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RÉSUMÉ — *Colura mauritiana* et *Drepanolejeunea helenae,* hépatiques épiphylles et corticoles des Mascareignes, sont décrites comme espèces nouvelles pour la science. *Colura mauritiana,* de l'île Maurice, appartient à la section *Harmophyllum* bien qu'elle ait une ressemblance superficielle avec *C. meijeri*, membre asiatique de la section *Gamolepis*. *Drepanolejeunea helenae,* de l'île de la Réunion, est affine de *D. ankasica* de l'Afrique occidentale (Ghana). Sa place dans un sous-genre demeure indéterminée. Les deux espèces sont restreintes à une aire limitée sur les îles concernées et semblent endémiques.

SUMMARY — *Colura mauritiana* and *Drepanolejeunea helenae* are described as new to science. Both species occur as epiphyllous and corticolous in the Mascarene islands, the first from Mauritius and the second from Réunion. *Colura mauritiana* belongs to the section *Harmophyllum* although showing superficial resemblance to *C. meijeri*, an Asian member of section *Gamolepis*. *Drepanolejeunea helenae* is related to the West African (Ghana) *D. ankasica*. Its subgeneric place is uncertain. Both species are restricted to a small area within the concerned islands and seem to be endemic.

KEY WORDS: epiphylls, Lejeuneaceae, Colura, Drepanolejeunea, Mascarenes.

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NEW OR LITTLE KNOWN EPIPHYLLOUS LIVERWORTS, VII. TWO NEW LEJEUNEACEAE SPECIES FROM THE MASCARENE ISLANDS

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RÉSUMÉ — *Colura mauritiana* et *Drepanolejeunea helenae,* hépatiques épiphylles et corticoles des Mascareignes, sont décrites comme espèces nouvelles pour la science. *Colura mauritiana,* de l'île Maurice, appartient à la section *Harmophyllum* bien qu'elle ait une ressemblance superficielle avec *C. meijeri,* membre asiatique de la section *Gamolepis. Drepanolejeunea helenae,* de l'île de la Réunion, est affine de *D. ankasica* de l'Afrique occidentale (Ghana). Sa place dans un sous-genre demeure indéterminée. Les deux espèces sont restreintes à une aire limitée sur les îles concernées et semblent endémiques.

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KEY WORDS: epiphylls, Lejeuneaceae, Colura, Drepanolejeunea, Mascarenes.

The bryological exploration of the Mascarene Islands is the part of the Bryologia Africana project initiated by Prof. P.W. Richards (1984). I paid special attention to the rich hepatic flora of the Indian Ocean islands (recently catalogued by Grolle 1995), which, according to studies made by different authors in the last two decades, is still quite underexplored and may yield many novelties (Pócs, 1993, 1995).

Members of our Department made intensive studies on the bryoflora of Mascarene Islands, in collaboration with the Muséum d'Histoire Naturelle de Saint Denis, Réunion, with the Conservatoire Botanique and with the Université de la Réunion, France and with the Herbarium of Sugar Research Institute, Mauritius. In 1994, 1995 and 1996 three consecutive collecting trips took place in Réunion and two on Mauritius Island. Our aim, apart from the floristic and taxonomic exploration, was to study in detail the cryptogamic vegetation of Réunion Island. The present publication deals with 2 new species resulting from these studies, when numerous relevés were made (cf. also Pócs & Tóthmérész in press) and hundreds of samples were identified.

By the description of the habitats of new species, the nomenclature of accompanying species is according to Grolle (1995), Wigginton & Grolle (1996) and O'Shea (1995), where the authors' names also can be found.

