# *Harpalejeunea rhizophylla* (Marchantiophyta: Lejeuneaceae) - a new species from Brazil

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**Abstract:** Peres-Silva R., Tourinho Pinheiro A.V., Silva M.S., Peralta D.F. (2025): *Harpalejeunea rhizophylla* (Marchantiophyta: Lejeuneaceae) - a new species from Brazil. *Frahmia.* 46:1-4*.

*Harpalejeunea rhizophylla* is described and illustrated from southern and central Brazil. The new species belongs to *Harpalejeunea s.str.* and is easily recognized by the elongated marginal cells of the lobes forming rhizoid-like projections, a unique feature within the genus. It resembles *H. tridens* and *H. zilmarii* in general morphology but differs from both by the presence of these elongate marginal cells; in *H. tridens* the lobe margins are dentate, whereas in *H. zilmarii* they are crenulate. *Harpalejeunea rhizophylla* represents the first record of the genus in Paraná and Mato Grosso states and extends the known morphological variation within *Harpalejeunea* in tropical South America.

**Key words:** Liverworts, new record, South America

## 1. Introduction

The genus *Harpalejeunea* (Spruce) Schiffn. is characterized by its small-sized plants and wide distribution across warm and temperate regions of the Americas, especially in lowland and tropical forest habitats (Gradstein & Schäfer-Verwimp 2011). According to Bánki (2024), 29 species are currently recognized worldwide, six of which occur in Brazil, including two endemics, *Harpalejeunea schiffneri* S.W. Arnell and *H. zilmarii* Costa & Rezende, recorded in the Cerrado, Atlantic Forest and Pantanal domains (Costa & Rezende 2022; Flora e Funga do Brasil 2025).
During a floristic survey in Iguaçu National Park, municipality of Céu Azul, Paraná state (25°05'54"S, 53°42'00"W, 598 m a.s.l.), a specimen of Lejeuneaceae was collected growing on other bryophytes in semideciduous forest under riparian influence. A second specimen was later found by A.V. Tourinho Pinheiro in Chapada dos Guimarães National Park, municipality of Chapada dos Guimarães, Mato Grosso state (15°24'25"S, 55°50'11"W, 509 m a.s.l.), on a gallery forest.

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Morphological analysis under light microscopy identified these specimens as representing a new species of *Harpalejeunea*, characterized by the cordate underleaves typical of the genus and by the presence of elongate marginal cells on the lobes forming rhizoid-like projections, a unique feature in the genus. Although *H. tridens* (Besch. & Spruce) Steph. and *H. zilmarii* Costa & Rezende (2022) share some morphological similarities, both lack the elongate marginal cells. In *H. tridens,* the lobe margin is dentate, while in *H. zilmarii* it is crenulate due to the shape of the marginal cells.

## 2. Description of the new species

### Taxonomic treatment

*Harpalejeunea rhizophylla* R. Peres-Silva & D.F. Peralta, sp. Nov. (Fig. 1)

**Type:** BRAZIL. Paraná: municipality of Foz do Iguaçu, Iguaçu National Park, trail to the headwaters of Rio Floriano, semideciduous forest under riparian influence, on bryophytes, 7 Sep 2018, *D.F. Peralta et al. 25021* (holotype SP).

*Specimens examined:* BRAZIL. Mato Grosso: municipality of Chapada dos Guimarães, Chapada dos Guimarães National Park, gallery forest, 7 Nov 2023, *D.F. Peralta et al. 30711, 30744* (SP).

**Diagnosis:** Plants pale green, old parts similar in color to the young, prostrate on the substrate. Stems fragile, 60–80 µm in diameter, cortical cells not or slightly larger than medullary cells; ventral merophyte 2(–3) cells wide; medullary cells thin-walled; ventral cortical cells distinctly larger than medullary cells. Branching irregular, of the *Lejeunea* type with *Radula* type innovations; branch bases without collar scars; distal portion of lobes not forming inflated sacs.
Leaves not differentiated when dry or moist, larger in older portions; shape orbicular-elongate; insertion oblique. Lobes flat, ovate, asymmetric, gradually acuminate toward the apex, 800–1000 µm long × 400–690 µm wide; proximal antical margin entire, distal margin crenulate-dentate due to cell projections, with elongate cells forming rhizoid-like projections; postictal margin arched, proximal portion entire, distal portion crenulate-dentate with elongate rhizoid-like cells; apex acuminate, ending in a uniseriate row of 3–6(–8) cells that often develop into rhizoids. Median lobe cells hexagonal, isodiametric, 30–35 µm long × 25–35 µm wide, smooth; trigones small, cell walls evenly thickened; oil bodies small, occasionally inconspicuous. Two ocelli at the lobe base, often visible below the lobule in ventral view. Lobule about ¼ the lobe length, inflated in the lower half, constricted distally, pyriform, 300–310 µm long × 100–120 µm wide; keel arched with conspicuous mammillose cells; free margin with a conspicuous inflated tooth and a hyaline papilla distal to it. Underleaves one per leaf pair, 80–100 µm wide × 90–100 µm long, as wide as or 1.5× the stem width, distant, sinus deeply divided (to more than half its length) into two rhombic, strongly diverging lobes; insertion line cuneate, 4 cells wide at base; margin entire. Sexual condition unknown (only female branches observed). Gynoecia on short branches, each with one *Lejeunea*-type innovation; female bracts nearly twice as large as the leaves, margins crenulate due to cell projections; female bracteoles entire; androecia not observed. Perianth and sporophyte not seen. Vegetative reproduction absent.

**Etymology:** The specific epithet rhizophylla alludes to the elongate marginal cells of the lobes forming rhizoid-like projections, a diagnostic character unique within *Harpalejeunea*.

