

## COLOLEJEUNEA KUCIANA (LEJEUNEACEAE, MARCHANTIOPHYTA), ANOTHER NEW SPECIES FROM SOUTHERN ECUADOR

TAMAS PÓCS & ALFONS SCHÄFER-VERWIMP

**Abstract.** *Cololejeunea kuciana* Pócs & Schäfer-Verwimp (subgen. *Cololejeunea*) is described from the Ecuadorian Andes. The new species stands isolated in the Neotropics, having close relationships only with northern temperate species.

**Key words:** Andes, *Cololejeunea* subgenus *Cololejeunea*, Ecuador, new species

Tamás Pócs, Botany Department, Eszterházy College, Eger, Pf. 43, H-3301, Hungary; e-mail: colura@chello.hu  
Alfons Schäfer-Verwimp, Mittlere Letten 11, 88634 Herdwangen-Schönach, Germany; e-mail: moos.alfons@kabelbw.de

### INTRODUCTION

Recent fieldwork in southern Ecuador in one of the bryologically best known areas of the Northern Andes (Reserva Biológica San Francisco, prov. Zamora-Chinchipe, ca 1000 ha) brought to light another remarkable new species which is described below. From the same locality not long before *Diplasiolejeunea grandirostrata* Schäfer-Verwimp (2004) was published. León-Yáñez *et al.* (2006), Gradstein *et al.* (2007) and Kürschner and Parolly (2007) listed 527 species (320 liverworts, 204 mosses, 3 hornworts) from here, ‘being the highest number ever recorded from such a relatively small tropical area’.

### DESCRIPTION OF THE NEW SPECIES

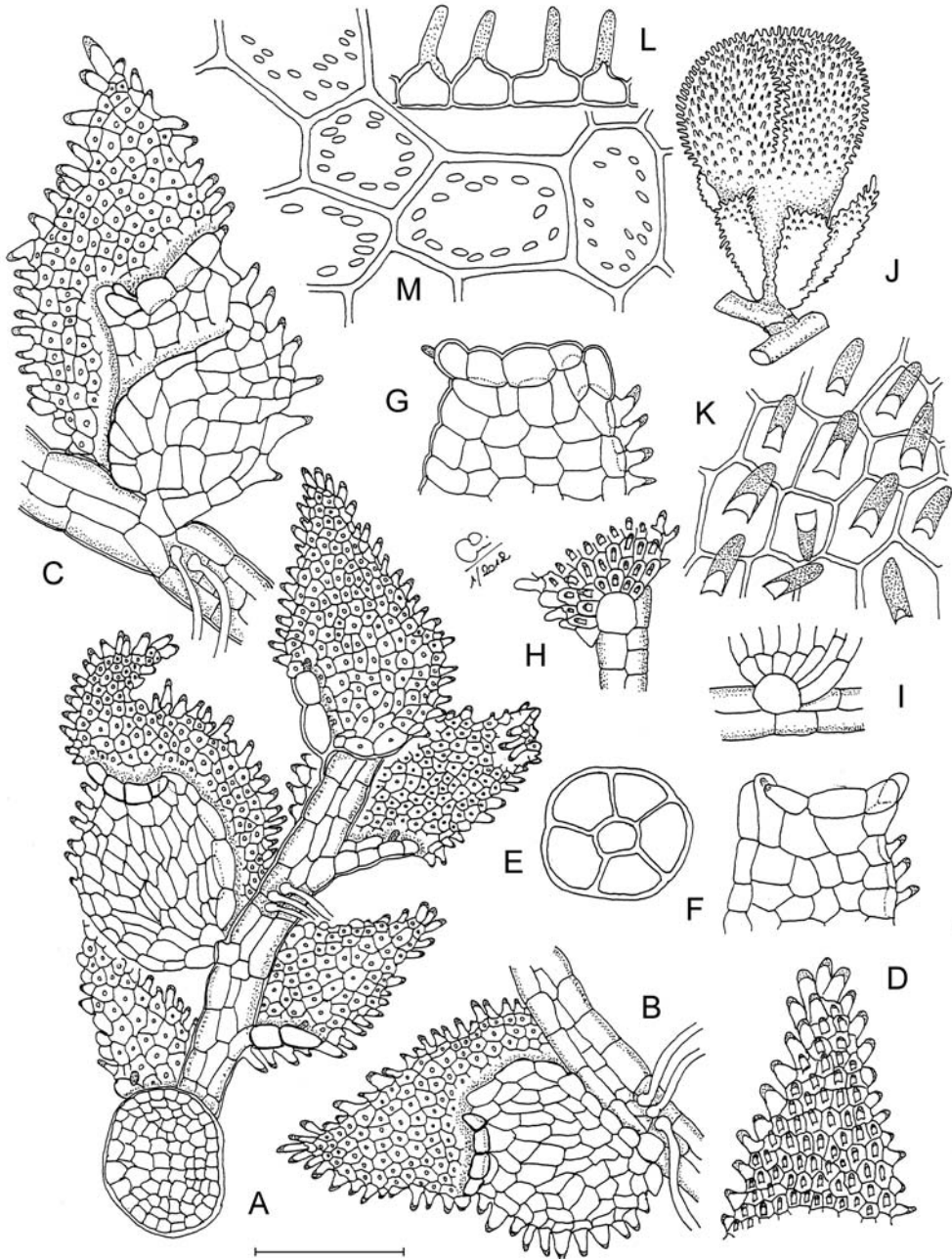
*Cololejeunea kuciana* Pócs & Schäfer-Verwimp, *sp. nov.* (subgenus *Cololejeunea*) Fig. 1