Colura mauritiana Pócs sp. nov. (Sectio *Harmophyllum* Grolle) Pl. 1 (Figs. 1-9)

Diagnosis — *Planta epiphylla vel ramicola pallide virens vel flavovirens caulibus irregulariter ramosis, ad 5 mm longis, 50-90 μm crassis et cum foliis 1.5-2 mm latis. Folia contigua, 0.6-1.2 mm longa et 0.3-0.5 mm lata sacculis claviformibus apicibus late hemisphaericis. Clypeus late orbicularis cellulis 7-11 centralibus et 14-15 marginalibus composita. Amphigastria acutilobata lobis 4-5 cellulae lata. Gemmae 32 cellulosae. Ceterae desunt.*

Holotypus: Mauritius, *Pócs 9530/H* (EGR; Isotypi: MAU, PC). Paratypi:*Pócs 9529/BJ* (EGR) et *9531/C* (EGR).

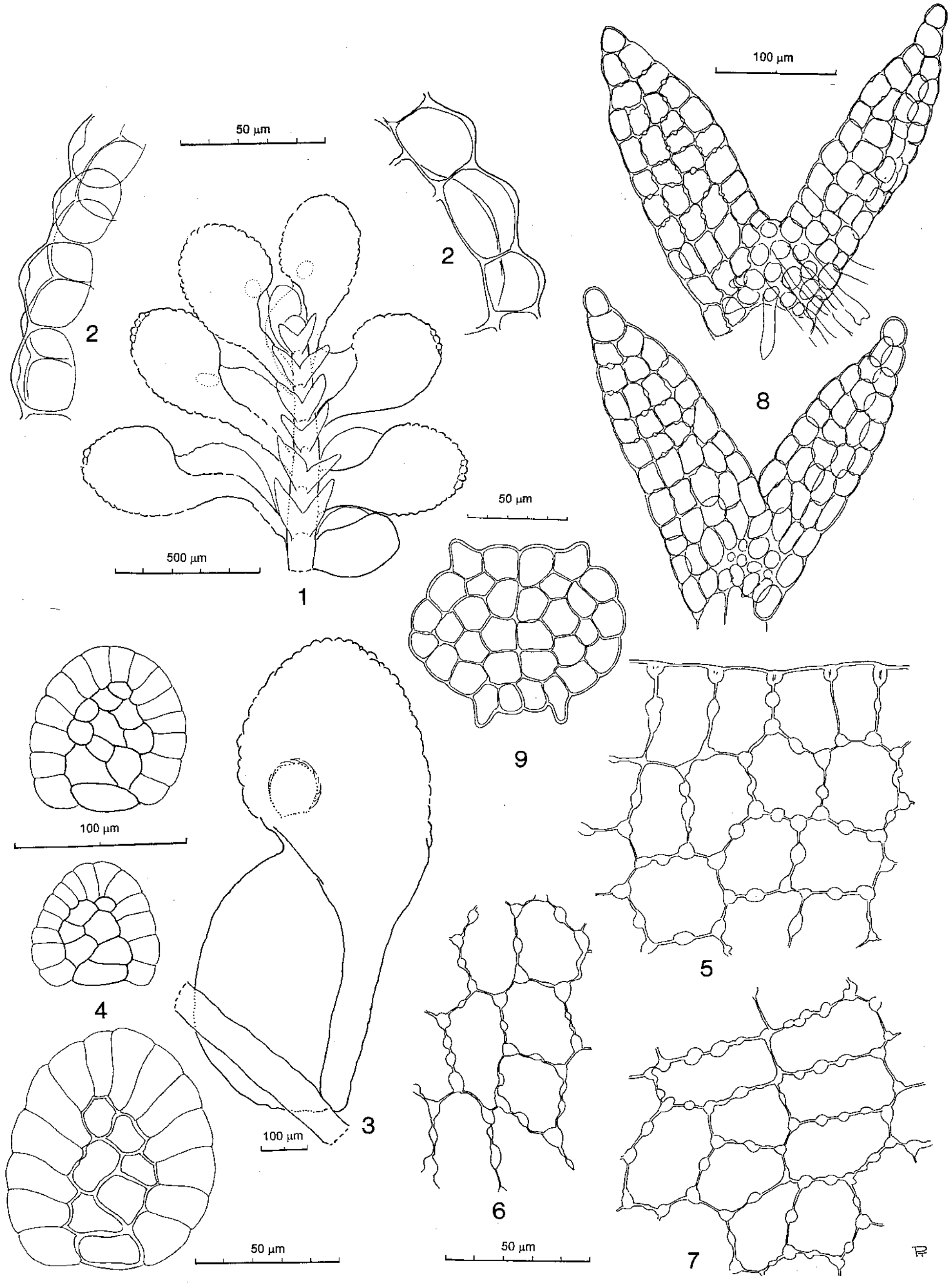
Description — Epiphyllous or ramicolous, pale or yellowish green with solitary or slightly branching shoots of 1.5-2 mm width and up to 5 mm length or forming 2-3 mm large, dense patches. Stems 50-90 μm thick, with 7 rows of cortical and 3 rows of medullary cells (4 rows near the leaf insertion), with evenly thickened walls. Lobes with entire margin, sac claviform, with a broad hemisphaeric and sometimes crestlike, conically protuberant group of cells. Lobe and sac cells 20-30 x 30-40 μm, with heart-shaped trigones and 1-3 intermediate thickenings per wall. Valve broad ovate or orbicular, with 14-15 hyaline marginal, 6-10 central cells and with 1 basal median cell. Hinge formed by 3 cells, frame around the valve by 7-9 cells and with a hyaline papilla.

