

**Type studies on *Frullania* subgenus *Meteoriopsis*
(Hepaticae).
V. *Frullania dulimensis* sp. nov. from Colombia**

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Abstract – *Frullania dulimensis* Uribe is described from the Tolima department of Colombia, at the high basin of Combeima river, on the southern slope of the Tolima volcano. The new species belongs to *Frullania* subgenus *Meteoriopsis* and can be recognized by its dentate leaf margin and the very short, 1-3 cells long teeth, which is a unique feature of this subgenus. Furthermore this species is characterized by very long, narrow, dentate underleaves, which are bifid to half of the leaf length.

***Frullania* subgenus *Meteoriopsis* / Hepaticae / Colombia / new species**

Resumen – Se describe *Frullania dulimensis* Uribe del departamento del Tolima en Colombia, cuenca del río Combeima, en la ladera sur del volcán nevado del Tolima. La nueva especie pertenece al subgénero *Meteoriopsis* y se puede reconocer por el margen de sus hojas dentado, dientes muy cortos, de una o tres células de longitud, un carácter único en este subgénero; los anfigastros muy delgados, bífidos hasta 1/2 de su longitud y con márgenes dentados.

***Frullania* subgénero *Meteoriopsis* / Hepáticas / Colombia / especie nueva**

During the revision of Colombian specimens of *Frullania*, a new species was discovered from Tolima volcano, at Central Cordillera. The new species is a member of the subgenus *Meteoriopsis* Spruce and differs from all other taxa of this subgenus by the dentate margins of leaves and underleaves.

Measurements and illustrations. The leaf-lobe length was measured as the distance from the basal insertion of the leaf-lobe on the stem to the apex of the leaf-lobe. The width was the widest point perpendicular to the length. The cell length is given as the largest cell diameter, and the width was measured perpendicular to the length. All measurements represent minimum-maximum values.

***Frullania dulimensis* Uribe sp. nov. Type.** Colombia, Tolima, Ibagué, Corre-gimiento Juntas, vía Boquerón, 3200 m. 27 mar 1986, *H. Esquivel* 3422 (holotype TOLI, Isotype COL). **Fig. 1**

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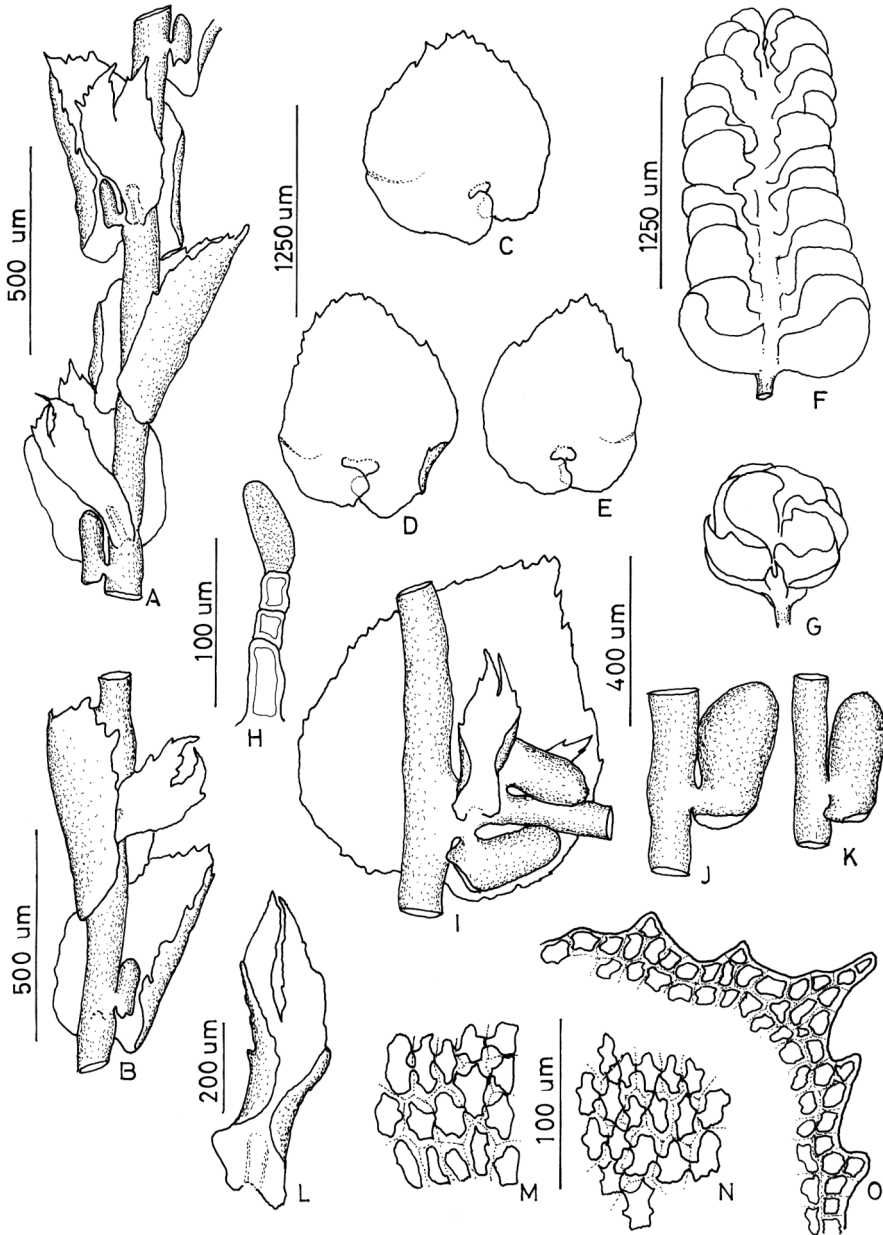


