

Cheilolejeunea ornata (Lejeuneaceae), a new species from Brazilian Atlantic Forest

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The genus *Cheilolejeunea* (Spruce) Schiffn. is represented by 16 species in Brazil (Gradstein & Costa, 2003; Bastos & Gradstein, 2006; Bastos, 2009). The most important generic character is the reduction of the first lobule tooth, making the hyaline papillae distal in position to the second tooth.

In recent years, some new neotropical species of the genus *Cheilolejeunea* were described, increasing the number of species for this biogeographic region: *Cheilolejeunea norisiae* Dauphin & Gradst. from Panama (Dauphin & Gradstein, 2003), *Cheilolejeunea lacerata* C. Bastos & Gradst. from Brazil (Bastos & Gradstein, 2006) and *Cheilolejeunea neblinensis* Ilkiu-Borges & Gradstein from Venezuela (Ilkiu-Borges & Gradstein, 2008). Furthermore, a new record for Brazil was published by Bastos (2009): *Cheilolejeunea compacta* (Steph.) E. Reiner.

While studying the genus in Brazil, an apparently undescribed species was detected from Atlantic Forest in Bahia State, Northeastern Brazil.

Cheilolejeunea ornata C. Bastos **sp. nov.** (Figure 1).

Cheilolejeunea oncophyllae (Ångstr.) Grolle & E. Reiner *similis*, *sed differt cellulis loborum papillois et statu dioico*.

Type. Brazil: Bahia, Igrapiúna, Michelin Ecological Reserve, 13°48'S, 39°10'W, Pacangê Forest fragment, 11 August 2006, C. Bastos 4681 (holotype, ALCB).

Paratype. Brazil: Bahia, Igrapiúna, Michelin Ecological Reserve, 13°48'S, 39°10'W, Pacangê Forest fragment, 11 August 2006, C. Bastos 4702p.p. (paratype, ALCB)

The specific epithet refers to the large papillae on the leaf cells.

Plants small, ca 400 μm wide, prostrate, brownish when dry, branches *Lejeunea*-type, basal collar small. *Stems* ca 50 μm wide, in cross section with 7–8 cortical cells and 6–7 medullary cells, thick-walled; cortical cells 13–17 \times 8–10 μm ; *ventral merophyte* 2 cells wide. *Leaves* widely spreading, imbricate to

contiguous. *Lobe* oblong-ovate, slightly falcate, 190–260 \times 150–200 μm , dorsal surface papillose, antical margin arched, strongly crenulate by projecting papillose cell, apex pointed, sharply apiculate to acute, recurved, postical margin slightly curved, crenulate by projecting papillose cells; *cells* oblong, 15–23 \times 10 μm , papillose, the papillae large, 10–12 μm high, one per cell, trigones large, sometimes confluent; *oil-bodies* coarsely segmented, few per cells, ocelli absent. *Lobule* strongly inflated, ovate, 105–140 \times 78–95 μm , free margin involute, apical tooth short, acute, with distal hyaline papillae, apical margin straight to oblique, keel arched, strongly roughened due to projecting papillose cells. *Underleaves* small, remote, 80–90 \times 78–95 μm , ca 1.5–2.0 times as wide as the stem, bifid to $\frac{1}{2}$, sinus V-shaped, lobes acute to obtuse, base cuneate, insertion line straight. *Dioicous*. *Androecia* on a short-specialized lateral branch with 2–3 pairs of bracts, lobule strongly inflated, hypostatic, keel strongly crenulate by projecting papillose cells, bracteoles restricted to the base of branch. *Gynoecium* not seen. Vegetative reproduction by cladia.

Corticolous, sometimes mixed with *Symbiezidium barbiflorum* (Lindenb. & Gottsche) A. Evans, in the Atlantic Forest of southern Bahia, northeastern Brazil.

