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Author: Chuah-Petiot, M. S.

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WESTERN MOUNT KENYA BRYOPHYTES - II

M.S. Chuah-Petiot
Botany Department, University of Nairobi
P.O. Box 14576, Nairobi, Kenya

INTRODUCTION

This is the second in the series of four articles on bryophytes found on the western side of Mt Kenya. An introduction to the environmental factors prevailing on the study site was given in part one of this series; figure numbering continue from the same (Chuah-Petiot, 1994).

= BRYOPSIDA =

Grimmiaceae

Grimmia affinis Hornsch. (fig. 5)

MSC 83a, 265b, 37, 47, 49, 57, 221c, 126a, 141b, 263b, 173c, 138, 169b, 88b, 99b, 270a, 157b, 160c, 108b, 109b, 100b, 98a, 77, 168a, 120, 86

Altitude range: 3350–4985 m

Plants rupicolous, small, in cushions. Stems massed together. Leaves ovate lanceolate, tapering to a narrow apex, hair point of variable length, lightly toothed, leaf margins recurved. Basal leaf cells rectangular, upper cells rounded quadrate with thickened, slightly wavy cell walls.

Legend: 1-plant with sporophyte; 2, 3-leaves with variable hair points; 4-young capsule with calyptra; 5-basal leaf cells; 6-upper leaf cells.

Racomitrium subsecundum (Hook. & Grev.) Mitt. & Wils. (fig. 5)

MSC 168b, 246b, 87, 44a, 32, 146c, 214b, 106, 88a, 258, 209c, 261a, 264, 147a

Altitude range: 3400–4490 m

Plants rupicolous, greenish yellow above, brownish black below in low tufts on rock surfaces or spreading patches with repeated forked branching. Leaves lanceolate to narrowly lanceolate, broad base, apex with or without hyaline hair point. Hair-point up to 3/8 total leaf length, flattened, toothed. Leaf margin entire; basal leaf cells long, narrow with unevenly thickened sinuose walls; mid leaf cells shortly rectangular with wavy thickened walls.

Legend: 7-plant; 8, 9-leaves with prominent hair-points; 10-mid leaf cells; 11-basal leaf cells.

Racomitrium lamprocarpum(C. Muell.) Jaeg. (fig. 5)

MSC 213a

Altitude range: 3000–4490 m

Plants terricolous, slender, dark brownish yellow, abundant on edge of mountain streams and lakes. Stems branched, up to 4 cm long. Leaves lanceolate, tapering to obtuse apex, margin entire, hair point lacking, nerve ending below apex. Basal leaf cells shortly rectangular to sinuose, mid leaf cells long, narrow with unevenly thickened sinuose walls, cells towards apex irregularly quadrate.

Legend: 12-plant; 13-mid leaf cells; 14-basal leaf cells; 15-leaf; 16-leaf tip.

