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A new species of *Jonesiobryum* (Bryopsida: Rhachitheciaceae) from Uganda

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SUMMARY

Jonesiobryum dumboi is described as a new moss species from Uganda. It differs from its congeners by possessing more broadly obovate leaves and a costa that ends well below the apex. The species is only known from the type locality where it was collected on branches in the canopy.

KEYWORDS: Rhachitheciaceae, *Jonesiobryum dumboi*, taxonomy, Uganda.

INTRODUCTION

The Rhachitheciaceae contains seven genera and 15 species distributed in the tropical and subtropical regions of America, Africa and Asia. The family, related to the Orthotrichaceae, was reviewed by Goffinet (1997), who provided a key to all species, and interpreted the scattered and highly disjunct distribution as indicative of an ancient origin. The family Rhachitheciaceae, established by Robinson (1964) comprises five species in Africa which are all known only from few localities and few collections. The species are distributed among five genera, including *Rhachithecium* Broth. ex Le Jol., *Rhachitheciopsis* P.de la Varde and *Hypnodontopsis* Z.Iwats. & Nog. *Jonesiobryum* B.H.Allen & Pursell, originally described as *Jonesia* (Bizot, Pierrot & Pócs, 1974), was added to the family by Allen & Pursell (1991), and Zander (1993) subsequently added *Tisserantiella* P.de la Varde. A brief overview of the family in Africa was provided by O'Shea (1997).

There is only one widespread species in Africa, *Rhachithecium perpusillum* (Thwaites & Mitt.) Broth. (Jones, 1985; De Sloover, 1976), which is known also from Asia and the Neotropics. *Rhachithecium welwitschii* (Duby) R.H.Zander is known only from one collection in Angola. The monotypic *Rhachitheciopsis* P.de la Varde with *R. tisserantii* P.de la Varde is known only from about five collections in the Central African Republic (Potier de la Varde, 1926). *Tisserantiella* is represented only by a single species in Africa, *T. pulchella* (Thér. & Hilp.) R.H.Zander and is known from Cameroon where it grows in dry forests. The genus *Hypnodontopsis* is known only from a recent collection from a montane forest in Uganda (Hodgetts & Goffinet, 1998), a remarkable disjunction for a species formerly considered endemic to Mexico.

The genus *Jonesiobryum* B.H.Allen & Pursell (Rhachitheciaceae) comprises three species. *Jonesiobryum sphaerocarpum* Bizot ex B.H.Allen & Pursell, is known from Nigeria and from the Central African Republic (Goffinet, 1998); two additional species are recorded from Brazil (Vital, 1983). The genus is characterized by oblong to obovate or orbicular leaves erect-appressed when dry, costa subpercurrent to short excurrent, smooth, little differentiated distal and proximal laminal cells, very short inconspicuous seta, subglobose capsule, large annulus, and absence of a peristome. A detailed discussion of its systematic placement and taxonomic history is provided by Allen & Pursell (1991).

An inventory of the bryophytes and lichens in Budongo Forest Reserve,Uganda, revealed the presence of a small moss in the canopy of a fallen *Ficus lutea,* that proved to belong to the genus *Jonesiobryum.* The specimen differed most obviously from currently recognized species by the obtuse leaves with a costa that extents no further than 2/3 of overall leaf-length. It is described here as a new species.

DESCRIPTION

Jonesiobryum dumboi Eb.Fisch., D.Killmann & Sérus. **sp. nov.** (Figs 1, 2, 3)

Differt a *Jonesiobryum sphaerocarpum* et *Jonesiobryum termitarum* foliis obtusis rotundatis et costa non excurrente. A *Jonesiobryum cerradense* differt costa valde breviore.