Because of the pointed leaf apex, *C. ornata* is a member of *Cheilolejeunea* subgenus *Strepsilejeunea* (Spruce) R.M. Schust. The new species strongly resembles the neotropical *C. oncophylla* (Ångstr.) Grolle & E. Reiner, with which it has several characteristics in common (small plants, remote and small underleaves, vegetative reproduction by cladia). However, *C. ornata* differs from *C. oncophylla* by the following features: (i) strongly papillose lobe cells (mammillose in *C. oncophylla*) (ii) lobe apex acute to apiculate and curved (obtuse to acute, plane or slightly curved in *C. oncophylla*); and (iii) dioicous plants (*C. oncophylla* is autoicous). Although the plants size and general aspect of the gametophyte are similar in both species, the presence of large papillae on leaf cells and the dioicous conditions in *C. ornata*

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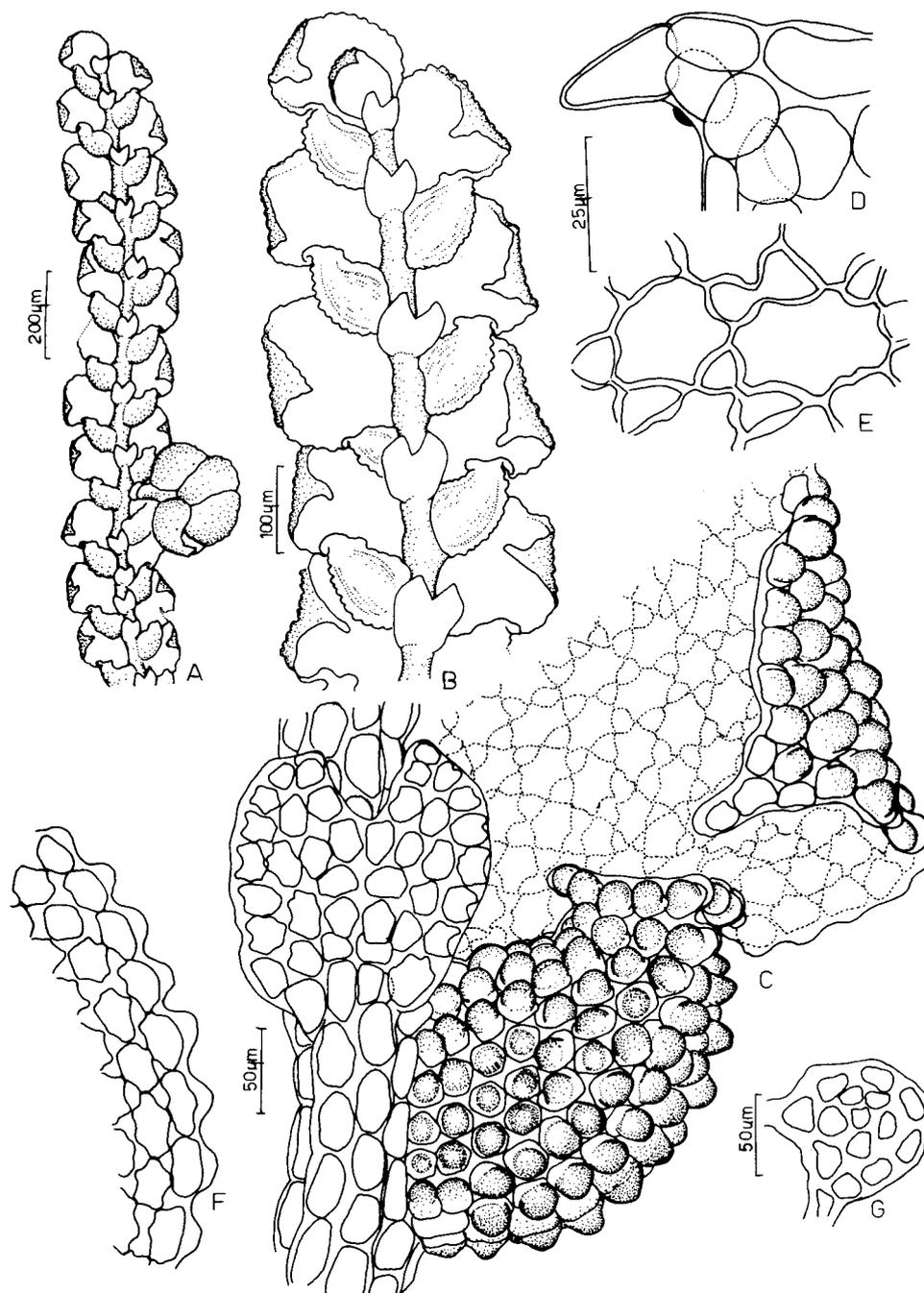


