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DICRANOLOMA STEENISII (MUSCI: DICRANACEAE), A NEW SPECIES FROM PAPUA NEW GUINEA

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SUMMARY

Dicranoloma steenisii, a new species from Papua New Guinea is described here. Diagnostic features include long filiform leaves, a strong costa and absence of a limbidium and a central strand. It seems most closely related to *D. armitii*, from which it can be separated by the gradually attenuate, not contracted, leaves.

INTRODUCTION

The tropical-temperate, mainly southern hemisphere, genus *Dicranoloma* was established by Ferdinand Renauld (1901). Brotherus (1924) listed 76 species worldwide. In the Index Muscorum 2 and 5 (Van der Wijk et al., 1962, 1969) 121 valid species are listed, 37 of which occur in Malesia, this region thus being the richest in species.

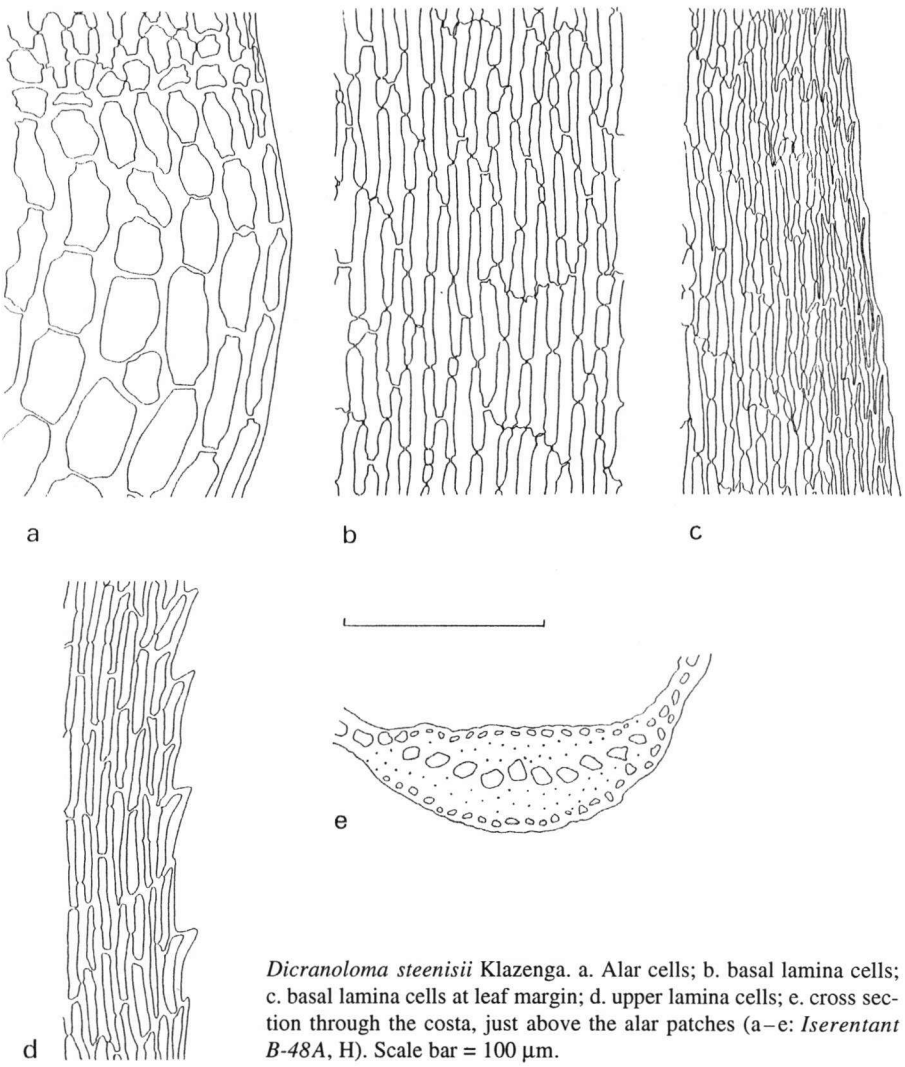
Recent floristic-taxonomic treatments (Tan & Koponen, 1983; Eddy, 1988; Tan, 1989; Norris & Koponen, 1990; Akiyama, 1990) have led to a vast reduction of the number of Malesian species. However, these treatments are partly contradictory in their synonymy and most cover a part of Malesia only. Current revisionary work on the Malesian *Dicranoloma* species has led to the discovery of a new species.