TYPE: AFRICA. UGANDA, Masindi District, Budongo Forest Reserve, Busingiro, in the canopy of a

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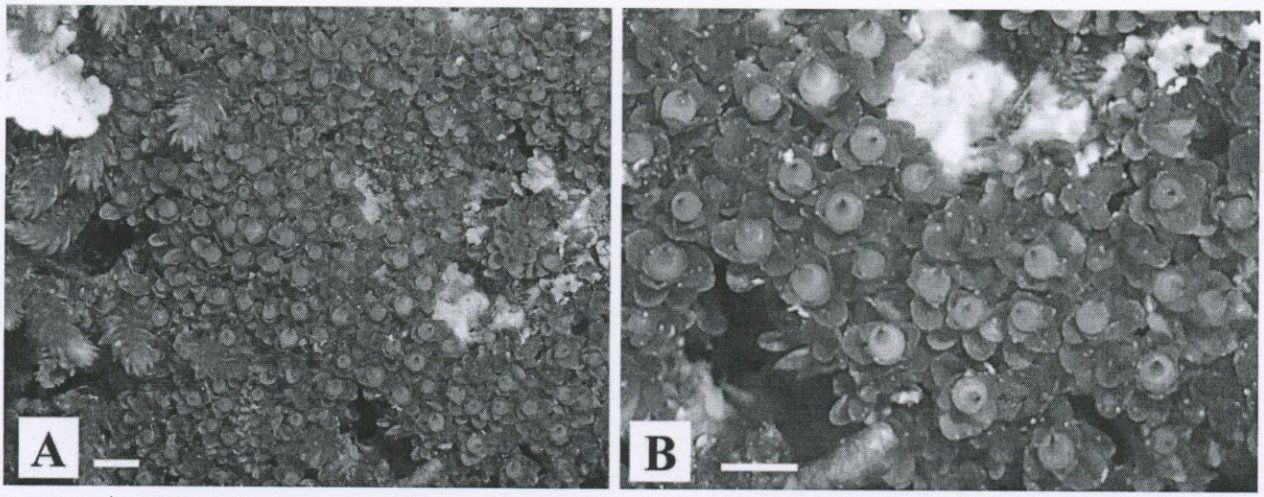

Figure 1. *Jonesiobryum dumboi* Eb.Fisch., D.Killmann & Sérus. habit. Scale bars = 1 mm. Photograph E. Fischer.

fallen *Ficus lutea* tree, 1017 m a.s.l., 01°33'33.7"N 31°31'12"E, *Fischer, Dumbo, Killmann & Sérusiaux*, 31. III. 2003 (LG, holotype; KOBL, MHU, isotypes).

Plants forming small tufts, yellowish-green. *Stems* to *ca* 4.5 mm tall; radiculose at base, central strand present, rhizoids smooth. *Leaves* crowded, erect-appressed when dry, erect-spreading when wet, progressively larger above, oblong to obovate or broadly lingulate, to 1.37–1.47 mm long, up to 0.8 mm wide above middle and up to 0.37 mm wide at base, apex obtuse-rounded, orbicular, margins erect to somewhat incurved, entire; *costa* strong below, up to 70 μm wide, ending at least 15 cells below apex; upper laminal cells irregularly subquadrate to rhomboid, smooth, thin-walled, rather lax, 17.0–17.5 × 10–13 μm; basal cells slightly differentiated, quadrate, 35.0–42.5 × 17.0–17.5 μm. *Perichaetial leaves* obovate, to 1.5 mm long, apex obtuse and slightly reflexed, costa prominent on back, ending distinctly before apex. *Seta* very short, hardly observable, up to 575 μm long and 225 μm wide. *Capsule* immersed, subglobose to broadly ovoid, immature, to *ca* 500 μm long and 450 μm wide; exothecial cells elongate, thin-walled; stomata at base; annulus not yet fully developed, *ca* 3 outer layers of small isodiametric cells. *Operculum* up to 425 μm long. *Peristome* absent. *Calyptra* mitrate, up to 575 μm long and 375 μm wide at base, apex 50 μm wide. Mature spores not seen.

Distribution: Uganda, Budongo Forest, only known from the type collection.

The species is named in honour of Mr Bonny Dumbo of Bukavu, who discovered it during research in Budongo Forest.

