

Figs 417 and 418 (next page). *Riccardia* sp. sensu E.W.Jones

Thalli pale-brown, growing in depressed mats, irregularly and shortly pinnate to bipinnate, branches 0.15-0.4 mm wide, apex of branches blunt, with cortical cells producing gemmae. Axis in cross-section often lunate, without wing or sometimes with 1 cell wide wing of elongated cells, 3-4 cells thick. Dorsal surfaces smooth, cells 35-45 × 50-60 μm, with few oil bodies (1-2). Dioicous. Male branches short or long, female branches generally from the margin of the axis, cup-like. **Habitat:** *Cyperus denudatus*-bogs, rotten wood in montane forest, 2200-2500 m. **Distribution in Rwanda:** Nyungwe NP: Uwinka, Rwasekoko. **Distribution in Africa:** Ghana, DR Congo. **Note:** The species resembles the European *Riccardia incurvata* Lindb.



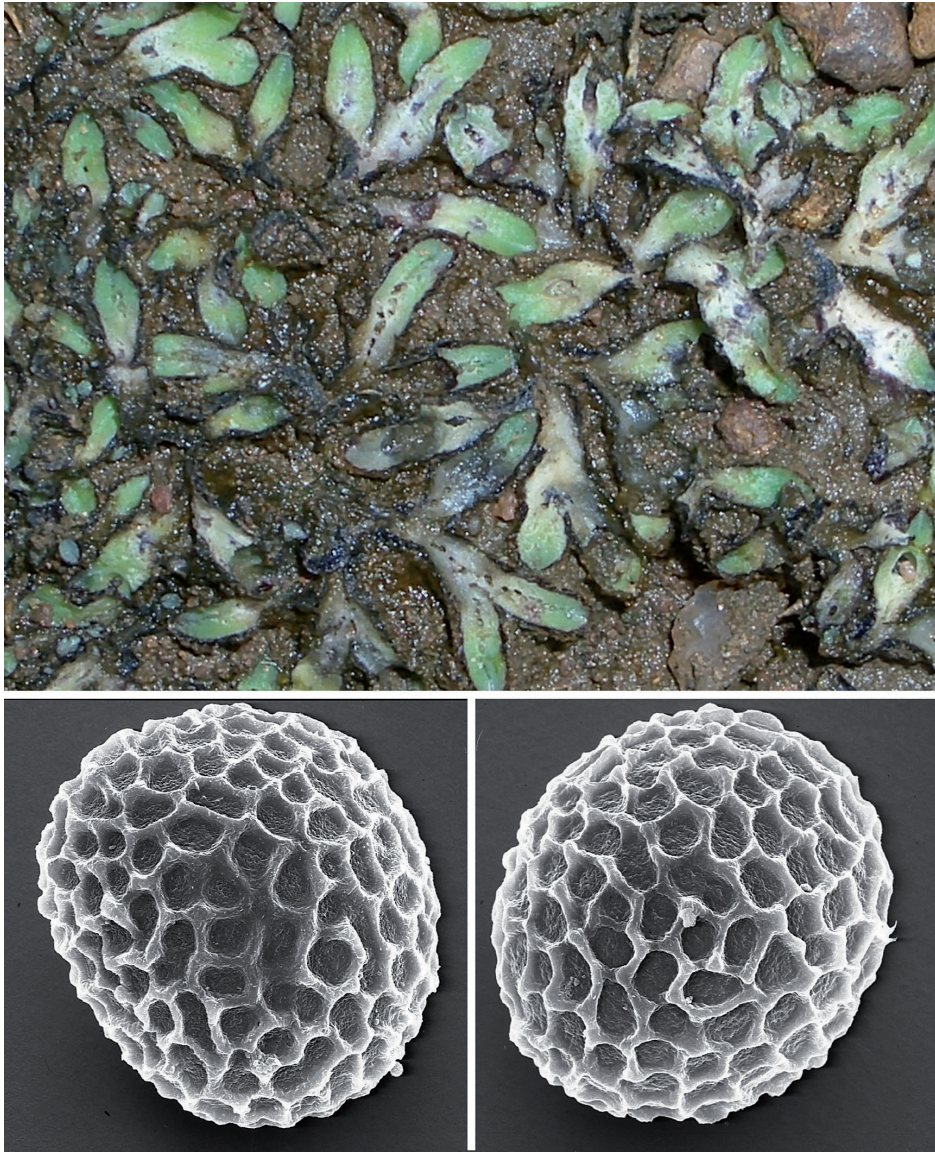


Fig. 419. *Riccia atropurpurea* Sim.

