

NEW OR LITTLE KNOWN EPIPHYLLOUS LIVERWORTS, XIII. *COLOLEJEUNEA ARFAKIANA* SP. NOV. FROM WEST IRIAN (NEW GUINEA)

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Abstract. A new epiphyllous liverwort species, *Cololejeunea arfakiana* Pócs & Eggers, is described from the Arfak Mountains on Vogelkop Peninsula in West Irian. The most striking character of the new species is the presence of numerous scattered, rust-brown ocelli in the leaves, combined with a ligular stylus usually 2 cells wide.

Key words: Arfak Mts, *Cololejeunea*, epiphylls, Irian Jahya, Lejeuneaceae, New Guinea, ocelli

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INTRODUCTION

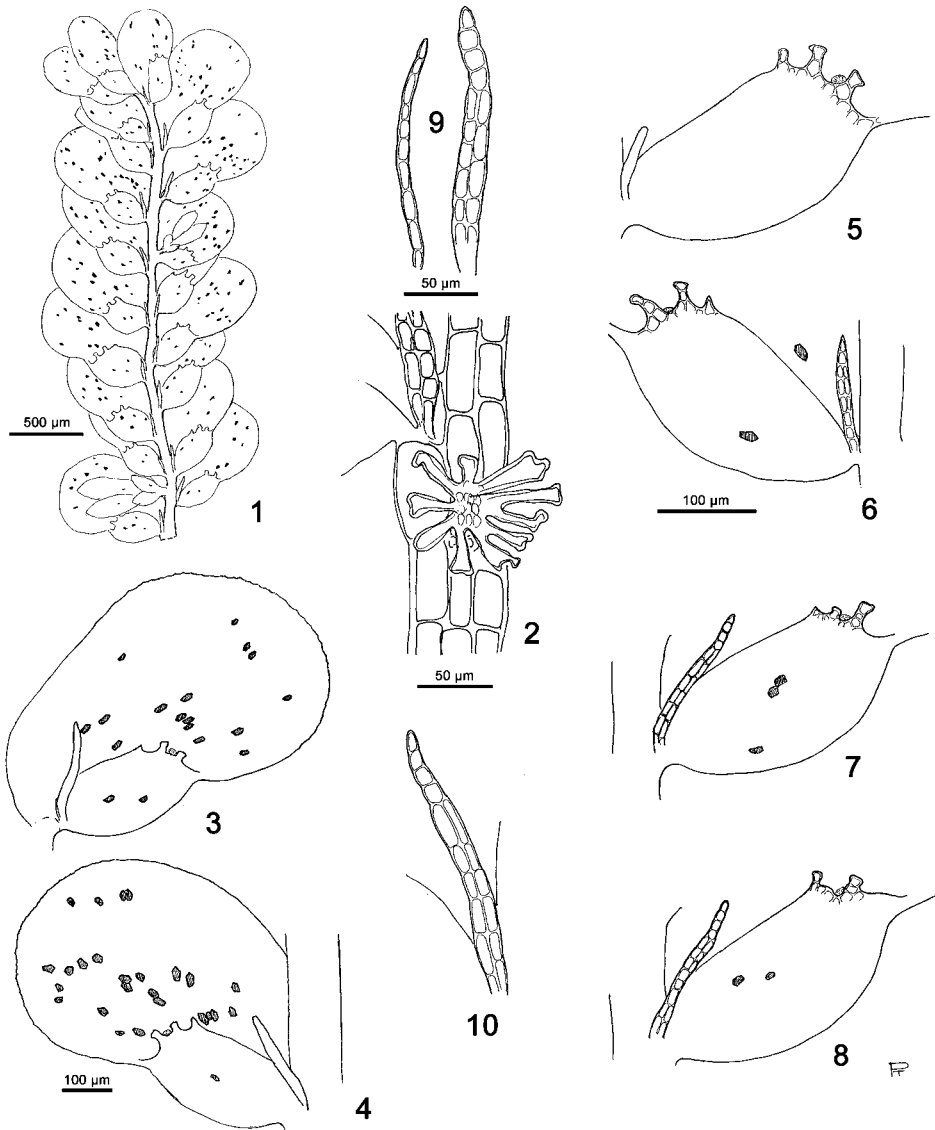
Although 49 species of *Cololejeunea* (Spruce) Schiffn. are known from New Guinea (Grolle & Piippo 1984; Pócs *et al.* 1994; Eggers 2006), including the nine species described under *Aphanolejeunea* (Pócs & Piippo 1999), the large island still has many unknown novelties to be discovered. Marianne Lenz (Hamburg, Germany) kindly placed at our disposal her epiphyllous collection made in 1995 in Irian Jahya, which contained – beside the already published *Cololejeunea norrisii*, *C. sigmoidea* and *C. wightii*, which were new for the country (Eggers 2006) – an interesting unknown species of *Cololejeunea*. The peculiarity of this species, seen even under a dissecting microscope, is its dotted appearance caused by numerous scattered, rust-brown ocelli, giving an appearance similar to members of genus *Pictolejeunea*. This character was hitherto unknown in the genus *Cololejeunea*. Ocelli occur in the form of a vitta within the subgenus *Taenilejeunea* (Zwickel) Benedix (Benedix 1953), but here they are not scattered and colorful. In addition a ligular stylus 6–10 cells long and usually 2 cells wide is also present in our species, a rare phenomenon among *Cololejeunea* species. This combination of characters makes the new species unique.

