri Lanka, New Guinea, eastern Australia, Lord Howe Island, Norfolk Island and New Zealand (including the Auckland Islands).

Orthorrhynchium elegans (Hook.f. & Wilson) Reichardt subsp. **cymbifolioides** (Müll.Hal.) S.-H.Lin, *J. Taiwan Mus.* 36(2): 83 (1983)

Orthorrhynchium cymbifolioides Müll.Hal., *Flora* 82: 458 (1896); *Phyllogonium cymbifolioides* (Müll.Hal.) F.M.Bailey, *Syn. Queensland Fl.*, Suppl. 3: 98 (1890). T: Tweed River, N.S.W., *De Camara*; lecto: JE, *fide* S.-H.Lin, *op. cit.* 83; Qld, *F.M.Bailey 444*; syn: H-BR; *loc. id.*, *F.M.Bailey 108*; syn: BM, MEL?; Cambewarra, N.S.W., *Thorpe [170]*; syn: MEL.

Occurs in Qld from the Windsor Tablelands southwards, and in N.S.W. as far south as the Victorian border; grows in tropical and temperate rainforest from sea level to 1200 m, usually on tree trunks, rarely on rocks or earth banks.

Qld: Bunya Mtns, *I.G.Stone 4537* (MEL 2142535). N.S.W.: Barrington House, N of Dungog, *I.G.Stone 11736* (MEL 2209761).

Orthorrhynchium elegans is readily recognised by its neatly distichous fronds and alternating, overlapping, symmetrically conduplicate leaves. Lin (1983) subdivided it into five subspecies based on differences in size and subtle distinctions in leaf shape, the number of rows and the shape of differentiated apical cells, and the ornamentation of spores and axillary hairs.

The type subspecies occurs in New Zealand, subsp. *nietneri* (Müll.Hal.) S.-H.Lin is known from India, Sri Lanka, New Guinea and Lord Howe Island, while subsp. *cymbifolioides* is endemic to Australia's east coast and subsp. *tumidum* S.-H.Lin is endemic to the South Island of New Zealand. The Norfolk Island plants have not yet been assigned to a subspecies.