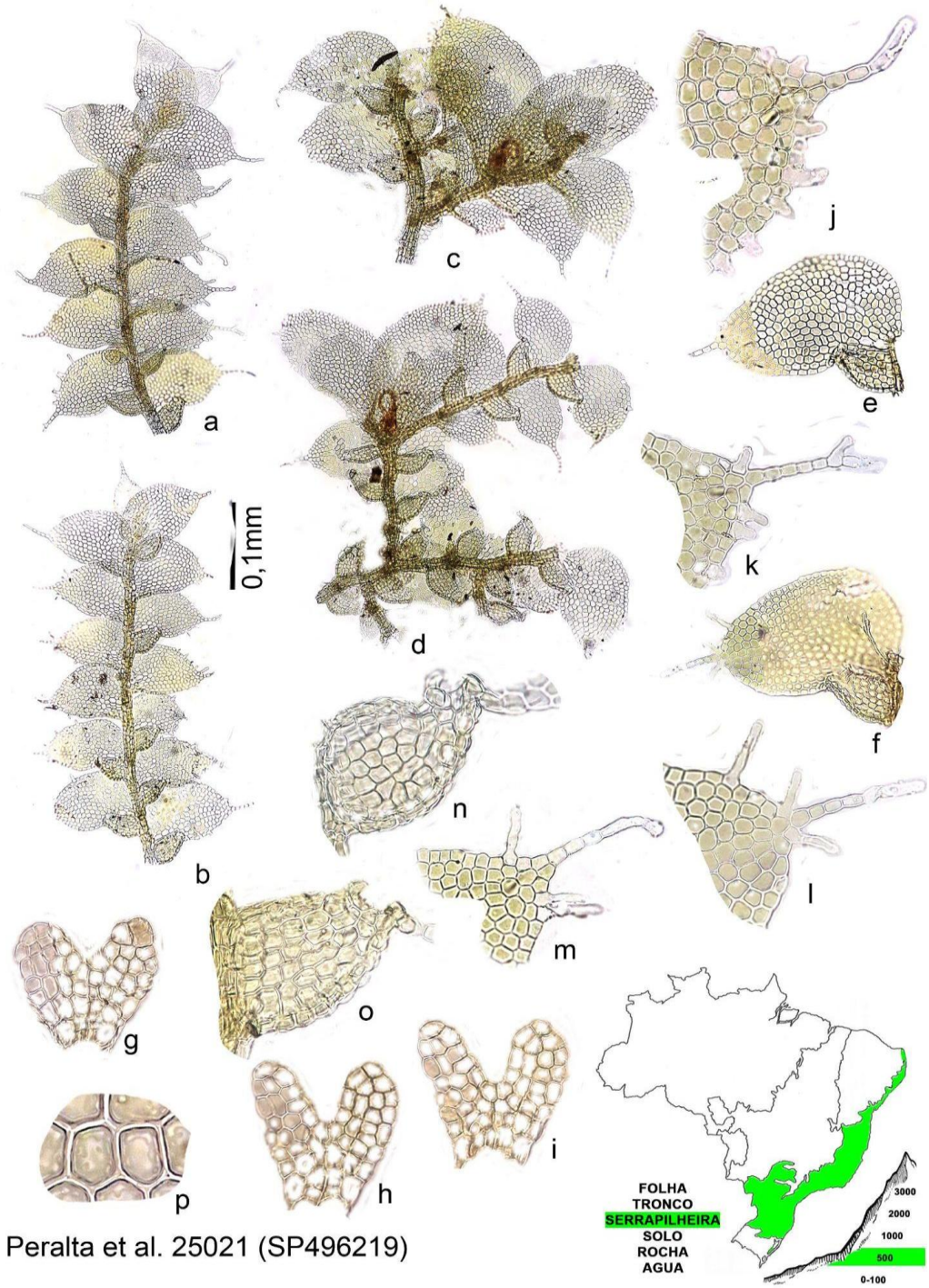


**Figure 1:** *Harpalejeunea rhizophylla* a–b, gametophyte habit; c–d, gynoecial branches; e–f, lobe; g–i, amphigastria; j–m, distal portion of the lobes; n–o, lobule; p, lobe cells **(*Peralta et al. 25021–SP*)**.

**Distribution and ecology:** *Harpalejeunea rhizophylla* is so far known only from two collections. It occurs in southern Brazil (Paraná state) in semideciduous forest with riparian influence at 598 m altitude, growing over other bryophytes, and in central-western Brazil (Mato Grosso state) at 509 m altitude, on living trunks in gallery forest.

**Key to species of *Harpalejeunea* with uniseriate apical cell rows and ornamented lobe margins**

**1** Dorsal lobe margin strongly crenulate due to the rhombic shape of marginal cells ..... *Harpalejeunea zilmarii*
**1*** Dorsal lobe margin dentate or ciliate ..... **2**
**2** Margin with 2–3 teeth composed of several cells ..... *Harpalejeunea tridens*
**2*** Margin with elongate marginal cells forming rhizoid-like projections ..... *Harpalejeunea rhizophylla*

## 3. Discussion

According to the classical subdivision of the family (Gradstein *et al.* 2001), *Harpalejeunea rhizophylla* belongs to subfamily Lejeuneoideae and tribe Lejeuneae, due to the one-celled lobule tooth and caducous leaves.
The species most similar to *H. rhizophylla* are *H. tridens* and *H. zilmarii*, both with ornamented dorsal lobe margins. However, neither presents elongate marginal cells producing rhizoid-like projections. In *H. tridens,* the margin is dentate, and in *H. zilmarii* it is crenulate. The presence of elongate marginal cells forming rhizoid-like projections is the most distinctive diagnostic feature of *H. rhizophylla,* making it easily separable from all known congeners.

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