DESCRIPTION

Cololejeunea arfakiana Pócs & Eggers, *sp. nov.*
(Figs 1–20)

Planta epiphylla, sicca pallide brunnescens, caulibus ad 5 mm longis, cum foliis 1.0–1.2 mm latis, diametro 60 µm, foliis imbricatis obovatis ocellis dispersis rubiginoso-brunnescentibus ornatis. Lobulus 0.4–0.5 longitudinis lobi, elongate ovatus, tri- vel bidentatus dentibus saepe malleiformibus. Stylus ligulatus, 6–10 cellulae longus et (1)2 cellulae latus. Gemmae non videtur. Autoica. Androecia apicales vel laterales, subsessilia, 2–3 jugata. Gynoecia lateralia, brevipedicillata, bracteolis leviter obtuse bilobata. Perianthium pyriformis, bialatus.

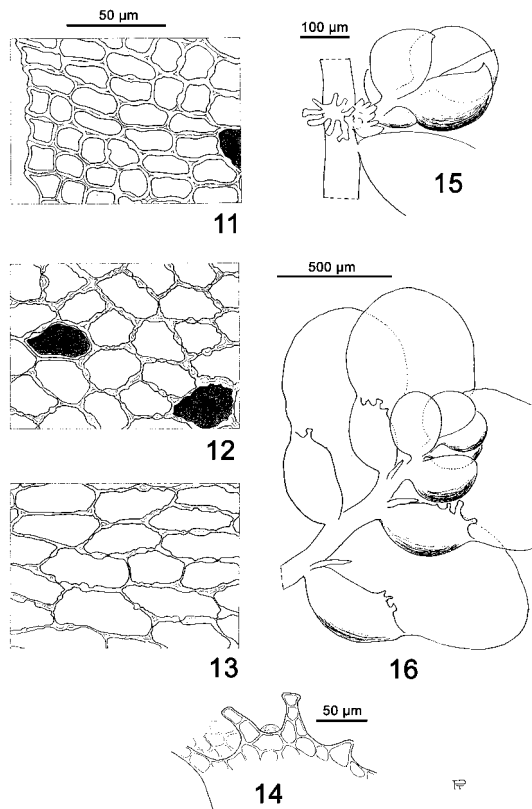
Plants epiphyllous, small, in herbarium dull, pale brownish, not branching. Shoots to 5 mm long, with leaves 1.0–1.4 mm wide, appressed to the leaf surface. Stem 60 µm in diameter, with ventral merophyte 1 cell wide. Leaves imbricate, obovate, 450–600 × 700–960 µm, with many (18–30) scattered, rust-brown ocelli not different in size and shape from normal leaf cells. Median lobe cells 18–25 × 25–32 µm, with angular and intermediate thickenings, marginal and apical cells 8–15 × 10–20 µm and basal cells 15–22 ×



Figs 1–10. *Cololejeunea arfakiana* Pócs & Eggers, *sp. nov.* 1 – habit, ventral view, 2 – stem fraction, ventral view, 3 & 4 – leaves, 5–8 – lobules, 9 & 10 – styli (all drawn from the holotype).

