MACROMITRIUM CRUMIANUM (MUSCI: ORTHOTRICHACEAE), A NEW SPECIES FROM GUATEMALA

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Steere, William C. and William R. Buck (New York Botanical Garden, Bronx, NY 10458). *Macromitrium crumianum* (Musci: Orthotrichaceae), a new species from Guatemala. Brittonia 31: 395-398. 1979.-Northwest of Lake Izabal, Guatemala, G. C. Jones and L. Facey collected in 1966 abundant material of what we have called **Macromitrium crumianum** Steere & Buck. This new species is characterized by linear-lanceolate leaves which are long acuminate, with leaf cells which are smooth and linear throughout, a smooth seta and capsule, and a naked calyptra. It is most closely related to *M. dubium* Schimp. of the West Indies, French Guiana and Suriname.

Amongst unidentified material at the New York Botanical Garden we discovered a new species of *Macromitrium* from Guatemala; its description follows.

Macromitrium crumianum Steere & Buck, sp. nov. (Fig. 1-7)

Plantae robustae ramosae rufo-brunneae, partibus junioribus lutescentes vel aureo-virides, nitidae. Folia subcrispata, exsiccata passim patentia nec spiralia, madida subregulariter erectopatula, lineari-lanceolata 3-4 mm longa, sensim in apicem acuminatum vel acute acuminatum angustata, basi carinata ac subplicata, margine plana subintegerrima. Costa valida, per- vel breviter excurrens. Cellulae undique laeves lineares, muris per totam folii longitudinem incrassatis porosisque. Folia perichaetialia vix vel haud a vegetativis diversa.

Seta 1.1-1.8 cm longa laevis rufa; capsula oblongo-cylindrica 1.2-1.8 mm longa laevis, operculo rostrato, annulo distincto; persistoma solitarium, dentibus abbreviatis truncatis papil-losis. Calyptra plicata, basi fimbriata, nuda.

Plants rather robust, densely foliate, branching freely, older parts reddish brown, the younger growth yellowish to golden green, glossy. Secondary stems long but variable in length, branches also varying from short (0.5 mm) to long (2 cm). Leaves somewhat crispate, irregularly spreading, neither appressed nor spirally arranged when dry, rather evenly erect-spreading when moist, linear-lanceolate, 3-4 mm long, gradually and evenly tapering to the acutely acuminate or acuminate apex, slightly narrowed to the insertion, keeled and somewhat plicate, especially at base; margins plane, serrulate to subentire, somewhat erose-denticulate near apex. Costa strong, percurrent or short excurrent in terminal leaves. Cells linear and smooth throughout, not at all tuberculate at base, with conspicuously incrassate and porose cells from base of leaf to apex, but walls considerably thicker at base; basal cells 35-70 µm long, 2.0-2.5 µm wide, their walls twice as thick as lumina or thicker, the lumina appearing somewhat sinuous because of pores, the cells slightly but not significantly shorter near the margin and costa; cells at middle of leaf linear but shorter than the basal ones, 40-50 μ m long, 2.5-3.0 μ m wide; cells near the apex 35-45 μ m long, 2.5-5.0 μ m wide, their walls less than the width of the lumen but by no means thin. Outer perichaetial leaves not perceptibly differentiated from regular vegetative leaves, but becoming shorter and narrower inward. Phyllodioicous. Male plants dwarf, averaging 1.0 mm tall, with a short stem and about 10 perigonial leaves, which are smaller toward the center, anchored to the leaves of the female plant by long and conspicuous brown rhizoids.

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FIGS. 1-4. *Macromitrium crumiaum*. 1. Leaf apex, X 460. 2. Cells at midleaf, X 700. 3. Basal cells, X 266. 4. Basal cells, X 475.



FIGS. 5-7. *Macromitrium crumianum*. 5. Portion of peristome and annulus, X 250. 6 Apex of calyptra, X 366. 7. Dwarf male on leaf of female, X 80.

Seta 1.1-1.8 cm long, smooth throughout, twisted when dry, reddish; capsule oblong-cylindric, 1.2-1.8 mm long, smooth to slightly wrinkled when dry, somewhat contracted at mouth, the exothecial cells thick-walled, rectangular, becoming quadrate and then wider than long toward mouth, the stomata few, superficial, confined to the extreme base of the urn; operculum rostrate from a low-conic base, straight to slightly oblique; annulus differentiated, in 1 or 2 rows of firm-walled (but thinner-walled than in exothecial cells), \pm quadrate cells, deciduous; peristome apparently single, attached slightly below mouth of urn, the teeth short, 50-150 μ m tall, truncate, densely papillose on front surface, smooth at back. Spores spherical, 15-25 μ m in diam., moderately papillose. Calyptra covering entire capsule, ca 2.5 mm long, plicate, fringed at bottom third or half, naked, but papillose at apex from projecting, thickened cell ends.

TYPE : GUATEMALA: on forest tree 10 m above ground, vicinity of Exmibal Camp 2 (La Gloria), NW of Lake Izabal, elev. 400-500 m, 7 May 1966, *Gayle C. Jones & Lynden Facey* 3296 (HOLOTYPE: NY; ISOTYPES: ALTA, BM, C, F, FH, FLAS, H, MEXU, MICH, MO, S, TENN, U, US, USCG).

Known only from the abundant type specimen.

In Grout's treatment of *Macromitrium* (1946), *M. crumianum* would be identified as *M. dubium* Schimp. under Key 1, and as *M. dussii* Broth. under Key 2, although with less "fit." However, it is neither species. Dr. Howard A. Crum, in whose honor we have named this new species, has also examined the material, and some of his comments (personal communication, March 5, 1979) follow:

We have [at MICH] a single well developed fruiting branch from the type of *M. dubium*, certainly good enough to confirm the details of Grout's description and to differentiate the Jones specimens from it. *M. dubium* has much more slender leaf points, giving the plants a very different appearance. The leaves are noticeably serrulate far below the apex (rather than subentire), and the peristome does appear to be lacking.

Moreover, *M. dubium* has longer leaves and a shorter seta. From *M. dussii, M. crumianum* is clearly distinguished because it does not have apiculate or strongly plicate leaves and the upper cells do not seem to be significantly differentiated in length. Since the appearance of Grout's monograph of North American species of *Macromitrium*, Florschütz (1964) has reduced *M. dussii* to the synonymy of *M. leprieurii* Mont., which was originally described from French Guiana; Florschütz also described material from Suriname in detail and presented an original illustration of it. In Bartram's treatment of Guatemalan mosses (1949), the key to *Macromitrium* brings us directly to *M. cirrosum* (Hedw.) Broth., from which *M. crumianum* differs in several conspicuous ways, and particularly in the linear, incrassate and pitted leaf cells.

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Literature Cited

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