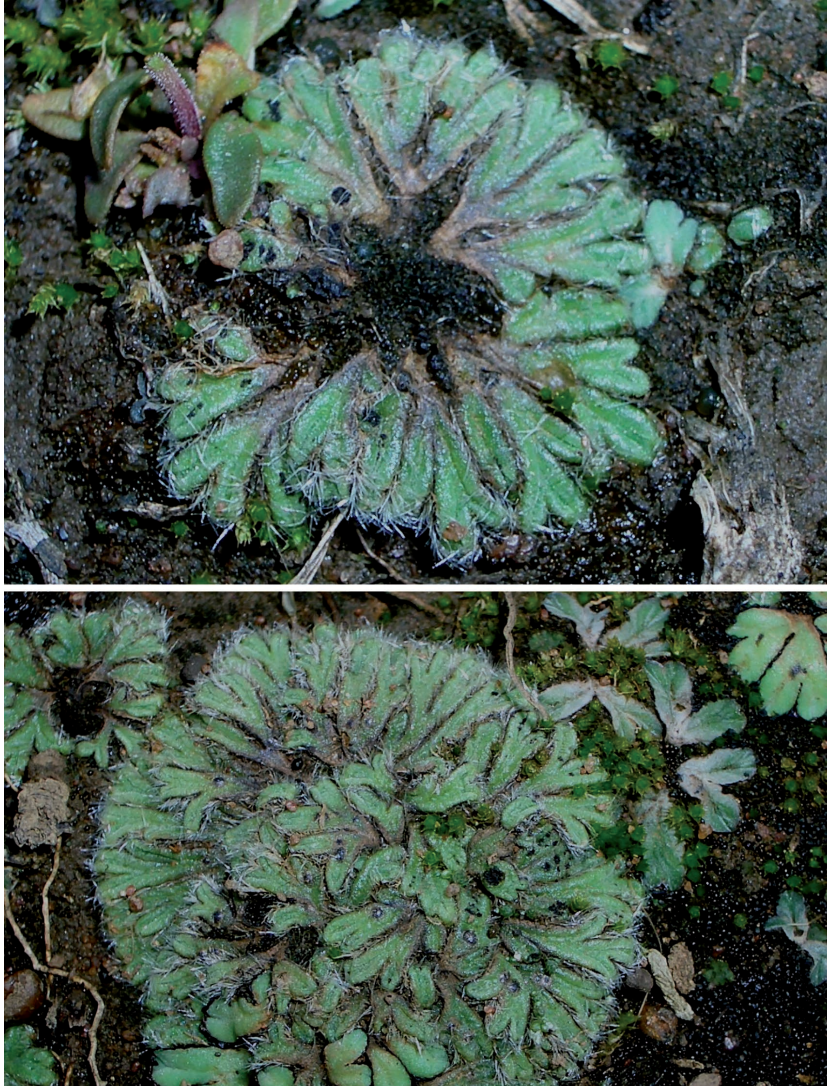
Thalli small to medium-sized, in irregular or incomplete rosettes up to 20 mm in diameter, glaucous-green to greyish-green, branches linear to narrowly ovate, 5-10 x 0.8-1.5 mm. Scales with hyaline borders, rounded, fragile. Spores not distinctly polar, blackish brown, 75-105 μm in diameter, with 10-12 thick walled areolae. **Habitat:** Ferricretes with shallow soil layer, 1300-1400 m. **Distribution in Rwanda: Akagera:** Lake Ihema, presque-île Mpanga, S of Lake Mpanga. **Distribution in Africa:** Ghana, Benin, Nigeria, Uganda, Kenya, Tanzania, Angola, Malawi, Zambia, Zimbabwe, Namibia, Botswana, Swaziland, South Africa.



Fig. 420. *Riccia congoana* Steph.