Fig. 1. *Frullania dulimensis* Uribe. **A, B:** Part of shoot, ventral view; **C, D, E:** Stem leaf-lobes; **F, G:** Androecia; **H:** Stylus; **I:** Branches appendages, first branch underleaf and first branches leaf; **J, K:** Leaf lobules; **L:** Stem underleaf; **M:** Basal leaf cells; **N:** Median leaf cells; **O:** Apical leaf cells. (All from type)

Dioica. Planta fusco-brunnea, laxe caespitans longeque pendula. Folia caulina contigua, saepe remota, symetrico-ovata, 1300-1500 μm lata, 1550-1600 μm longa, apicem acuta vel apiculata, basi profunde grosseque cordata, margine dentate. Amphigastria caulina oblonga, ad medium bifida, sinu angusto, lobis lanceolatis acutis, margine dentado.

Plants large, up to 16 cm long and 1 mm wide including leaves, reddish brown, irregularly pinnate, growing pendent. **Branches** frequent, of *Frullania*-type, to 10 cm long. **Stems** 70-120 μm wide. **Leaf-lobes** imbricate, convoluted around stem when either dry or wet, symmetrically ovate, plane, 1300-1500 \times 1550-1600 μm , apex short apiculate, sometimes slightly undulated, margins dentate, teeth very short, 1-2(3) cells long, dorsal base auriculate, arching over stem, ventral base auriculate, insertion line straight or curved. **Leaf-lobe cells:** apical cells (17-)20-25 \times 10-15(-17) μm , median cells (25-)27-32 \times 15-17(-20) μm , basal cells 32-42(-47) \times (12-)15-17(-20) μm , cell walls thick, sinuous, trigones conspicuous, intermediate thickenings present. **Leaf-lobules** cylindrical to clavate, 340-450 \times 160-220 μm , contiguous and parallel to stem. **Stylus** filiform, erect, three cells long, with terminal slime papilla, to 45 μm .

Underleaves ovate to rectangular, distant, up to 2 \times wider than stem, 540-600 \times 250-280 μm , margin dentate, recurved, bifid to 1/2 of length, segments acute or obtuse, base short auriculate, auricles very small, 20-25 μm , slightly undulate, insertion line slightly curved. **Branch appendages:** first branch underleaves (BUL1) divided to base into long ovate, dentate, bifid to 1/2, ventral segment with margin incurved and dorsal saccate segment; first branch leaf-lobes (BL1) transformed into 1 ventral saccate lobule and triangular, lanceolate dorsal segment. **Plants dioicous. Androecia** on short or long, capitate to spicate, to 1250 μm long branches, bracts in 4-5 to 12 series. **Gynoecia** not seen. **Perianth** not seen.

Distribution: This new species is known only from Tolima department of Colombia, at the high basin of the Combeima river, on the southern slope of the Tolima volcano at 3200 m, where it grows pendulous on tree branches of isolated trees in open areas. Accompanying liverworts are other pendulous *Frullania* species, namely *F. peruviana* Gottsche, *F. convoluta* Lindenb. & Hampe and *F. grandifolia* Steph.

As Uribe (2004) pointed out, the diagnostic characters of *Frullania* subgenus *Meteoriopsis* are the presence of a long-cylindrical lobule, an auriculate leaf-lobe base with auricles both antical and postical, and leaves wrapped around the stem when dry and wet. *Frullania dulimensis* is distinguished from all other species of this subgenus by its dentate leaf margins, short teeth of 1-3 cells, and its dentate and recurved underleaf margin.

Up to now, only one *Frullania* species with dentate leaf margins has been described from the Neotropics, namely *F. involuta* Hampe ex Steph. This species has been reported from Brazil, the West Indies, and the Galapagos Islands, but does not have two auricles at the leaf base. *Frullania involuta* belongs to subgenus *Thyopsiella* Spruce (Uribe & Gradstein, 2003) and is furthermore differentiated from *F. dulimensis* by its entire ventral leaf margin.

One other species of *Frullania* [*F. vaginata* (Sw.) Dumort.] with dentate leaf margins has been described from the Paleotropics (Verdoorn, 1930). The leaf teeth of this species are restricted to the dorsal margin and only the dorsal leaf base is auriculate; a character typical for subgenus *Thyopsiella*.

Etymology: The name of this new species refers to the Pijao Indian name (Dulima volcano) for the Tolima volcano, which they named after one of their gods.

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