Underleaves with 60-95 μm broad, lanceolate lobes that are 4-5 cells wide at their bases. Gemmae of 32 cells, with 4 growing points. Gametangia and sporophyte not observed.

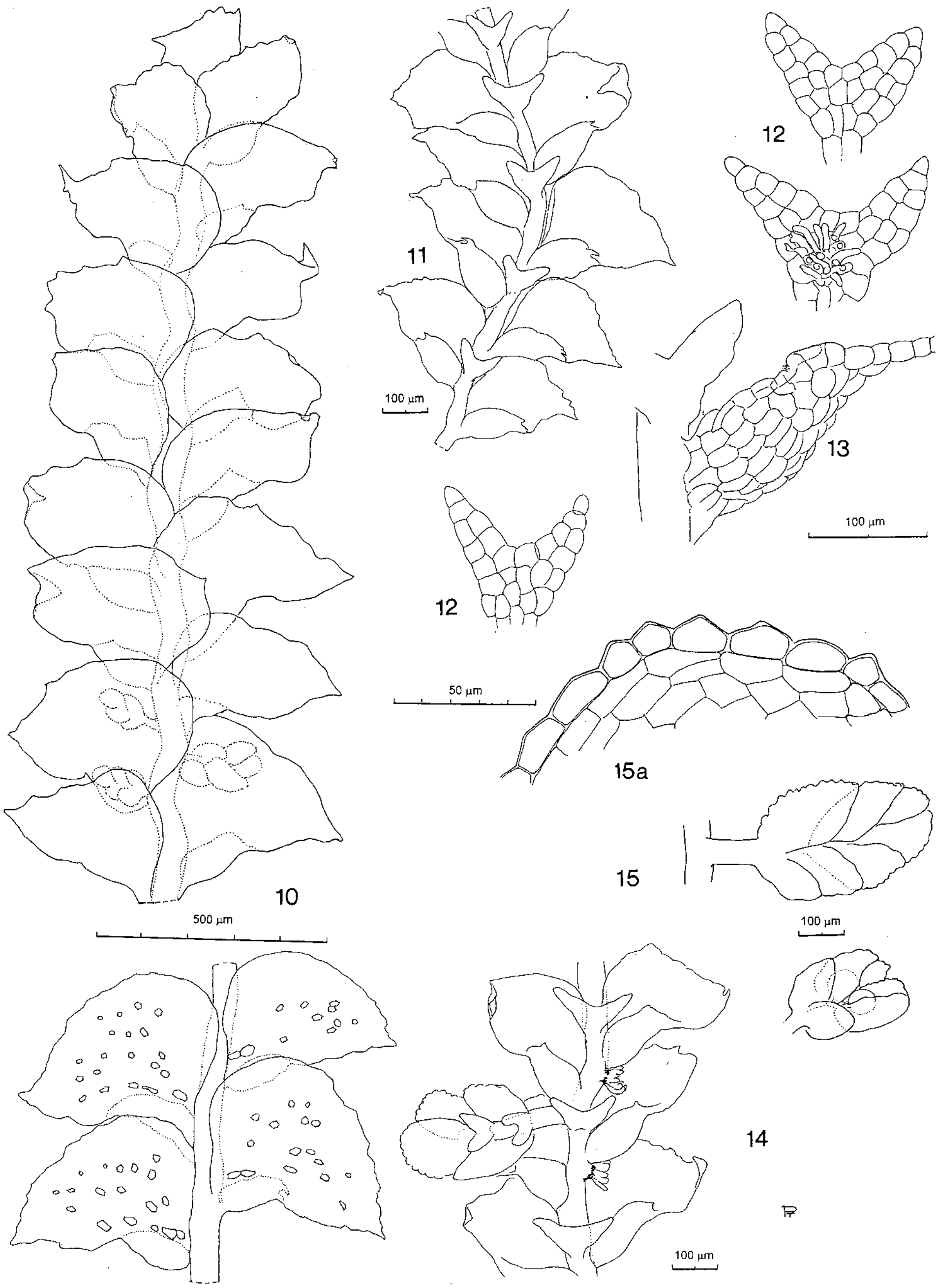
Specimens examined — **Mauritius: Perrier Nature Reserve** in the neighbourhood of Mare aux Vacoas, submontane *Sideroxylon* thicket with *Trochetia* and with *Cyathea borbonica*, at 540 m alt., 20°21′50″ S, 57°29′30″ E. epiphyllous, on *Syderoxylon puberulum* leaf, associated with *Cheilolejeunea serpentina, Ch. surrepens, Cololejeunea marginata, C. cristata, Colura digitalis, C. heimii, C. obvoluta, Diplasiolejeunea cavifolia, D. comorensis, Drepanolejeunea madagascariensis, D. trematodes* and all transitions between the two, *Lejeunea tabularis* s.l., *L. caespitosa, Leptolejeunea maculata* and others (*S.