Synonyms: *Riccia rhodesiae* S.W.Arnell; *R. nigrosquamata* E.W.Jones. Thallus bluish or greyish green, large, scattered or in irregular partial rosettes, 25-30 mm in diameter, branches 6-12(-15) x 3-5 mm. Ventral scales large and conspicuous, 0.9 x 0.8 mm, entirely dark violet or sometimes with hyaline base. Spores yellowish brown, without wing and triradial mark, surface with 6-8(-10) angular areolae across diameter. **Habitat:** Granitic and quartzitic rocks and ferricretes with shallow soil layer, 1100-1700 m.

Distribution in Rwanda: Akagera: Bugesera, Nyamata, Lake Ihema, Rugarama, île Rwamarenga in Lake Cyambwe presque-île Mpanga, S of Lake Mpanga, Ranch Rusumo NE Rusumo.



Figs 421 and 422 (next page). *Riccia crinita* Taylor

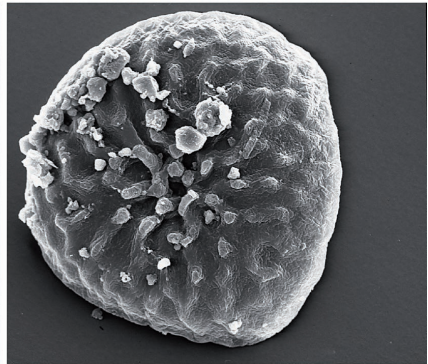
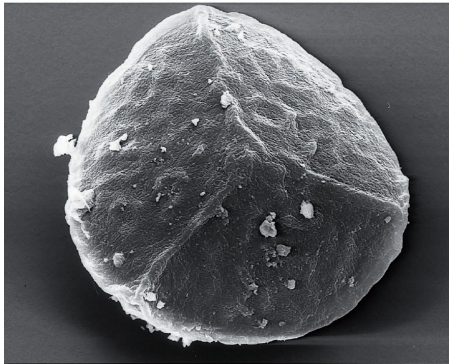
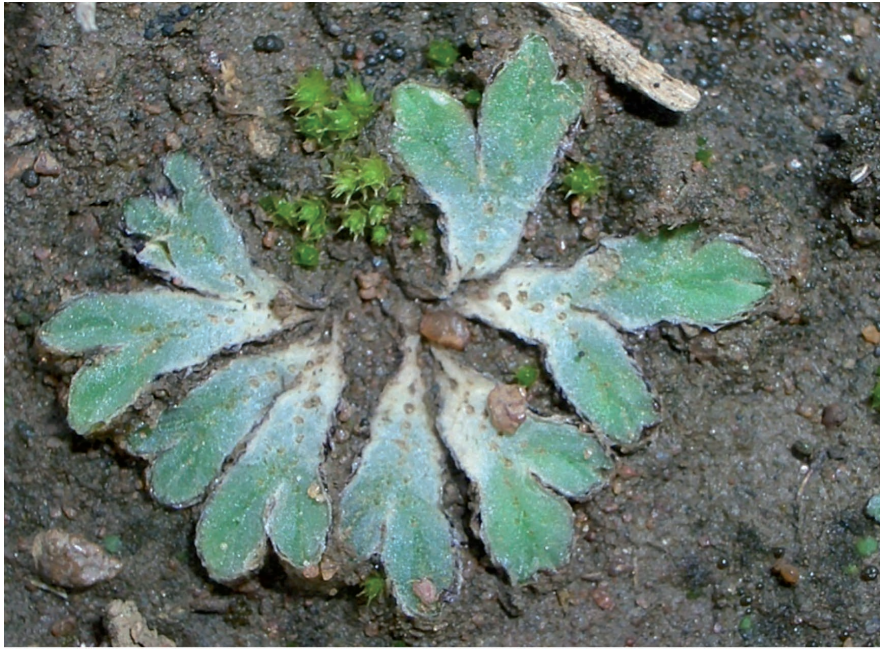
Synonym: *Riccia trichocarpa* Howe. Thalli small to medium-sized, in incomplete rosettes or patches, glaucous-green, branches 5 x 1-1.5 mm. Margin of thallus with long hyaline cilia and a few shorter cilia on upper surface of thallus above sporangia, cilia never arching and channelled. Spores triangular-globose, 100-120 μ m in diameter, ornamentation reticulate. **Habitat:** Ferricrete over shallow soil, 1300-1400 m. **Distribution in Rwanda: Akagera:** Lake Ihema, S of Lake Mpanga. **Distribution in Africa:** Niger, Nigeria, Uganda, Kenya, Tanzania, Malawi, Zimbabwe, Mozambique, Namibia, Botswana, Lesotho, South Africa. Also North America (from Oregon to California and Baja California, eastward to Arizona), Europe (chiefly mediterranean distribution), Canaries, North Africa, Socotra, Madagascar, Mauritius.