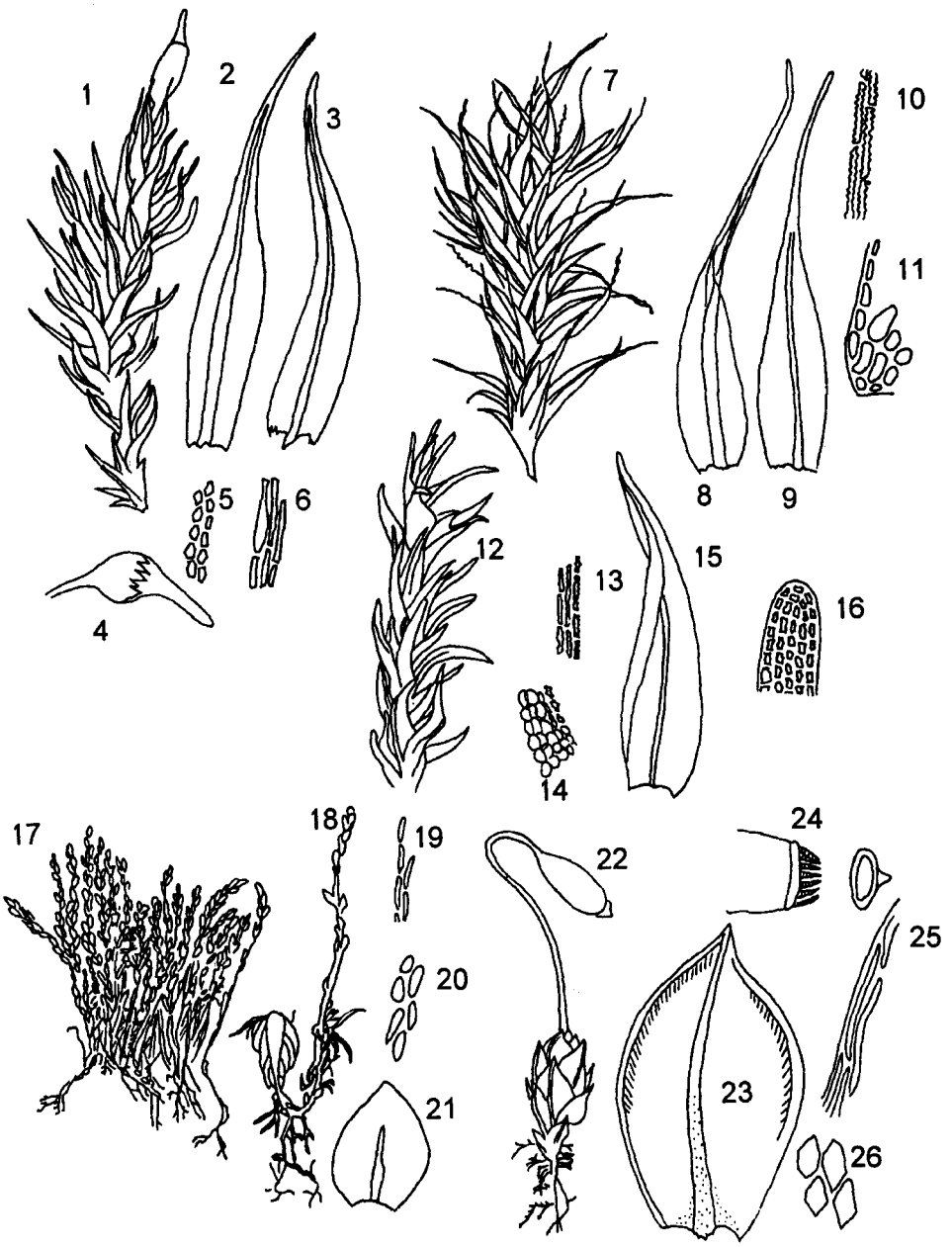

Figure 5. Legend see text. 1–6: *Grimmia affinis;* 7–11: *Racomitrium subsecundum;* 12–16: *Racomitrium lamprocarpum;* 17–21: *Anomobryum filiforme;* 22–26: *Bryum bicolor*

Bryaceae

Anomobryum filiforme (Dicks) Husn. (fig. 5)

MSC 165b, 177a, 178

Altitude range: 4175–4425 m

Plants terricolous, small, slender, pale green, forming dense yellowish green tufts on damp gravely soil. Stems to 1 cm long. Leaves concave, margin entire; nerve ending 1/2 to 3/4 way up leaf. Basal leaf cells vermicular, mid leaf cells shortly rectangular.

Legend: 17-plant habit; 18-plant; 19-nerve cells; 20-general leaf cells; 21-leaf.

Bryum bicolor Dicks. (fig. 5)

MSC 115, 131b

Altitude range: 4250–4375 m

Plants small, forming tufts on ground. Stems erect up to 1 cm long. Leaves gathered towards shoot apex, reddish at base, entire, concave, ovate with acute tip; nerve percurrent. Basal, mid leaf cells rhomboid hexagonal, marginal cells vermicular. Seta curved, capsule ovoid.

Legend: 22-plant with sporophyte; 23-leaf; 24-capsule with lid removed to expose peristome; 25-leaf marginal cells; 26-mid leaf cells.

Bryum argenteum Hedw. (fig. 6)

MSC 169c

Altitude: 4200 m

Plants terricolous, silvery white, julaceous forming dense tufts. Stems 1 cm long or less, reddish, branched. Leaves reddish at base, ovate, variously narrowed to short to long acuminate hyaline apex; margin entire, unbordered. Basal leaf cells reddish, shortly rectangular, elsewhere narrowly hexagonal.

Legend: 1, 2-plants; 3, 4, 5-leaves; 6-mid leaf cells; 7-basal leaf cells.