Figure 1 *Cheilolejeunea ornata* C. Bastos sp. nov. (C. Bastos 4681 – holotype): (A, B) gametophytes, ventral view; (C) underleaf and lobule; (D) apical tooth and hyaline papilla; (E) laminal cells; (F) leaf margin; (G) transverse section of the stem.

are important characteristics separating the two. *C. oncophylla* is a common species in Bahia state, growing in lowland and montane forest, even in the same site where the *C. ornata* was collected. No significant morphological variation was observed in the populations of *C. oncophylla*.

The new species also resembles *C. celata* M. Renner & Glenny (Renner & Glenny, 2003) recently described from New Zealand, both showing large papillae, small size and remote underleaves, but differs by the absence of papilla in the underleaves and the apiculate apex of the leaf lobe (rounded in *C. celata*). By the strongly papillose lobe cells the new species also resembles the neotropical *C. inflexa*

(Hampe ex Lehm.) Grolle, which was described and illustrated by Ye & Zhu (2009) and Gradstein & Ilkiu-Borges (2009). *C. inflexa* is a larger plant (0.7–1.5 mm wide) with larger (0.14–0.28 mm long, 0.21–0.55 mm wide), suborbicular underleaves with a deeply arched insertion line (Grolle & Reiner-Drehwald, 1997; Ye & Zhu, 2009; Gradstein & Ilkiu-Borges, 2009).

C. novaezelandiae R.M. Schust. from New Zealand and *C. subopaca* from India also have larger underleaves; *C. novaezelandiae* furthermore differs by the U-shaped sinus (V-shaped in *C. ornata*), and smooth lobule keel (Renner & Glenny, 2003), and *C. subopaca* by the different lobule shape, and the

presence of male bracteoles throughout the androecial spike (Ye & Zhu, 2009).

The populations of *C. ornata* came from preserved fragments of an Atlantic Forest in the south of Bahia (Michelin Reserve), northeastern Brazil, growing on tree trunks. Three other new species described in recent years are from the same region: *Pycnolejeunea porrectilobula* C. Bastos & O. Yano from Estação Veracruz (Bastos & Yano, 2002), *C. lacerata* C. Bastos & Gradstein from Estação Veracruz (Bastos & Gradstein, 2006), and *Hypnella symphyodontoides* S. Vilas Bôas-Bastos from Michelin Reserve (Vilas Bôas-Bastos, 2009). These occurrences may indicate that the Atlantic Forests of southern Bahia are relicts of a previously wider ranging forest. Furthermore, some important new species records were reported from this region (Bastos & Vilas Bôas-Bastos, 2000; Vilas Bôas-Bastos & Bastos, 2004; Bastos & Yano, 2003; Bastos, 2009). Preservation of these forest fragments is very important for the conservation and study of biodiversity, especially of Lejeuneaceae which are the most characteristic hepatics of tropical rain forest. Further analysis will be necessary to clarify the relationships and biogeography of these small, papillose species of the genus *Cheilolejeunea*.

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Taxonomic Additions and Changes: *Cheilolejeunea ornata* C. Bastos *sp. nov.*

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