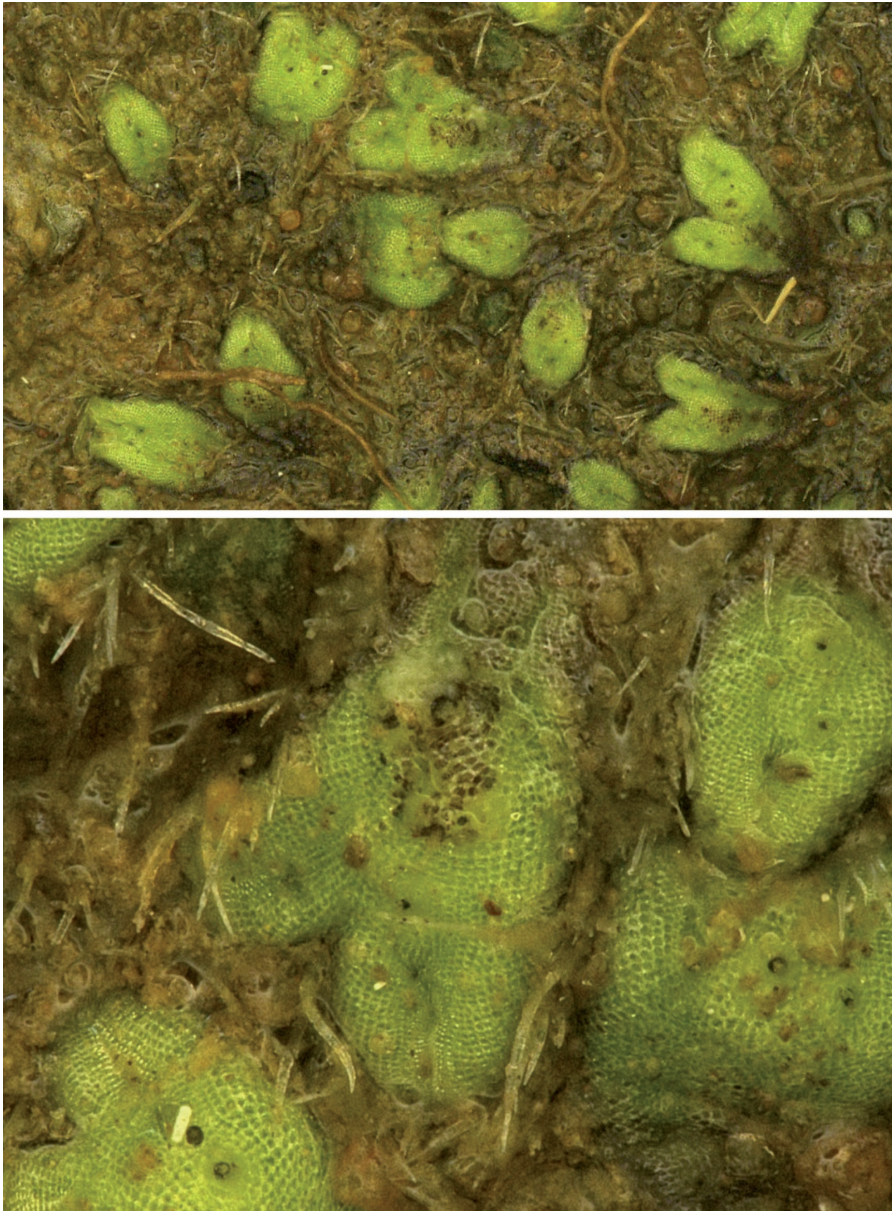




Figs 423 and 424 (next page). *Riccia lanceolata* Steph.