30–55 µm large. Lobule of 0.4–0.5 lobe length, asymmetrically elongate ovate, saccate with arched vitta and straight free margin. Usually 3 (seldom 2 or even 4) lobule teeth present, the first 2 mostly hammer-shaped or truncate, 2-celled, the innermost one often unicellular and triangular. Hyaline papilla usually present, entally attached to proximal base of first tooth. Stylus large, ligu-

late, 6–10 cells long, usually 2 cells wide (sometimes only 1 cell wide). Autoicous, with apical and lateral, very short male branches consisting of 2–3 pairs of bracts. Gynoecia lateral, almost sessile on short side branches, bracts slightly and shortly bilobate. Bract cells irregular in shape with bulging trigones and intermediate thickenings. Perianth obpyriform, 0.7 × 1.2 mm, with 2 sharp



Figs 11–16. *Cololejeunea arfakiana* Pócs & Eggers, *sp. nov.* 11 – marginal, 12 – median, 13 – basal lobe cells; 14 – lobule teeth, 15 – lateral male branch, 16 – apical androecium (all drawn from the holotype).

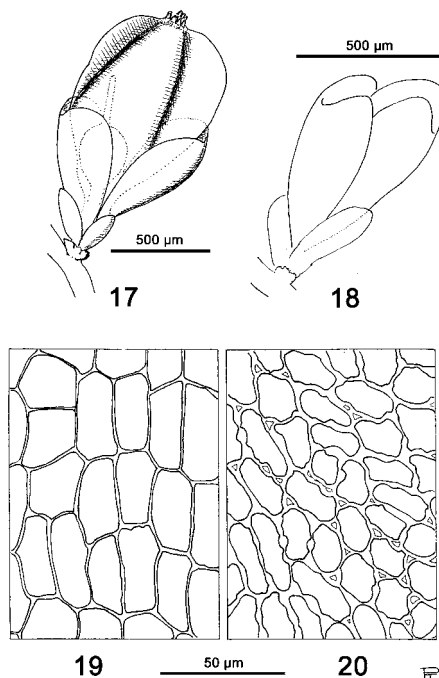
wings and 2 confluent ventral keels. Beak 1 cell high, consisting of separate cells. Perianth built up of rectangular cells with relative thin, evenly thickened walls.

HOLOTYPE: INDONESIA, IRIAN JAHYA (West New Guinea), Vogelkop Peninsula, Arfak Mts., 1850 m alt. Epiphyllous on shrub leaf in montane rain forest, growing together with *Cololejeunea* sp., *Tuyamaella serratistipa*, *Cheilolejeunea vittata* and with *Leptolejeunea amphiophthalmalma*. 8 August 1995, coll. M. Lenz (EGR ex Herb. Jens Eggers No. NG 1/120).

PARATYPE: ARFAK MTS, 1330 m alt., epiphyllous on fern leaf in montane rain forest, growing together with *Leptolejeunea amphiophthalmalma*, *Drepanolejeunea nymanii*, *Cheilolejeunea trapezia*, *Metzgeriopsis pusilla* and with *Cololejeunea* sp. 7 August 1995, coll. M. Lenz (Herb. Jens Eggers No. NG 1/46).

DISCUSSION

This new species seems to be a peculiar, isolated case; to our knowledge it is the only member of the genus *Cololejeunea* with scattered ocelli. Studying the rich *Cololejeunea* material from New Guinea from the herbaria H and L, we did not see any similar taxon. Ligular styli 2 or more cells wide occur only in a few other species in different subgenera, as for example in *Cololejeunea bolovenensis* Tixier (Tixier 1973) from Indochina or *Cololejeunea ornata* Evans (Evans 1938) from North America and the Far East. The former genus *Jovetastella* (Tixier 1974), with a ligulate stylus 4 cells broad, also proved to be a member of the genus *Cololejeunea* (Grolle 1975). Even species with filiform styli consisting of 1 cell row are not too common within the genus. *Cololejeunea arfakiana* seems to be a very isolated taxon endemic to West Irian. Further studies may determine that it merits its own subgenus.



Figs 17–20. *Cololejeunea arfakiana* Pócs & Eggers, *sp. nov.* 17 – female branch with perianth, 18 – female bracts, 19 – cells of perianth wall, 20 – cells of female bract (17, 19 and 20 drawn from the holotype, 18 from the paratype).

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