Bryum preussii Broth. (fig. 6)

MSC 220a, 219, 20c

Altitude range: 2900–3000 m

Plants terricolous, robust, green, 4–7 cm tall. Stems erect, leaves spaced nearly equal distance throughout elongated stem. Leaves oval, up to 6 mm long, 3 mm broad, hyaline, apiculate; nerve ceasing below apex, margin serrated with broad border.

Legend: 8-plant; 9-leaf; 10-plant habit; 11-leaf tip; 12-marginal leaf cells.

Rhodobryum perspinidens (Broth.) Pocs (fig. 6)

MSC 224, 302a

Altitude range: 2400–2450 m

Plants terricolous, robust, with conspicuous rosettes formed by the uppermost leaves. Stems up to 4 cm long. Leaves obovate, upper margin and apex toothed. Mid leaf cells elongate hexagonal.

Legend: 13-plant; 14-leaf; 15-mid leaf cells; 16-marginal leaf cells.

Mniaceae

Plagiomnium rhynchophorum (Hook.) T. Kop. (fig. 6)

MSC 305b

Altitude: 2400 m

Plants green, creeping on wet ground. Fertile stems erect, 3 cm long. Leaves on prostrate stems distant, oblong elliptical, those on erect fertile stems similar but larger, more acuminate, forming rosette at shoot apex. Nerve strong, percurrent or shortly excurrent. Margin pronounced all around the leaf consisting about four rows of linear cells,

