

## SPLACHNOBRYACEAE

(Theo Arts)

A monotypic family exhibiting features associated with the Pottiaceae and the Splachnaceae.

### **Splachnobryum** Müll.Hal.(Fig. XX) -

A rather common and widespread genus, worldwide with ca. 26 species in tropical and subtropical regions, mostly from southeast Asia. A revision would probably reduce significantly the number of species, as demonstrated by Breen and Pursell (1959) and Arts (1996). Three species are accepted from Africa (Arts, 1996).

**Plants** small and soft, in loose to rather dense tufts, pale to dark green. **Stems** erect, mostly simple, or sometimes sparsely branched with subfloral innovations, 5-25 mm high; cells in cross section rather large and thin-walled, the epidermal cells with slightly thickened walls, central strand sometimes present, sometimes disintegrating in older stem parts; axillary hairs clavate 2-3 celled, with inflated apical cell, or linear 3-4(-5) celled, basal cell(s) short, yellowish, distal cell(s) much longer, hyaline. **Leaves** patent to widespread, oblong to obovate-spathulate or elliptical, plane to strongly concave; apex obtuse or rounded; costa single, often ending a few cells below apex and more or less bisected at the tip, rarely short or irregular forked; leaf margins plane to recurved, mostly crenulate at apex, sometimes entire; median cells of leaves large, oblong, rhomboidal to hexagonal, smooth and rather firm to thin-walled, apical cells smaller more or less quadrate, basal cells larger, rectangular. **Asexual reproduction** by green gemmae on axillary rhizoids stalks and by hyaline to yellowish rhizoidal tubers.

**Diocious**. Male plants often smaller than female plants, **Perigonia** terminal, becoming lateral by innovations, bud-shaped, paraphyses lacking. **Perichaetia** lacking, archegonia naked, more or less clustered at stem apex and becoming solitary in leaf axils by elongation of stem apex. **Seta** single, 3--10 mm long, smooth. **Capsule** erect, symmetric, short-cylindrical, 0.9--1.4 mm long; exothecial cells irregularly quadrate to rectangular, firm but thin-walled; stomata few at urn base, superficial; annulus persistent, consisting of several rows of thick-walled isodiametric to horizontally elongated cells. **Operculum** conic-apiculate or rostrate. **Peristome** single, with 16 endostome teeth, papillose, arising below the capsule mouth. **Calyptra** elongate, narrowly conic-cylindric, cucullate, 1.2--1.4 mm long, smooth. **Spores** spherical, yellowish, 12-25 µm in diameter, indistinctly papillose.

**HABITAT:** In exposed as well as shaded habitats, growing on base-rich and calcareous soils and rocks in permanently or periodically wet places, sometimes aquatic.

**DISCUSSION.** The genus is characterized by soft, small, erect plants, with blunt or rounded apex; margins plane to more or less recurved, entire to crenulate at apex; costa ending below apex; median cells rhomboidal to hexagonal, smooth and rather large thin to firm-walled, quadrate distal marginal cells; erect and short cylindrical capsule with a single peristome consisting of a papillose endostome. The axillary naked archegonia, lack of paraphyses, unique peristome characters and peculiar axillary hairs are helpful to define the genus. Sterile plants may be difficult to distinguish from some *Bryum* species with rounded leaf apex such as *B. cyathiphyllum* and *B. ellipsifolium*. Of the species occurring in Africa, *Splachnobryum aquaticum* is distinguished by the nerve ending far below the apex, whereas in the other two species the nerve ends 2-5 cells below the apex. *S. gracile* is characterised by distinctly concave leaves with very large leaf cells, 20--35 µm wide, and long, linear 4-5 celled axillary hairs, whereas in *S. obtusum* (as with *S. aquaticum*) the axillary hairs are short, clavate, 2-3 celled, with a distinctly inflated apical cell.

**LITERATURE:** Arts, T. 1996. The genus *Splachnobryum* in Africa, with new combinations in *Bryum* and *Gymnostomiella*. Journal of Bryology 19: 65-77 [keys,

illustrations]. **Breen, R.S. and Pursell, R.A. 1959.** The genus *Splachnobryum* in the United States, Mexico, Central America and the Caribbean. *Revue Bryologique et Lichénologique*. 38: 280-289. **Koponen, A. 1981.** Splachnobryaceae, a new moss family. *Annales Botanici Fennici* 18: 123-132.