*Planta minuscula epiphylla pallide virescens*, Cololejeuneae rossettianae (C. Massal.) Schiffn. *similis*, sed *surculis multo angustioribus (ad 300 µm) lobulis laevigatis lateribus distantibus marginatis solum 3–4 cellulis inflatis.*

TYPE: ECUADOR, ZAMORA-CHINCHIPE, Reserva Biológica San Francisco ca 35 km east of Loja along road to Zamora, 3°58.7'S, 79°05.0'W, lower montane rain forest along ‘camino canal’, epiphyllous on Hy-

menophyllaceae, in association with *Cololejeunea si-caefolia*, *C. diaphana* and *Radula stenocalyx*, growing in the rather humid and shady understorey, 1890 m alt., 28 January 2011, A. Schäfer-Verwimp & M. Nebel 32062 (HOLOTYPE: STU; ISOTYPES: EGR, QCA).

Minuscule pale green epiphyllous plant with up to 300 µm wide, scarcely to moderately pinnately branching shoots, branches of the *Lejeunea* type. Stem 35–40 µm in diameter, composed of one medullar and 5 cortical rows of 24 × 30 µm cells, of which one forms the ventral merophyte, somewhat narrower than the lateral ones. Leaves ovate-lanceolate, lobe 180–220 × 120–150 µm, with acute apex and serrate margin formed by conically or digitally protuberant, mamilliform cells (10–14 µm wide × 16–22 µm long) with thickened apex. Apical and median lobe cells 5–6-angular, 16–20(–24) × (8)10–12 µm, each tipped on its dorsal side with a conical papilla of 10–20 µm height, also with thickened apex. Basal lobe cells often elongated, up to 50 × 8 µm. Oil bodies of *Massula* type, 10–15(–18) per cell, each ca 1.5–2.5 × 1–1.5 µm in size. Lobule ovate with truncate apex, when well developed, occupying more than half of lobe length and width, often reduced, when reduced consisting of only 2 inflated marginal cells, the distal one tipped by the hyaline papilla; distal lobule margin formed by a row of