Norris and Koponen (1989, 1990) are not followed here in transferring all Malesian *Dicranolomas* to *Dicranum* Hedw. and limiting *Dicranoloma* to a small group of North Australian and New Caledonian species. In my opinion more research is needed before a decision on the status of *Dicranoloma* is made. Margadant and Geissler (1995) pointed out that *Dicranoloma* is antedated by *Megalostylium* Dozy & Molk. At the same time they proposed to conserve the name *Dicranoloma*. Awaiting the decision of the Nomenclature Committee for Bryophytes, *Dicranoloma* is taken here in the sense of Renauld (1901).

Dicranoloma steenisii Klazenga, *spec. nov.*

Species nova *D. armitii* affinis, a qua differt foliis leniter attenuatis et setis longioribus. — Typus: *Iserentant B-48A* (H holo; NY iso), Papua New Guinea: Eastern Highlands Prov., Watabung terr., between Goroka and Kundiawa, 2620 m alt., 1 Dec. 1989. — Paratypes: *Eddy 1172* (BM), Papua New Guinea: Madang Prov., Finisterre Range, Lake Naho region, 2500 m, 16 Nov. 1964; *Hoffmann 89-352* (CBG, NY), Eastern Highlands Prov., Doulo Pass (25 km W of Goroka), N of Highlands Highway, 2550 m, 30 Nov. 1989; *Norris 64304* p.p. (H, among paratype of *D. cutlackii*), Morobe Prov., 5 km SE of Lake Wamba (5 km S of Tep-Tep Airstrip, on saddle of ridge leading to top of Mt Finisterre, 3000 m, 24 July 1981; *Robbins 2813* (L), Western Highlands Prov., Wabag area, Sugarloaf area S of Wapenamanda, 3000 m, 29 June 1960; *Streimann 20602* (CBG, H), Western Highlands Prov., Nebilyer River, 28 km WNW of Mt Hagen, 2760 m, 23 June 1982.

Dicranoloma steenisii Klazenga. a. Habit; b. idem, with sporogones (a: *Hoffmann 89-352*, CBG; b: *Eddy 1172*, BM). Scale bars = 1 mm.



Dicranoloma steenisii Klazenga. a. Alar cells; b. basal lamina cells; c. basal lamina cells at leaf margin; d. upper lamina cells; e. cross section through the costa, just above the alar patches (a–e: *Iserentant B-48A*, H). Scale bar = 100 μm.

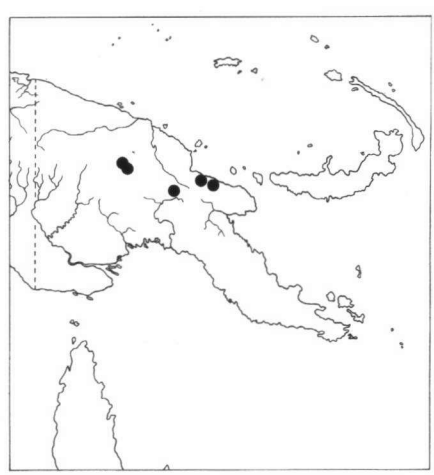
Males not found. — *Female plants* growing in up to 13 cm high turfs, green to yellowish brown. Stem subflorally branched, densely tomentose and loosely foliose; diameter 0.25–0.35 mm, central strand absent, cortical cells thick-walled, the lumina getting smaller and the walls thicker and darker towards the epidermis. — *Leaves* (6–)11–16 by 0.5–0.8 mm, ovate-lanceolate to linear, gradually attenuate; above the amplexicaulous, decurrent base with a distinct bend, spreading or falcate-secund throughout the stem, basal half canaliculate to subtubulous, upper half almost entirely formed by the costa, cross section V-shaped, often fugaceous. — *Alar patches* distinct, 0.4–0.5 by 0.35–0.4 mm, triangular, reaching he costa or separated from it by brown-walled juxtacostal cells. *Margin* serrate in the upper 2/3–7/8, entire below.