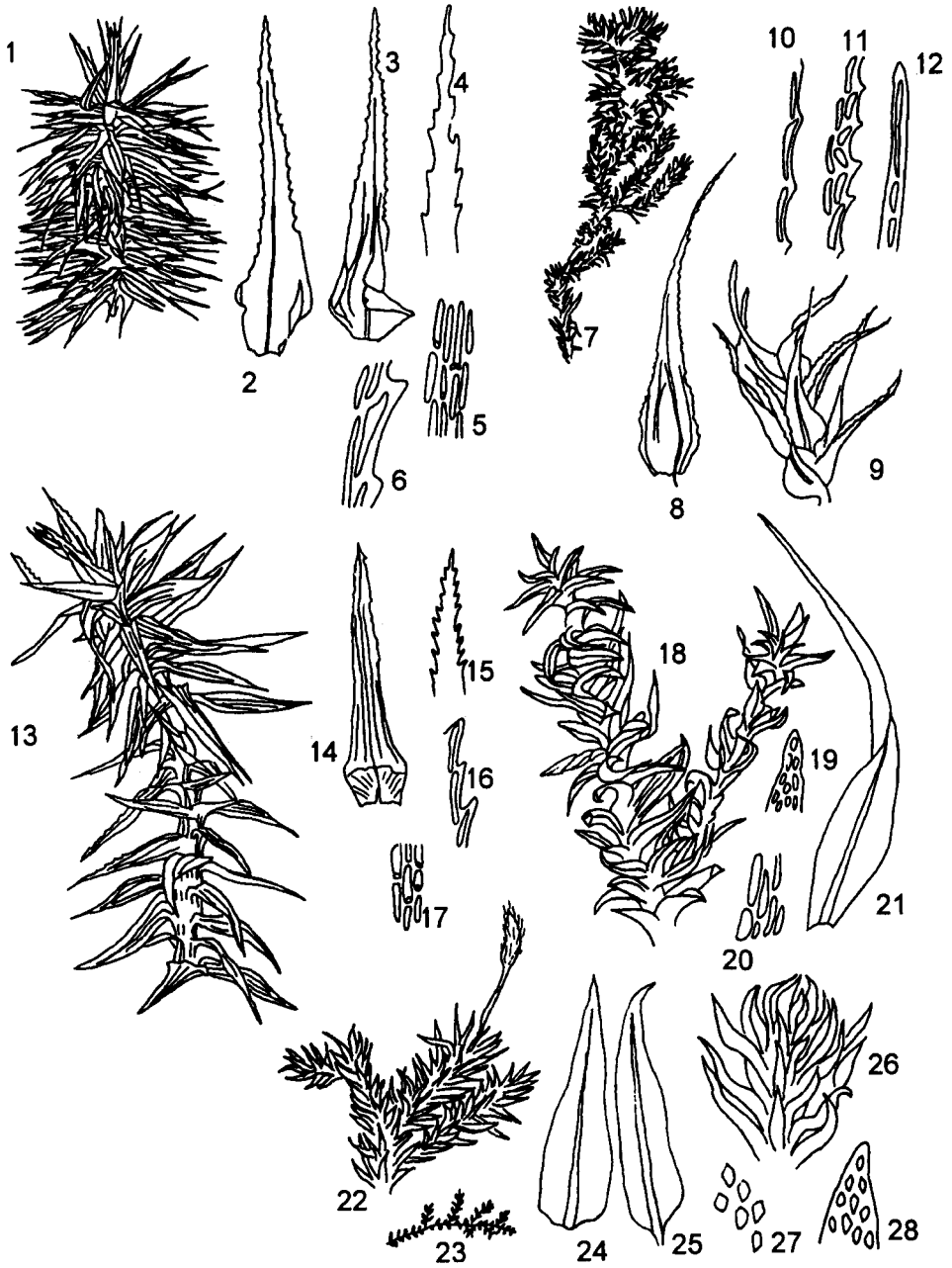

Figure 6. Legend see text. 1–7: *Bryum argenteum;* 8–12: *Bryum preussii;* 13–16: *Rhodobryum perspinidens;* 17-19: *Plagiomnium rhynchophorum;* 20–23: *Aulacomnium turgidum;* 24–28: *Bartramia ithyphylla*

marginal cells partly free forming short hyaline teeth from base to apex; remaining cells hexagonal.

Legend: 17-plant habit; 18-leaf; 19-marginal leaf cells.

Aulacomniaceae

Aulacomnium turgidum (Wahl) Schw. (fig. 6)

MSC 209d, 64, 189c, 187d, 188c, 214c

Altitude range: 3500–4490 m

Plants julaceous, forms extensive yellow green tufts on very wet ground. Stems erect to 8 cm long. Leaves concave, ovate, apex obtuse to rounded, margin recurved, entire, unbordered, nerve ending below apex. Leaf cells rounded hexagonal.

Legend: 20-plant; 21-leaf; 22-basal leaf cells; 23-mid leaf cells.

Bartramiaceae

Bartramia ithyphylla Brid. (fig. 6)

MSC 94b, 28, 230a, 79, 2, 90b, 216

Altitude range: 3000–3550 m

Plants terricolous, form light green tufts. Stems erect to 2.5 cm long. Leaves rigid, lanceolate, long, narrow with whitish sheathing base; margin toothed, sheathing base widened at shoulders. Sheathing base cells hyaline, narrowly rectangular, blade cells much smaller, narrowly rectangular, opaque, papillose. Capsule green, globose when young, brown, deeply furrowed when old.

Legend: 24-papillose mid leaf cells; 25-marginal leaf cells; 26-basal leaf cells; 27-plant with sporophyte; 28-leaf.

Breutelia stuhlmanii Broth. (fig. 7)

MSC 7, 146b, 66a, 81, 92, 80, 29, 26

Altitude range: 3000–3550 m

Plants terricolous, robust, yellowish green above, brownish below. Stems little branched, to 6 cm long with reddish brown tomentum. Leaves to 8 mm long, lanceolate, broad base to long fine tip, longitudinally plicate; margin toothed; nerve ending below apex. Basal leaf cells narrowly rectangular, mid leaf cells rectangular, papillose.

Legend: 1-part of shoot; 2, 3-leaves; 4-leaf tip; 5-mid leaf cells; 6-marginal leaf cells

Breutelia diffracta Mitt. (fig. 7)

MSC 188a, 245, 90, 63, 148c, 105a, 144b, 187c

Altitude range: 3200–4100 m

Plants terricolous, medium size, yellowish green. Stems branched, highly tomentose with reddish brown hairs. Leaves lanceolate, broad base to long fine tip, longitudinally plicate, margin toothed. Basal leaf cells rectangular, upper leaf cells shortly rectangular, papillose.

Legend: 7-plant; 8-leaf; 9-part of plant; 10, 11-marginal leaf cells; 12-leaf tip.

Breutelia gnaphalea (P. Beauv.) Mitt. (fig. 7)

MSC 13b, 16b, 45a

Altitude range: 2700–3750 m

Plants terricolous, golden green, branched forming loose tufts. Stems medium size up to 7 cm long, tomentose with reddish brown hairs. Lateral branches away from stem. Leaves 8 mm long, lanceolate, plicate, base broad, margin toothed, nerve percurrent. Basal leaf cells rectangular, mid leaf cells short rectangular, papillose.

Legend: 13-part of shoot; 14-leaf; 15-leaf apex; 16-marginal leaf cells; 17-mid leaf cells.

