

## PHYSCOMITRIUM

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*Physcomitrium* (Brid.) Fűrnr., *Flora* 12: 9, 59 (1829); from the Greek *physke* (a blister or sausage; something inflated), and *mitrion* (a small turban), alluding to often urn-like calyptra.

*Gymnostomum* subg. *Physcomitrium* Brid., *Bryol. Univ.* 1: 97 (1826). Lecto: *P. sphaericum* (Ludw.) Fűrnr.

Autoicous, rarely paroicous, polygamous, or synoicous. Plants small to medium-sized, gregarious, pale green. Stems reddish brown, less commonly brown or rather pale, usually branched once by subperigonal innovation, very short, to 10 mm or longer; in cross-section with a parenchymatous medulla and a cortex of 2 or 3 layers of thick-walled cells, with or without a central strand, beset with reddish brown rhizoids. Leaves erect-spreading, rarely somewhat incurved,  $\pm$ concave, larger and more crowded near the stem apices, obovate to oblong-lanceolate, acuminate, acute or obtuse; costa ending well below the apex to subpercurrent, rarely short-excurrent; margins plane, toothed above or rarely entire. Upper laminal cells thin-walled, oblong-hexagonal, rarely short-oblong or  $\pm$ quadrate, in lower portion longer and more oblong; marginal cells usually longer and narrow, not forming a distinct border.

Perigonia single, terminating a shoot from which the female branch arises by innovation. Calyptra mitrate-rostrate, covering less than half the capsule, deciduous. Setae reddish brown or yellow, from less than 0.5 mm to c. 15 mm long, smooth, straight. Capsules erect, symmetrical, oblong-pyriform to hemispherical, operculate, gymnostomous; neck variously developed; mouth transverse, as wide as the capsule or rarely narrowed and often becoming flared with age, very rarely strongly narrowed; exothecial cells isodiametric to short-oblong, firm- or rarely thin-walled, non-cuneate, weakly to markedly thickened at the corners, few to several suboral rows oblate and with thickened transverse walls; annulus a single row of thin-walled cells with a thick distal transverse wall, rarely vesicular, or rarely compound and revoluble; operculum plano-convex and rostrate, rarely conical; stomata variably immersed. Spores subreniform, reddish brown, spinose.

This genus of probably more than 50 species is widely distributed in temperate and, to a lesser degree, tropical regions. One species occurs in south-eastern Australia.

### References

Fife, A.J. (1982), Taxonomic and nomenclatural observations on the Funariaceae. I. *Physcomitrium*, *Physcomitrella*, and *Goniomitrium* in New Zealand, *Lindbergia* 8: 96–104. (1982).

Fife, A.J. & Seppelt, R.D. (2001), A revision of the family Funariaceae (Musci) in Australia, *Hikobia* 13: 473–490.

***Physcomitrium pyriforme*** (Hedw.) Hampe, *Linnaea* 11: 80 (1837)

*Gymnostomum pyriforme* Hedw., *Sp. Musc. Frond.* 38 (1801). T: Europe; *n.v.*

*Physcomitrium conicum* Mitt., in J.D.Hooker, *Fl. Tasman.* 2: 197 (1859). T: Leiths Ck, Tas., *Archer*; NY-Mitten.

*Physcomitrium subserratum* Hampe, *Linnaea* 30: 623 (1860). T: Dargo, Vic., 1855, “No. 58”; iso: MEL.

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Autoicous. Plants small to medium sized, gregarious, bright green. Stems to 4–11 mm tall, sparingly branched or unbranched, yellowish or reddish brown, in cross-section with a well-defined central strand. Leaves erect-spreading when moist, inrolled and somewhat contorted when dry, oblong-obovate, acute, 2.0–3.0 (–3.8) mm long, weakly concave; costa subpercurrent, green, c. 60–75 µm wide near the base; margins plane, bluntly serrate above by projecting cell ends, or occasionally almost entire. Upper laminal cells oblong-hexagonal, c. 45–69 × 26–30 µm in mid-leaf, becoming longer below and more regularly oblong; marginal cells narrower and somewhat longer but not forming a distinct border; c. 4–6 cells inflated but poorly differentiated at the alar angles. Axillary filaments present, with 1 or 2 stalk cells and an oblong terminal cell.

Perigonia terminal and overtopped by a perichaetial innovation. Calyptra often becoming split on one side, covering c. 1/3 of the capsule, falling early. Setae 3–15 mm long, reddish brown. Capsules erect, globose-pyriform, usually constricted below the mouth when dry, 1.0–1.5 (–1.8) mm long, 0.9–1.2 mm wide, yellowish brown, with a neck to 1/3 the capsule length; mouth equal to the capsule in diameter, flaring when dry; exothecial cells oblong-hexagonal or irregular, firm-walled, not thickened at the corners, several rows isodiametric or oblate at the mouth; operculum plano-convex, shortly and obtusely rostrate; stomata immersed; annulus a single row of round thinner-walled cells that are smaller than adjacent suboral cells, persistent. Spores 27–39 µm, uniformly spinose.

Occurs in S.A., N.S.W., Vic. and Tas. This bipolar species is also found in New Zealand, Europe, North Africa, Siberia, south-west Asia and North America.

Tas.: South Trig Direttissimo, Mt Wellington Ra., 11 Oct. 1979, *A.V.Ratkowsky*.

#### Doubtful Names

*Physcomitrium brisbanicum* Müll.Hal., *Linnaea* 37: 146 (1872)

T: Brisbane R., Qld, *Mrs. A.Dietrich* 37.

*Physcomitrium flaccidum* Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 67 (1882)

T: Ash Island, Hunter R., Newcastle, N.S.W., *Mrs. E.Forde*.

*Physcomitrium integrifolium* Hampe & Müll.Hal., *Linnaea* 26: 490 (1855)

T: Delatite R., Vic., 18 Mar. 1853, *F.Mueller* 80.

*Physcomitrium minutulum* Müll.Hal., *Linnaea* 37: 147 (1872)

T: *n.v.*

*Physcomitrium nodulifolium* Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 66 (1882)

T: near Moreton Bay, Qld, *F.Mueller*.