Thalli variable in size and shape, in crowded patches, rarely in rosettes, green to glaucous-green, branches 8.5 x 1-1.5 mm. Ventral scales deep violet, reaching or exceeding thallus margin. Spores distinctly polar, winged, 80-120 μ m in diameter, proximal face with well-defined triradiate mark, reddish brown, facets and distal face often with incomplete areolae. **Habitat:** Montane swamps, rock outcrops and inselbergs granitic rock plateaus, 1300-2450 m. **Distribution in Rwanda:** **Central Rwanda:** Gitarama, Cyubi, Ruhango, granitic rock plateau "Urutare ya Kamegeli". **Nyungwe NP:** Swamp near district border of Rusizi. **Akagera:** Rugarama, presque-île Mpanga, S of Lake Mpanga, Ranch Rusumo NE Rusumo. **Distribution in Africa:** Ivory Coast, Ghana, Benin, Nigeria, Eritrea, Ethiopia, Uganda, Kenya, Tanzania, Malawi, Zambia, Mozambique, South Africa.

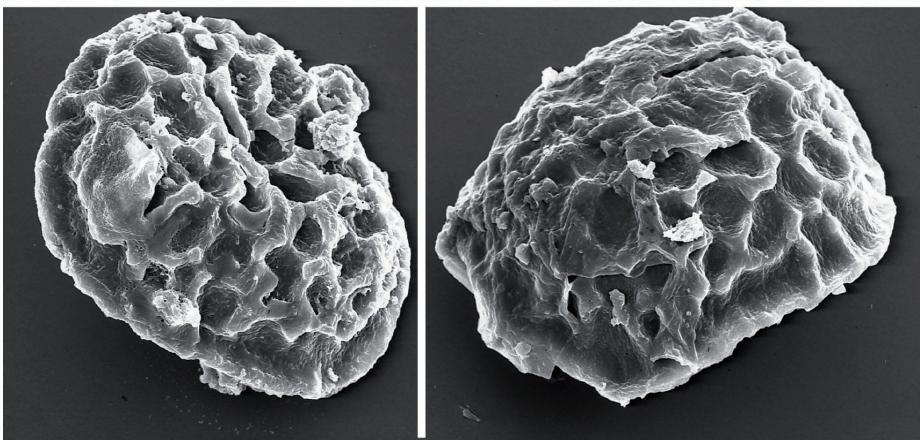




Figs 425 and 426 (next page). *Riccia microciliata* O.H.Volk & Perold

Thalli small, in incomplete rosettes or patches, glaucous-green, branches 1-3 x 0.6-0.8 mm. Margin of thallus with long hyaline cilia in several rows, crowded at apex, cilia arched and channelled. Spores triangular-globose, 80-92 μ m in diameter, ornamentation reticulate. **Habitat:** Ferricrete over shallow soil, 1300-1400 m. **Distribution in Rwanda:** Akagera: Bugesera, Lutete. **Distribution in Africa:** Kenya, Tanzania, Malawi, Zimbabwe, Mozambique, Namibia, Botswana, Swaziland, South Africa.





Figs 427 and 428 (next page). *Riccia moenkemeyeri* Steph.

Thallus medium sized, pale glaucous green, with violet ventral scales, branches lanceolate, 4-5(-10) x 1.5-2.5 mm. Scales not extending to thallus margin, dark wine-red and shiny or hyaline. Spores (65-)68-75(-85) μm in diameter, with distal face regularly areolate c. 9-10 areolae across diameter, areolae on proximal face incomplete or absent.

Habitat: Ferricretes at the edge of rock pools, partially under submerged conditions, 1300-1350 m. **Distribution in Rwanda: Akagera:** Bugesera, Nyamata, presque-île Mpanga, S of Lake Mpanga. **Distribution in Africa:** Gambia, Sierra Leone, Ivory Coast, Ghana, Nigeria, Bioko, Cameroon, Central African Republic, DR Congo, Tanzania, Angola, Malawi, Zambia, Zimbabwe, South Africa.





Figs 429 and 430 (next page). *Riccia okahandjana* S.W.Arnell
 Thallus bluish green, in crowded patches or rosettes, 15-30 mm in diameter, branches 5-8(-10) x 1.5-1.8 mm. Ventral scales prominent, black, greatly exceeding the margin of thallus and usually inflexed over the thallus, at least at its apex, when dry. Spores wingless, densely papillose, 92-110 μ m in diameter. **Habitat:** Ferricretes with shallow soil layer, 1250-1500 m. **Distribution in Rwanda:** Akagera: Bugesera, Nyamata, Lake Ihema, île Rwamarenga in Lake Cyambwe, presque-île Mpanga, S of Lake Mpanga. **Distribution in Africa:** DR Congo, Uganda, Kenya, Tanzania, Angola, Malawi, Zimbabwe, Mozambique, Namibia, Botswana, Lesotho, Swaziland, South Africa. Also Arabian Peninsula.