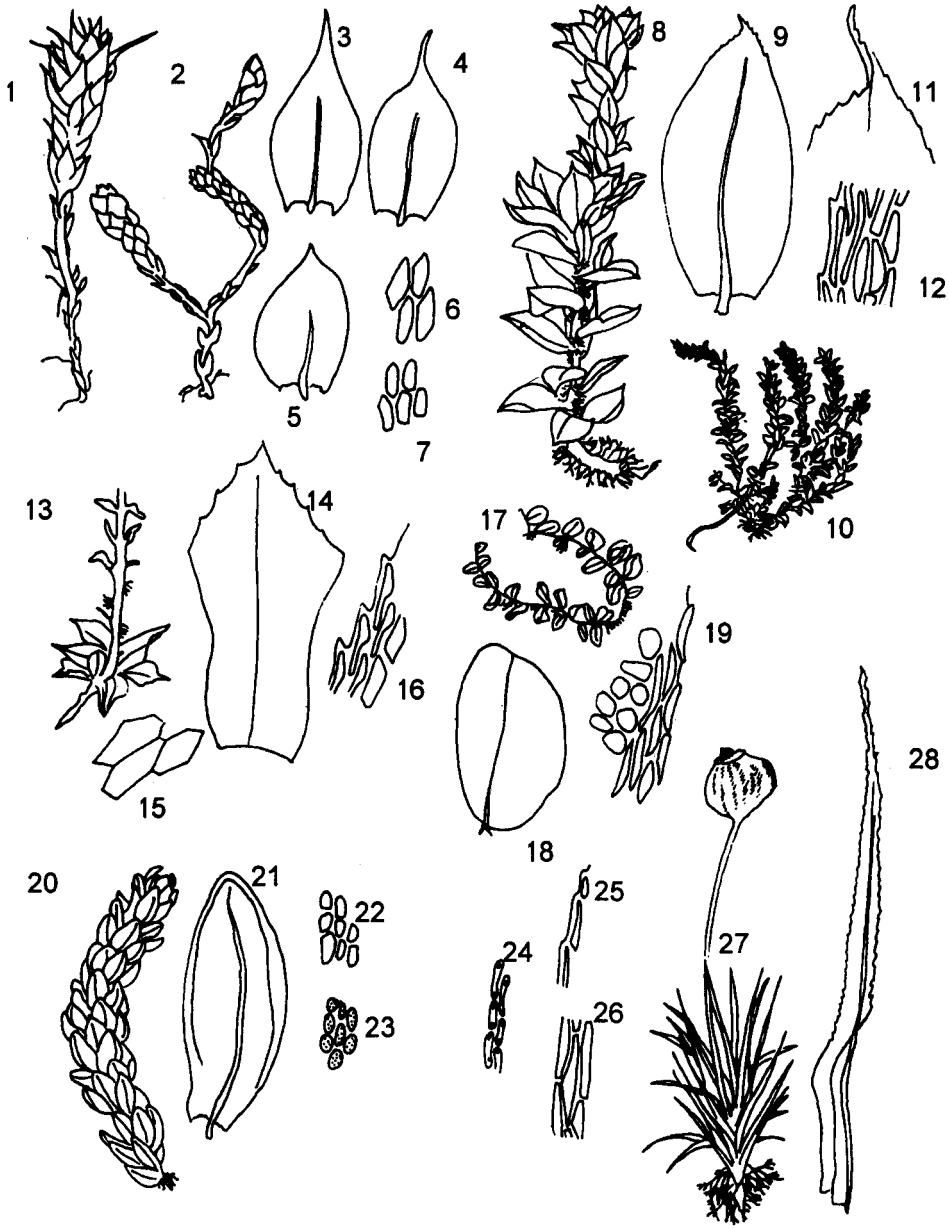

Figure 7. Legend see text. 1–6: *Breutelia stuhlmanii;* 7–12: *Breutelia diffracta;* 13–17: *Breutelia gnaphalea;* 18–21: *Amphidium tortuosum;* 22–28: *Macrocoma abyssinica*

Orthotrichaceae

Amphidium tortuosum (Hornsch) Robins (fig. 7)

MSC 223

Altitude: 4700 m

Plants rupicolous, robust, green above, rusty brown below, forms cushions in rock crevices. Stems erect, branched, to 3 cm long. Leaves 3 mm long entire, acuminate, narrowly linear lanceolate, margins slightly wavy nerve ending below apex. Basal leaf cells rectangular, mid leaf cells incrassate, rounded hexagonal.