Differentiation

Jonesiobryum dumboi differs from all other species of *Jonesiobryum* in the obtuse leaves which are rounded at the apex and in the costa that reaches only 2/3 of the leaf length. Even the perichaetial leaves are obtuse and differ from those of the related taxa. The closest relative is *Jonesiobryum cerradense* Vital ex Allen & Pursell (Vital, 1983) which resembles the new species in the obtuse leaves. The costa, however, ends 1–2 cells below the apex of stem leaves in *J. cerradense* whilst it ends 15 cells below the apex in *J. dumboi*. In *Jonesiobryum sphaerocarpum* and *J. termitarum* Vital ex Allen & Pursell, the costa is slightly excurrent. On the basis of these characters, a new key for the species of *Jonesiobryum* is provided:

1 Vegetative leaves rounded at apex, costae ending below the apices; corticolous species 2

Vegetative leaves apiculate, costae excurrent; corticolous or terricolous species 3

2 Stem leaves broadly rounded at apex or lanceolate, costa ending 1–2 cells below apex; Brazil ***J. cerradense***

Stem leaves rounded at apex, broadly lingulate, costa ending at least 15 cells below apex; Uganda ***J. dumboi***

3 Stem leaves ovate, capsules 0.3–0.4 mm long, corticolous; Nigeria, Central African Republic ***J. sphaerocarpum***

Stem leaves broadly lingulate, capsules 0.7–0.8 mm long; on termite nests in Brazil ***J. termitarum***

Habitat and Distribution

Jonesiobryum dumboi is only known from the type collection. It grew on a small branch in the outer canopy of *Ficus lutea* at about 35 m height in a swamp forest with *Mitragyna stipulosa* and *Voacanga thouarsii*. Examples of other accompanying vascular epiphytes were *Platycerium elephantotis* Schweinf., *Arthropteris orientalis* (Gmelin) Posth., *Stolzia repens* (Rolfe) Summerh. and *Polystachya stuhlmannii* Kraenzl. An account of all epiphytes (lichens, bryophytes and vascular plants) recorded on this fallen tree is in preparation. Budongo Forest is one of the easternmost Guineo-Congolian rainforests with abundant trees like *Cynometra alexandri*, *Entandrophragma utile* and *Khaya anthotheca*.