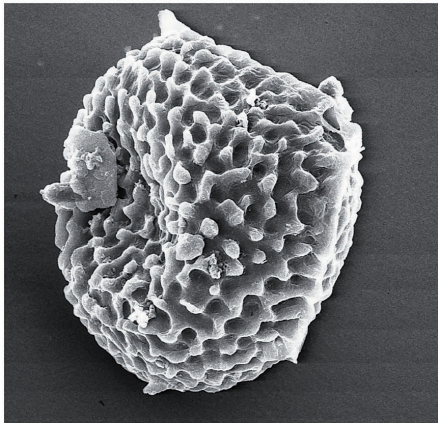
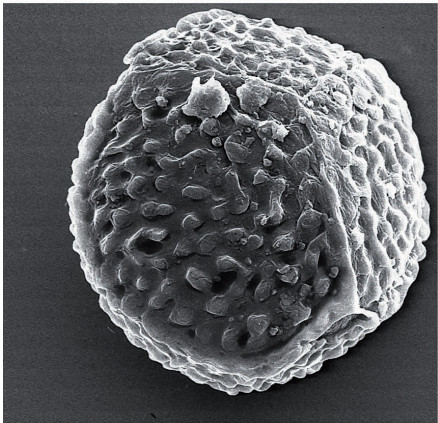
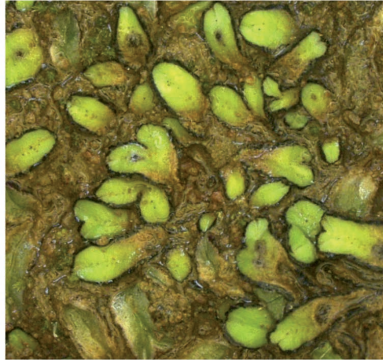
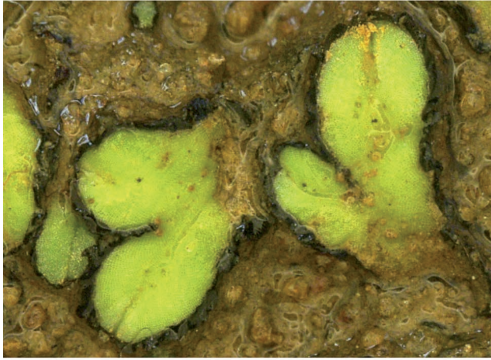




Fig. 431. *Riccia stricta* (Lindenb.) Perold

Thallus light green, with linear branches, 5-10(-15) x 0.5-0.8-(1.2) mm. Scales hyaline.

Spores (50-)62-70(-75) μ m in diameter, distal face with (4-)5-6 prominent areolae, proximal face with thick triradiate mark **Habitat:** Open damp soil in shaded or half-shaded position in mountain forests or formerly forested areas, also in stagnant water, 1600-2500 m. **Distribution in Rwanda:** **Gishwati Forest:** Gakarara, Gikungu. **Busaga Forest.** **Lake Kivu:** Cyongoroka. **Nyungwe NP:** Cyamudongo, Uwinka, Kamiranzovu, waterfall E of Pindura. **Distribution in Africa:** Ivory Coast, Ghana, Togo, Niger, Nigeria, Bioko, Cameroon, DR Congo, Burundi, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Angola, Malawi, Zambia, Zimbabwe, Mozambique, Botswana, Lesotho, South Africa.