Limbidium absent. *Costa* 100–160 µm wide, 40–60 µm thick, well-marked in its entire length, percurrrent, abaxially bearing scattered teeth in the distal half; guide cells 7–11 in 1 layer, often separated from the lamina on one or both sides by stereids; stereids forming adaxial and abaxial bands consisting of 1 or 2 (or 3) layers; adaxial and abaxial epidermal cells possessing a distinct lumen. — *Alar cells* 15–80 by 15–40 µm, quadrate to rectangular, hyaline, not inflated; walls incrassate, the lateral walls 4–12 µm thick, much thicker than the end walls, occasionally porose, often with angular thickenings. *Basal lamina cells* (20–)40–120 by 6–16 µm, elongate to shortly linear; walls incrassate, porose, wall lumen ratio 1 : 1–2. *Decurrency cells* and *juxtacostal cells* similar to the lamina cells but with brown walls. Lamina cells gradually becoming shorter and narrower and less porose towards the apex. *Upper lamina cells* 20–90 by 6–10 µm, oblong to shortly linear; walls incrassate, porose or not porose, wall lumen ratio 1 : 1–2. *Extreme distal cells* 20–30 µm long, oblong, not porose. *Teeth at leaf margin* small, consisting of 1 cell, the lumen of which is not larger than those of adjacent marginal cells. — *Perichaetia* terminal, laterally displaced. *Perichaetial leaves* 7–11 by 0.8–1 mm, above the 1.5–5 mm long, ovate to broadly ovate base abruptly contracting into a long subula which almost entirely consists of the costa. *Archegonia* 1.1–1.5 mm long. — *Sporogones* 1 or 2 per perichaetium. *Vaginula* dark brown, 1.7–2 mm long, with some archegonia at the extreme base, elsewhere smooth. *Seta* yellowish to reddish brown, 4.5–5 mm long, smooth; 0.16–0.18 mm in diameter, central strand present, cortical cells rather thick-walled, walls 1–4 µm thick, epidermal cells with 10–18 µm thick outer walls. *Capsule* reddish brown, 1.5–2 mm long, cylindrical, erect, smooth. *Theca wall* consisting of 1 thick-walled exothecial and 3 or 4 thin-walled amphithecial layers. *Exothecial cells* 30–75 by (10–)15–40 µm, irregularly isodiametric to rectangular, not in orderly longitudinal rows. *Stomata* present at apophysis and the extreme basal part of the theca, phaneropore. *Annulus* persistent, consisting of 2 rows of cells. *Peristome teeth* up to 0.6 mm long, 50–70 µm wide at base, asymmetrically bifid in the upper 3/4–7/8, sometimes fenestrate below almost to the base; dorsal face vertically striate in the basal 2/3, papillose above; ventral face smooth in the basal c. 1/2, papillose above; upper trabeculae papillose. *Operculum* c. 2 mm long, conical, obliquely rostrate. — *Calyptra* not found. — *Spores* 20–28 µm, spherical, finely papillose.

Etymology — Named to commemorate the opening of the Van Steenis Building by Her Majesty Queen Beatrix on June 11, 1996.

Distribution — The species is endemic to the highlands of Papua New Guinea. Only the type specimens are known so far.

Habitat — Growing on soil and on tree trunks in montane and mossy forest, at 2500–3000 m above sea level.



Distribution of *Dicranoloma steenisii* Klazenga.

Notes — Collections belonging to *D. steenisii* have been found in herbaria under *D. brevisetum* and *D. blumei*. From both species it can be distinguished with a hand-lens by the strong costa which almost entirely fills the upper half of the leaf. Moreover, it can be distinguished easily from both species by the absence of a limbidium. In addition *D. steenisii* can be distinguished from *D. blumei* with a hand-lens by the dense tomentum of the stem in which the alar patches are hidden, and microscopically by the absence of a central strand.

Dicranoloma steenisii seems closely related to *D. armitii* as appears from the anatomy of the costa and the lack of a central strand. Confusion, however, is not likely because *D. steenisii* lacks the contraction of the leaf above the alar patches, which is typical of *D. armitii*. Moreover, *D. steenisii* has longer upper lamina cells and a longer seta than *D. armitii*.

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