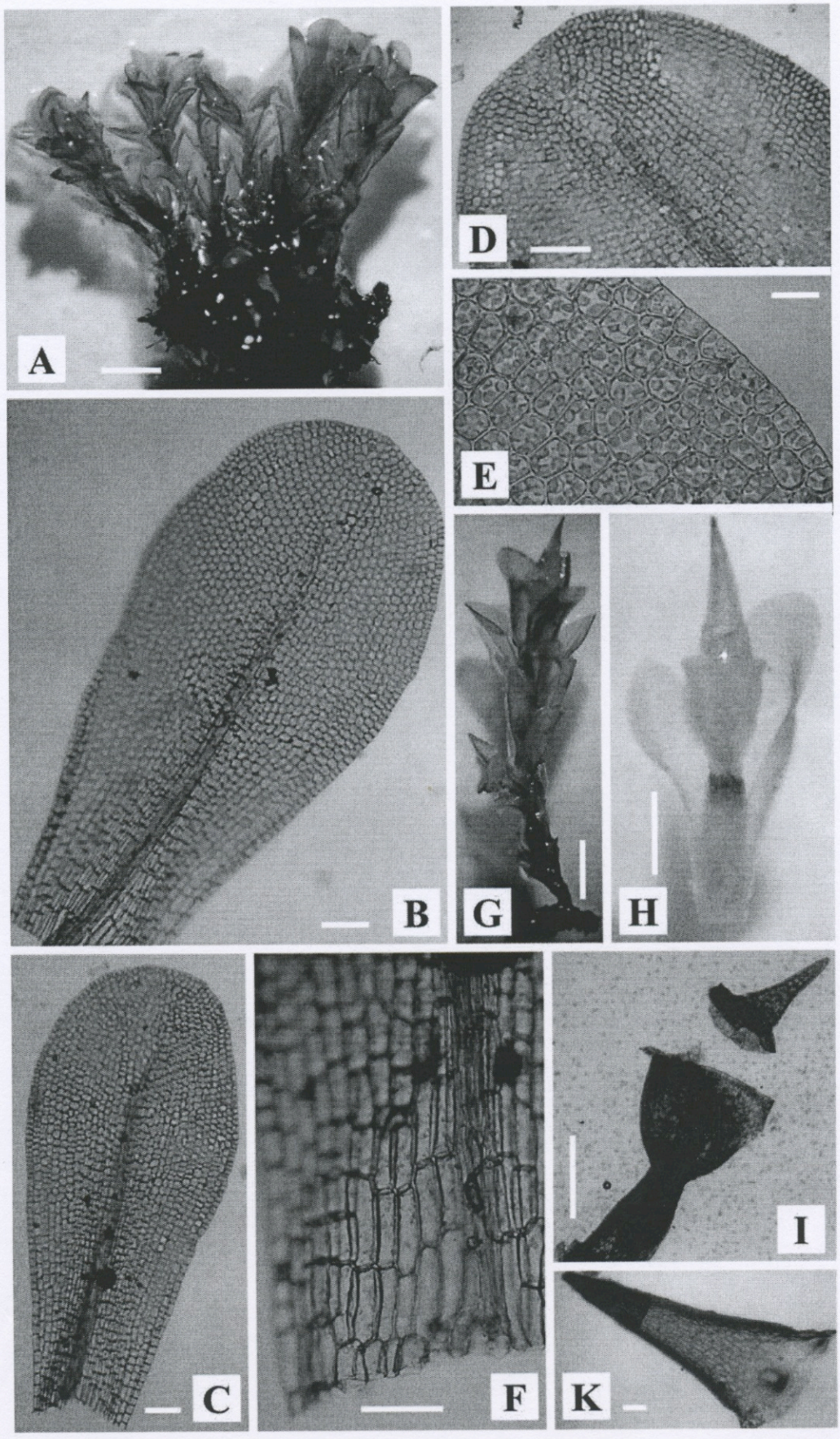

Figure 2. *Jonesiobryum dumboi* Eb.Fisch., D.Killmann & Sérus., (A) Habit; (B, C) leaves; (D) leaf apex; (E) cells at leaf apex; (F) cells at leaf base; (G) plant with capsule; (H) capsule with perichaetial leaves; (I) capsule; (K) calyptra. Scale bars: A = 1 mm; B, C = 100 μm; D = 100 μm; E = 20 μm; F = 50 μm; G–I = 500 μm; K = 50 μm. Photographs from the holotype.