& T. Pócs 9529/BJ*, Paratypus, EGR). **Black River Gorges National Park: Le Petrin Nature Reserve**. *Philippia brachyphylla* heath with scattered trees, at 650 m alt. 20°25′S, 57°28′20″ E, creeping on *Philippia* twigs, accompanied by *Cheilolejeunea trifaria, Drepanolejeunea vesiculosa, Frullania onraedtii, F. serrata, Leucoloma dichelymoides* and by *Leucoloma grimmioides* (*T. Pócs 9530/H*, Holotype: EGR, Isotypes: MAU, PC). **Macchabée Upland Climax Forest Reserve** in the canopy with *Labourdonnaisia* at 640 m alt. near the road junction, 20°24′30″ S, 57°27′50″ E. Epiphyllous on naturalized *Psidium cattleyanum* leaves, accompanied by *Cololejeunea zenkeri* and by *Frullania purpurea* and corticolous, accompanied by *Drepanolejeunea cambouena* and by *Jamesoniella contracta* (*T. Pócs 9531/C*, Paratypus in the microslide collection of EGR).

All the above collections were made on the 17th March, 1995, when we were with my wife guided and accompanied by Mr. Joseph Guého and by Miss Danielle Florens, from the National Herbarium in Mauritius Sugar Industry Research Institute, Réduit.