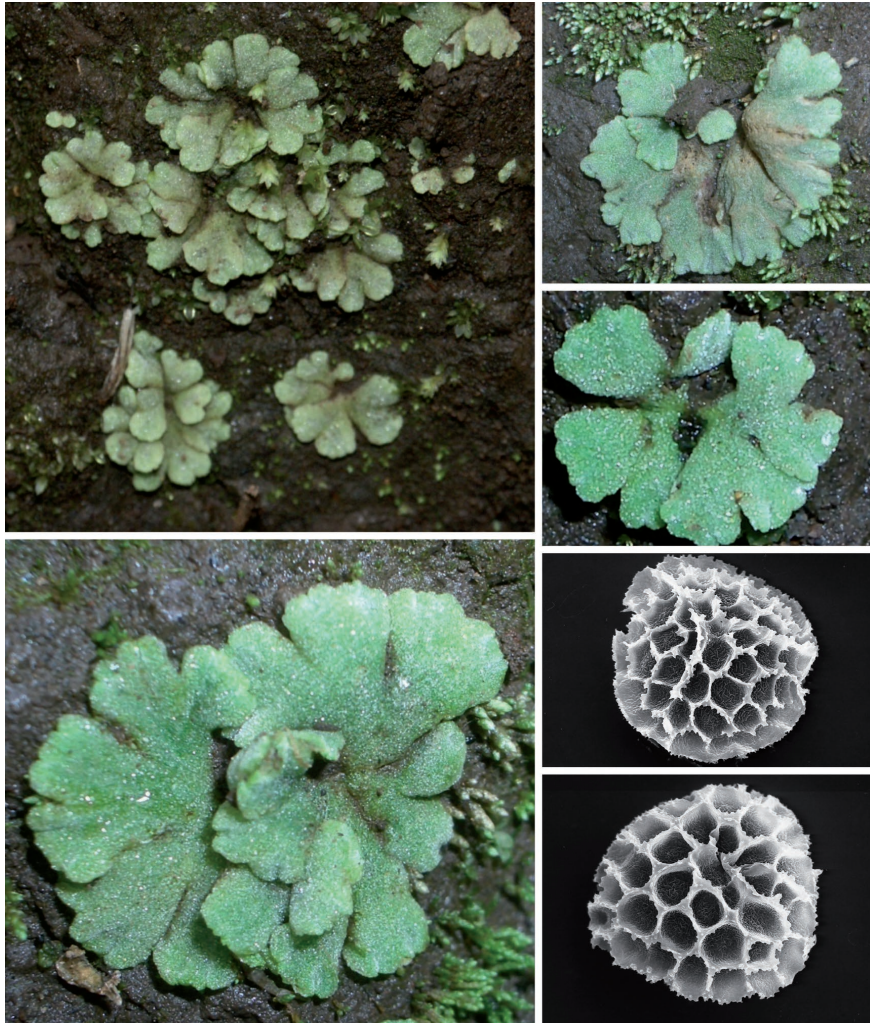


Fig. 432. *Riccia vulcanicola* Eb.Fisch.

Thallus soft-textured, medium sized, usually grey-green to yellowish green, dorsal surface vesicular-areolate, with distinct pores or gaps in the epidermis, soon lacunose and spongy, rosettes 10-14 mm in diameter. Main segments broadly subquadrate-obovate or orbiculate, rounded obtuse, 1.7-3 mm wide. Monoicous. Spores numerous, triangular globular, yellow brown to light-brown, 52-60 x 56-70 μm , wing thin, c. 10 μm wide, areolae complete, distal face with large areolae, each c. 12-17 μm in diameter, areolar walls thin, 5-7.5 μm high, edges crenate, not extended to wing margin. **Habitat:** Moist and compact soil along paths in the *Hagenia* belt and in *Dombeya-Hagenia* secondary forest, 2400-3300 m. **Distribution in Rwanda: Volcano NP:** Between Karisimbi and Bisoke, Gahinga. **Gishwati-Forest:** Gikungu. Only known from the Virunga Volcanoes and the adjacent Gishwati Forest. **Note:** The species probably is perennial, thus also differing from the closely related annuals *R. crystallina* L. and *R. cavernosa* Hoffm.