Legend: 18-plant; 19-leaf apex; 20-mid leaf cells; 21-leaf

Macrocoma abyssinica (C. Mull.) Vitt. (fig. 7)

MSC 323

Altitude: 3300 m

Plants epiphytic, brownish yellow to brownish green, much branched. Stems filiform, stem leaves similar to branch leaves. Leaves lanceolate, apex acute, margin entire; nerve single, strong, ceasing below apex. Leaf cells round to oblong, incrassate. Calyptra hairy.

Legend: 22-plant with sporophyte; 23-plant habit; 24, 25-leaves; 26-part of shoot; 27-mid leaf cells, 28-leaf apex.

Orthotrichum rupestre Schleich ex Schw. (fig. 8)

MSC 121a, 174d, 169a, 548, 580

Altitude range: 4200–4985 m

Plants rupicolous, yellowish green above, dark brown below. Stems to 3 cm long. Leaves held more or less straight and appressed when dry, but spread out instantly on moistening. Leaves lanceolate, margin strongly recurved, nerve ending below apex. Basal leaf cells rounded, mid leaf cells linear, apical leaf cells rounded, papillose. Capsule immersed among leaves, ellipsoid to ovoid, gradually tapering into seta. Stomata superficial. Calyptra hairy. Peristome teeth united in pairs.

Legend: 1-part of fertile shoot; 2-leaf apex; 3-apical leaf cells; 4-mid leaf cells; 5-basal leaf cells; 6-peristome teeth; 7-hairy calyptra; 8-capsule; 9-leaf.

Racopilaceae

Racopilum tomentosum (Hedw.) Brid. (fig. 8)

MSC 319a

Altitude: 2400 m

Plant epiphytic, prostrate, forming wide, flat, dark green mats. Stems densely tomentose, pinnate. Leaves numerous, dimorphous. Lateral leaves distichous, asymmetrical; oval to oblong; leaf apex obtuse, hair pointed; margin serrate. Nerve strong, excurrent. Mid leaf cells oval hexagonal, chlorophyllose, basal cells rectangular. Dorsal leaves smaller, distantly placed, cordate base to acuminate tip; nerve far excurrent.

Legend: 10-plant; 11-part of shoot; 12-lateral leaf; 13-dorsal leaf; 14-leaf tip; 15-basal leaf cells; 16-mid leaf cells.

Hedwigiaceae

Racocarpus purpurascens (Brid.) Par. (fig. 8)