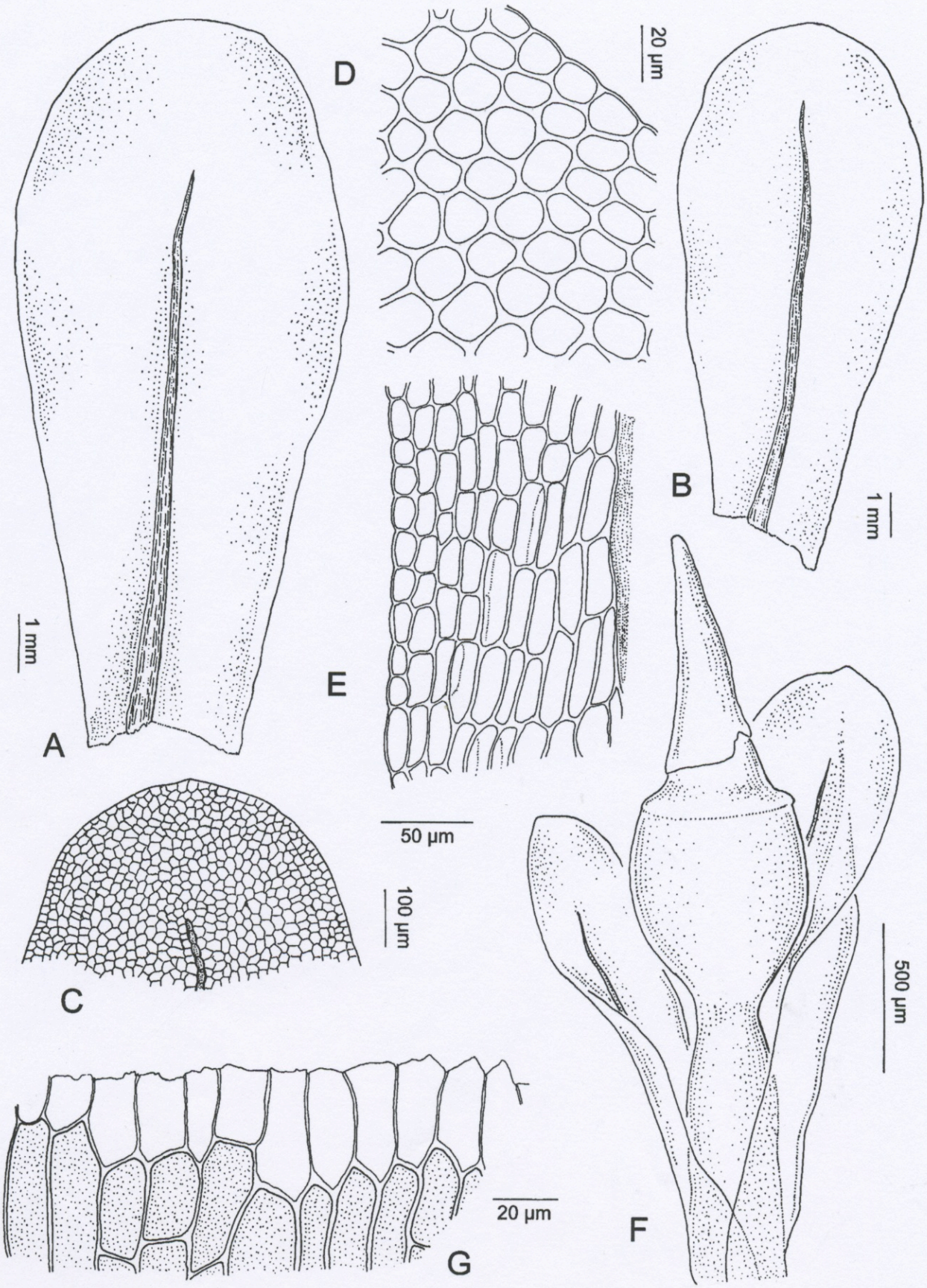

Figure 3. *Jonesiobryum dumboi* Eb.Fisch., D.Killmann & Sérus., (A, B) Leaves; (C) leaf apex; (D) cells at leaf apex; (E) cells at leaf base; (F) capsule with perichaetial leaves; (G) exothecial cells. Scale bars: A, B = 1 mm; C = 100 μm; D = 20 μm; E = 50 μm; F = 500 μm; G = 20 μm. Drawn from the holotype by E. Fischer.

The habitat differs distinctly from that of *Jonesiobryum sphaerocarpum*, which grows on trees in seasonally burned, dry forests and savannas of West and Central Africa (Nigeria and Central African Republic). This species was originally collected on boles of *Uapaca* sp. at elevations probably below 500 m. The Brazilian *Jonesiobryum cerradense* is also restricted to epiphytic habitats in dry Cerrado woodland, where it grows on bark of trees and shrubs that have been periodically burned (Vital, 1983). The third species, *J. termitarum*, which is also endemic to Brazil, is known primarily from termite nests and more rarely from nearby trunks and branches in cerrados (Vital, 1983).

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Taxonomic Additions and Changes: *Jonesiobryum dumboi* Eb.Fisch., D.Killmann & Sérus., sp. nov.

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