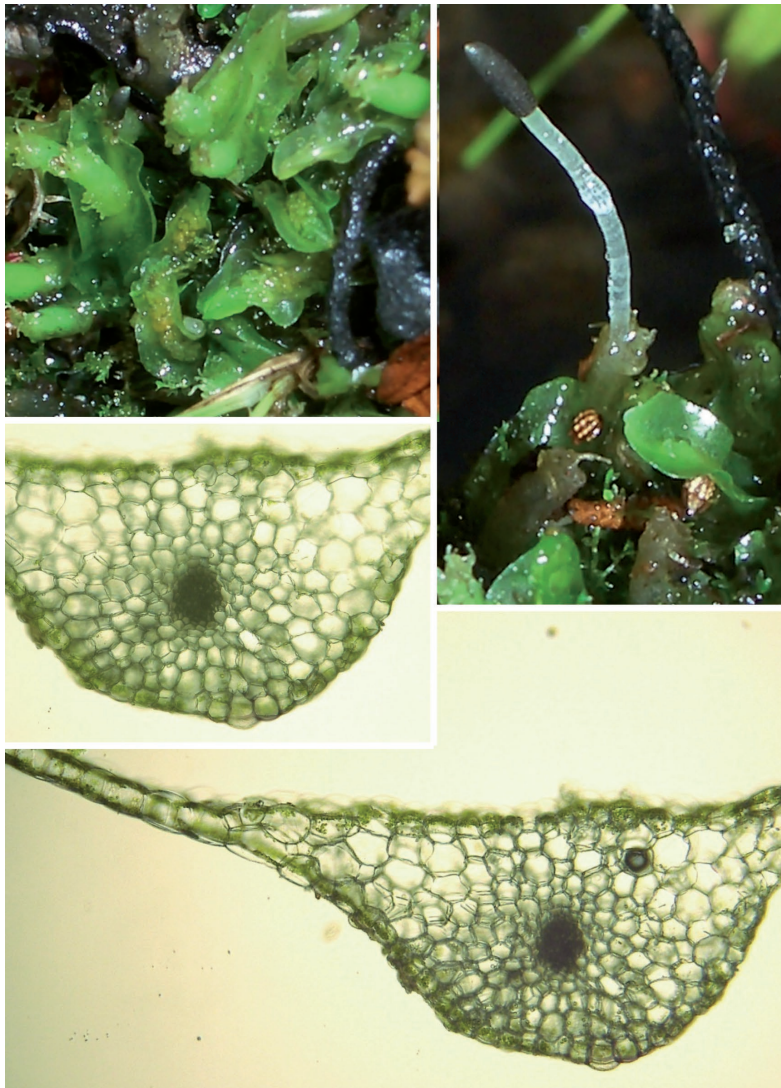


Fig. 433. *Ricciocarpus natans* (L.) Corda

Thalli yellow-green to olive green, form leathery, often with purple margins, thallus segments furcate, 8-14 x 3-7 mm, usually forming rosettes, floating on water. **Habitat:**

Aquatic, growing with other free floating elements as *Azolla pinnata* var. *africana*, *Utricularia inflexa*, *Lemna perpusilla* and *Wolffiopsis welwitschii* at the edge of the *Cyperus papyrus*-belt, 1250-1600 m. **Distribution in Rwanda: Lake Kivu:** between Ruhengeri and Gisenyi. **Akagera:** Lake Ihema, Birengera, Lake Mpanga, Lake Mugesera by Karengwe.

Distribution in Africa: Ghana, Nigeria, Cameroon, DR Congo, Uganda, Kenya, Tanzania, Zambia, Mozambique, Botswana, South Africa. Cosmopolitan.



Figs 434 and 435 (next page). *Symphyogyna brasiliensis* Nees & Mont.

Synonym: *Symphyogyna lehmanniana* Nees & Mont. Thalli green to yellowish green, often slightly tinted with orange or red, with usually weakly-incurved margins, 2.5-4.5(-5.5) mm wide, arising from stolons and often sharply contracted at apex. Marginal slime-hairs lacking. Dioicous. Archegonia in clusters scattered on the midrib, each cluster protected by a tiny scale. Involucres lacking. Sporophyte surrounded by a fleshy calyptra, pseudoperianth lacking. **Habitat:** On peaty soil in *Lobelia mildbraedii*-*Cyperus denudatus* bog, 2450 m. **Distribution in Rwanda: Nyungwe NP:** Rwasenkoko. **Distribution in Africa:** Sierra Leone, Ghana, Nigeria, Bioko, Cameroon, DR Congo, Burundi, Uganda, Tanzania, Angola, Malawi, Zambia, Zimbabwe, Swaziland, South Africa. Also South America, St. Helena, Ascension, Madagascar, Mauritius, Réunion.