**Fig. 1.** *Cololejeunea kuciana* Pócs & Schäfer-Verwimp. A – part of plant with rhizoid disc, ventral view; B – leaf lobe with fully developed lobule, ventral view, 220  $\mu\text{m}$  long  $\times$  160  $\mu\text{m}$  wide; C – leaf lobe with fully developed lobule, ventral view, 120  $\mu\text{m}$  long  $\times$  90  $\mu\text{m}$  wide; D – apex of leaf lobe, dorsal view; E – cross section of stem, 40  $\mu\text{m}$  wide; F & G – detail of lobule apex; H & I – insertion of leaf lobe, dorsal and ventral view; J – perianth with bracts; K – cells of upper part of perianth surface; L – marginal cells of perianth keel; M – cells of lower central leaf lobe, with oil bodies (papillae omitted). Scale bars: for A = 100  $\mu\text{m}$ , D = 90  $\mu\text{m}$ , F & G = 60  $\mu\text{m}$ , H & I = 110  $\mu\text{m}$ , J = 200  $\mu\text{m}$ , K & L = 50  $\mu\text{m}$ , M = 20  $\mu\text{m}$ . All figures are drawn from the holotype.

3–4 enlarged cells, the uppermost one being the first tooth, tipped by the hyaline papilla; second tooth blunt, separated only by one cell from the first one, 5–8 cells form the free lobule margin; lobule surface smooth except for the keel, which is serrate, similarly to the lobe margins. Style not seen. Rhizoid initials sometimes developing into rounded, 7–12 cells wide rhizoid discs. Gynoecea developing on very abbreviated lateral branches, bracts about as long as wide or little longer, the lobe up to 150  $\mu\text{m}$  long and 80  $\mu\text{m}$  wide, the lobule up to 130(–140)  $\mu\text{m}$  long and 70  $\mu\text{m}$  wide, more or less spreading or slightly sheathing the perianth, obscurely complicate, keel rounded, margins of bract lobes and lobules like leaf margins, a few cell rows from margin with spinose-tuberculate cells. Perianth 375  $\times$  225  $\mu\text{m}$ , obovate with cuneate base and rounded apex, spinosely papillose, nearly eplicate or with 5 rather weakly marked keels; cells in the upper 2/3 of the perianth square to pentagonal, 18–22  $\mu\text{m}$ , each prolonged into a 18–20  $\mu\text{m}$  long, acute papilla with thickened wall while in the lower 1/3 smooth; perianth beak not developed. Androecea and sporophyte not seen. Asexual reproduction is not known.

**ETYMOLOGY.** The species is named to commemorate the recently deceased, renowned Polish-Canadian bryologist, Dr. Marian Kuc.

#### DISCUSSION

The new species stands very isolated among the Neotropical species of *Cololejeunea* subgen. *Cololejeunea*, a subgenus which is characterised by the conically or digitally elevated mammillae covering all over the dorsal surface of lobe, bracts and the perianth, which is not compressed. To this subgenus only a few true Neotropical species belong, as *Cololejeunea thiersana* Tixier, *C. contractiloba* (A. Evans) R. M. Schust., *C. cristallina* Herz. It is most closely related to the North American–Japanese *Cololejeunea ornata* A. Evans, the European *C. calcarea* (Lib.) Schiffn. and *C. rossettiana*

(C. Massal.) Schiffn., and some Southeast Asian species including *Cololejeunea kodamae* Kamim., *C. pseudocristallina* P. C. Chen & P. C. Wu (see Mizutani 1961; Paton 1999; Schuster 1980; Zhu & So 2001). *Cololejeunea kuciana* differs from all of them by the distal (apical) margin of the lobule formed by 3–4 enlarged cells, which may constitute alone a reduced lobule. From *C. ornata* and *C. rossettiana* the new species differs furthermore by the smooth lobule surface (papillose in *C. ornata* and *C. rossettiana*) and from *C. calcarea* and *C. ornata* by the absence of a stylus (present and large in *C. calcarea* and *C. ornata*).

**ACKNOWLEDGEMENTS.** Fieldwork in Ecuador by the second author in the framework of the ABA-GAM project was supported by the German Research Foundation (grant LE 1826/4-1). The authors are grateful to the anonymous reviewer for his valuable comments.

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