MSC 144c, 146a, 524, 528

Altitude range: 3400–3700 m

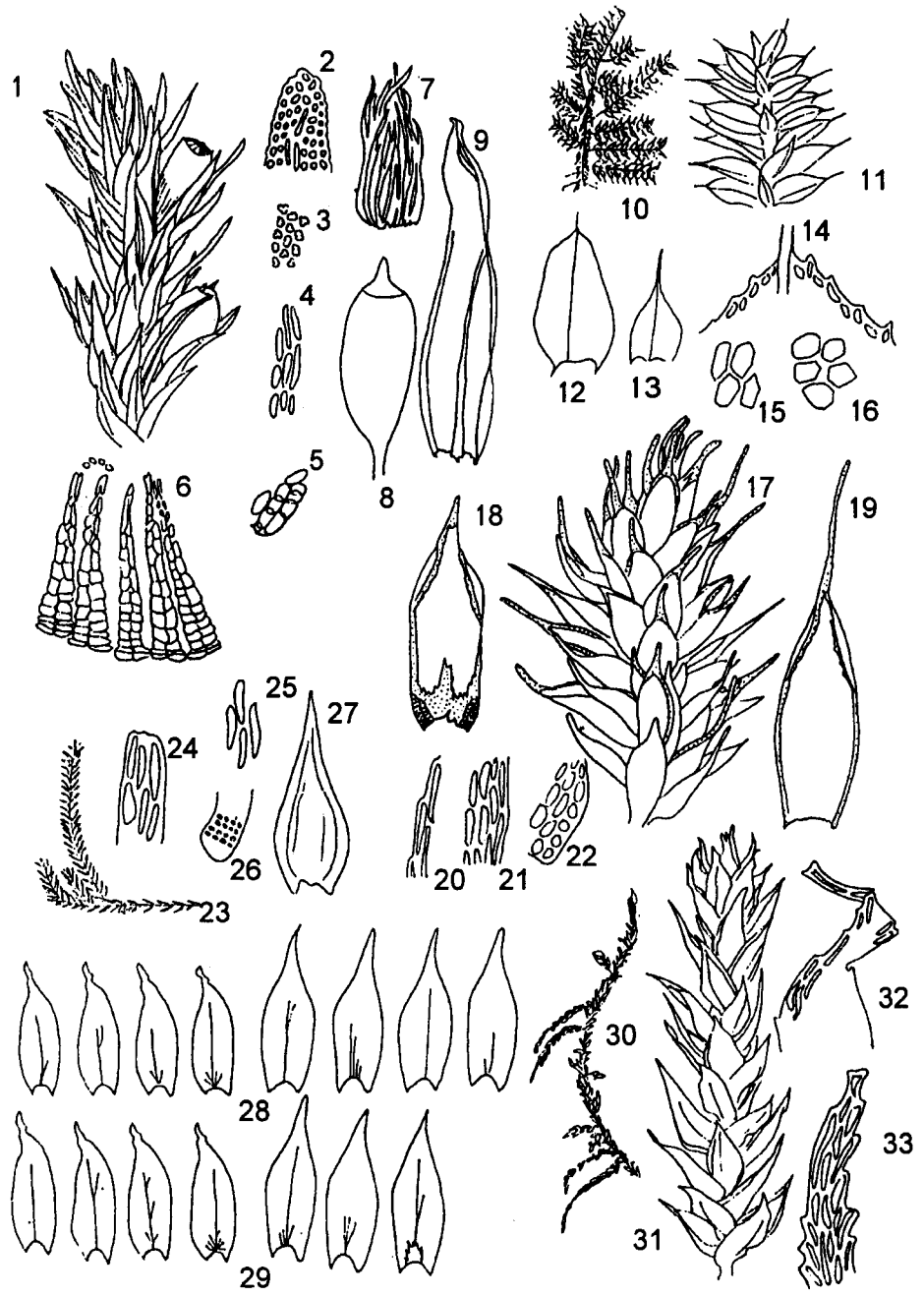

Figure 8. Legend see text. 1–9: *Orthotrichum rupestre;* 10–16: *Racopilum tomentosum;* 17–22: *Racocarpus purpurascens;* 23–27: *Braunia camptoclada;* 28–33: *Antitrichia kilimandscharica*

Plants robust, forming spreading patches on rock surfaces. Stems branch abundantly. Leaves oval lanceolate tapering to long fine hair point or hair point lacking, margin and base reddish. Nerve absent. Basal leaf cells incrassate, shortly rectangular, elsewhere linear.

Legend: 17-part of shoot (stippled areas indicate reddish margins); 18, 19-leaves; 20-marginal leaf cells just below hair point; 21-marginal cells at mid leaf region; 22-marginal cells at leaf base.

Braunia camptoclada P. Varde & Ther. (fig. 8)

MSC 324

Altitude: 3150 m

Plants robust, older parts brown, younger parts green, julaceous, epiphytic. Stems 2–3 cm long, branched, suberect. Leaves ovate oblong acuminate, furrowed, nerveless; cells mostly vermicular except towards basal leaf margin cells rhomboidal, incrassate.

Legend: 23-plant habit; 24-apical leaf cells; 25-mid leaf cells; 26-basal leaf cells; 27-leaf.

Leucodontaceae

Antitrichia kilimandscharica Broth. (fig. 8)

MSC 239a, 190, 325

Altitude range: 3100–3300 m

Plants epiphytic, yellowish green, irregularly branched. Stem leaves concave, ovate lanceolate, with long acuminate spinous apex, teeth often recurved, margin entire, nerve single or variously branched. Branch leaves similar to stem leaves but smaller in size. Basal leaf cells rounded, elsewhere linear.

Legend: 28-stem leaves; 29-branch leaves; 30-plant habit; 31-part of shoot; 32, 33-leaf apices.

GLOSSARY

cordate = heart-shaped
dimorphous = two different states
obtuse = angle at leaf apex more than 90 degrees
plicate = longitudinal folds
pinnate = with spreading branches produced more or less regularly on either side of stem
recurved = curved down and backwards
rhomboidal = narrowly diamond-shaped
serrate = regularly toothed
spinous = with sharply pointed teeth
tomentose = with a felt of long abundant rhizoids

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