

# MIELICHHOFERIACEAE

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**Mielichhoferiaceae** Schimp., *Coroll. Bryol. Eur.* 62 (1856).

Type: *Mielichhoferia* Nees

Dioicous, autoicous, parocous, rarely synoicous, or variable within species (polyoicous). Plants minute to robust, as scattered individuals or forming small to large colonies, green, reddish, pale or golden, often glossy when dry. Stems erect, short to long, occasionally somewhat complanate, unbranched or irregularly forking when sterile, often with subfloral innovations below the sporophytes. Rhizoids sparse to abundant, pigmented, smooth to papillose, occasionally bearing multicellular tubers. Leaves slightly twisted when dry, erect to erect-spreading when wet, broadly lanceolate, ovate-lanceolate, elliptical or obovate. Laminal cells elongate-hexagonal, rhomboidal to linear-rhomboidal, with thin firm to somewhat thickened walls; margins plane or revolute, finely serrate to serrulate near the apex, rarely entire; marginal cells not clearly differentiated but slightly longer and narrower than laminal cells; apex bluntly acute to acute or shortly acuminate; costa ending well below the apex, rarely short-excurrent, in section usually with a single stereid band. Gemmae, when present, as spherical to ovoid rhizoidal tubers or as axillary filiform to bulbiform propagules. Calyptra cucullate, smooth.

Perigonia and perichaetia terminal or lateral; perigonia bud-like; perichaetial leaves differentiated or not. Setae short- to long-exserted, erect or inclined, bent below the capsule or, rarely, straight, pigmented. Capsules erect to inclined or pendulous, narrowly cylindrical to broadly pyriform; neck differentiated, sometimes as long as or longer than the urn; stomata abundant on the neck, superficial or immersed; exothecial cells quadrate to short-rectangular, thick-walled, with straight or sinuose walls; annulus revoluble or absent; operculum convex, conical, occasionally short-rostrate. Peristome mostly well developed; teeth and segments alternate; exostome teeth triangular to lanceolate, rarely reduced or absent; endostome segments narrow to broad, often keeled and perforate, infrequently entire, rarely absent or reduced to a rudimentary membrane. Spores smooth to papillose, shed singly.

The three genera of the Mielichhoferiaceae — *Mielichhoferia*, *Pohlia* and *Epipterygium* — traditionally part the Bryaceae, were included in the Mniaceae in the classification of Buck & Goffinet (2004) based on molecular studies by Cox & Hedderson (2003). However, molecular evidence from multiple loci in the chloroplast, nuclear and mitochondrial genomes does not contradict the presence of a broad Mniaceae clade that may have separated early into two diverging lineages. Today, many bryologists, e.g. Crosby *et al.* (1999), Hill *et al.* (2006) and Shaw (2009), accept Mniaceae and Mielichhoferiaceae in the North American bryoflora, and we concur as regards the Australian representatives.

A cosmopolitan family of c. 150 species, the Mielichhoferiaceae is most diverse in Europe, North and South America and Asia. Two genera and 11 species are known from Australia.

## References

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#### KEY TO GENERA

- Perichaetia and perigonia on short lateral branches; perichaetial bracts smaller than vegetative leaves; peristome double, or reduced to the endostome only, rarely absent..... **MIELICHHOFERIA**
- Perichaetia and perigonia terminal (occasionally appearing lateral due to subfloral innovations); perichaetial bracts larger than vegetative leaves; peristome double, well developed ..... **POHLIA**