

RHACOCARPACEAE

(Brian J. O'Shea)

A monotypic family, placed in the Leucodontales.

Rhacocarpus Lindb. (Fig. XX)

One or two species in Africa; a tropical/Southern Hemisphere genus containing seven species (Frahm 1995).

Plants mostly medium sized, forming large loose to dense mats, pale olive green to yellowish-brown or pale golden, often with reddish tinge. **Stems** spreading to subascending, occasionally pendent, irregularly to regularly pinnately branched, stem and branches tips attenuate; in cross-section outer rows very small and thick-walled, inner cells larger, thick-walled, central strand absent; pseudoparaphyllia absent. **Leaves** distant to crowded, ovate to oblong, often panduriform, apiculate to long piliferous (usually reddish), to 3 mm long, concave, base slightly decurrent; margins serrulate distally, usually appearing bordered, piliferous tip smooth to weakly toothed; costa none; laminal cells strongly porose, median cells linear-oblong, appearing finely pluripapillose, papillae numerous over lumen and walls; marginal cells linear, usually forming a distinct often rusty red border; alar region differentiated, cells short to rather long rectangular, often dark rusty red or occasionally hyaline. **Dioicous**. **Perichaetia** appearing lateral, on short terminal branches; leaves sheathing seta, oblong-lanceolate. **Seta** elongate, to 28 mm long, smooth below, roughened below capsule, usually twisted distally. **Capsule** erect to suberect, urn broadly ovoid-short cylindrical, to 2 mm long, strongly to weakly ribbed when deoperculate; exothecial cells subquadrate-rounded to short oblong, cells below urn mouth oblate, smaller and walls thicker. **Operculum** long rostrate, oblique. **Peristome** absent. **Calyptra** cucullate, naked and smooth. **Spores** trilete, appearing finely papillose.

HABITAT. Typically on rocks (particularly with seepage or by streams), soil and humus, rarely on tree branches; open montane to alpine, ca. 150-3500 m.

DISCUSSION. The distinguishing features of this handsome genus are as follows: well-branched, rigid stems with cuspidate apices, with a glossy gold-red-bronzed appearance, particularly when dry; under the hand lens, the leaves are thick and opaque with distinct abruptly-narrowed apices usually with reddish hairpoints; under the microscope the leaves are oblong to panduriform, ecostate, with a distinct to indistinct border of smooth, linear cells and laminal cells that are finely pluripapillose over and between the lumen, with enlarged alar cells. The most widespread and often abundant African species (also found in America, Australia and some sub-Antarctic islands) is *Rhacocarpus purpurascens* (Brid.) Paris, which as presently understood is highly polymorphic with regards to gametophytic features. Further studies are needed, specifically to determine morphological limits and the possible influence of environmental factors. Two species were accepted for Africa by Frahm (1996), which can be distinguished as follows: *R. purpurascens* has a hairpoint, and the border is the full length of the leaf; *R. rehmannianus* var. *rehmannianus* (Muell.Hal.) Wijk & Margad. is apiculate with a border for only 1/2 to 2/3 of the leaf. The former is widespread in East and southern Africa, Réunion and Madagascar, whereas the latter occurs only in Cape Province, South Africa. However, Magill and van Rooy (1998) treat *R. rehmannianus* as a variant within the scope of the polymorphous *R. purpurascens*. Buck (1995) has suggested that *Rhacocarpus* is acrocarpous, i.e., the sporophyte is produced terminally. Furthermore, the genus is argued to be better positioned in the Dicranales, close to the family Dicnemonaceae.

LITERATURE. **Buck, W. R. 1995.** The systematic position of the moss genus *Rhacocarpus*. *Fragmenta Floristica et Geobotanica* 40: 127-131. **Frahm, J.-P. 1996.** Revision der Gattung *Rhacocarpus* Lindb. (Musci). *Cryptogamie: Bryologie, Lichénologie* 17: 39-65 [keys, illustrations]. **O'Shea, B.J. 1997.** British Bryological Society Expedition to Mulanje

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