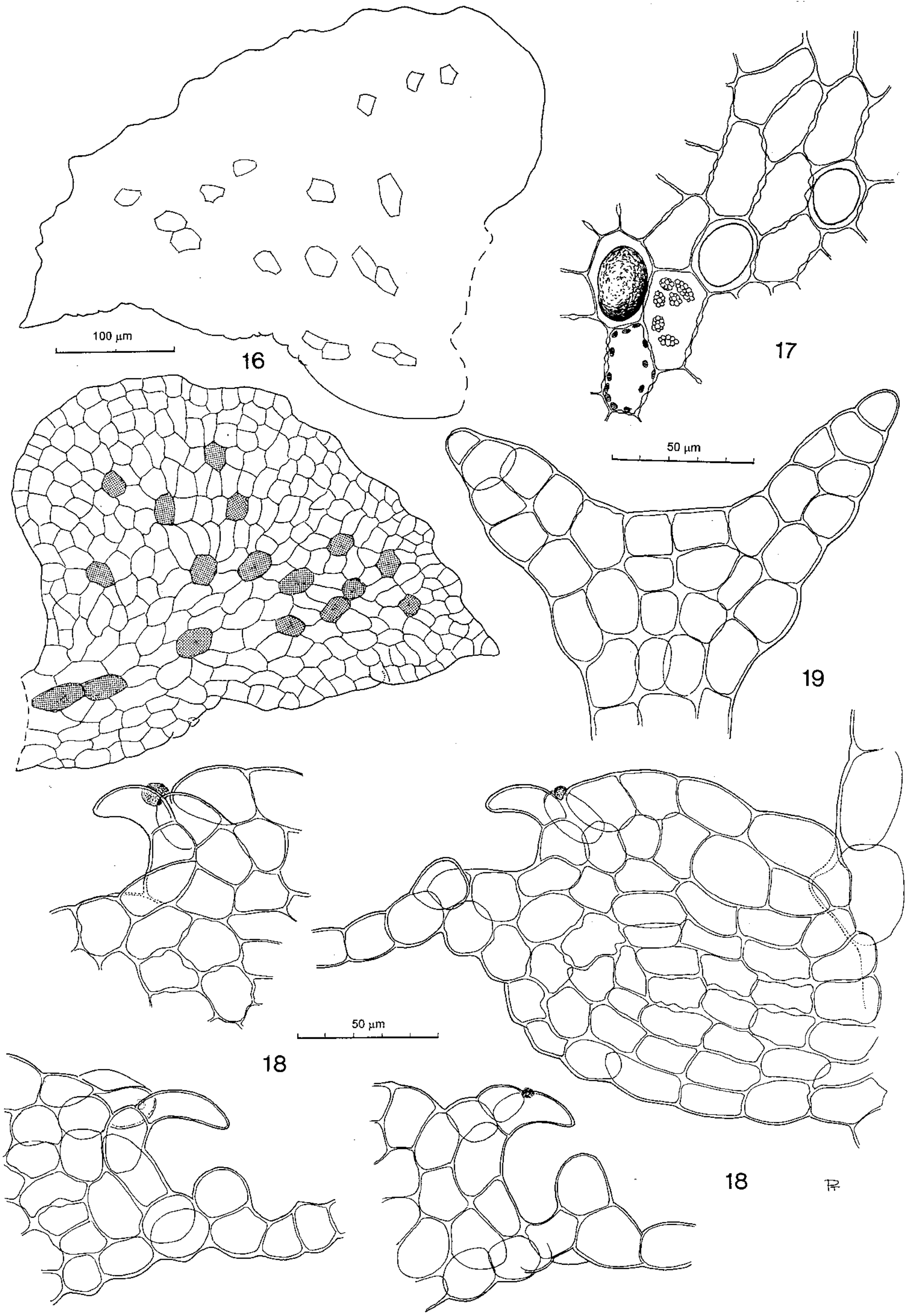
Colura mauritiana has a superficial resemblance to the Asian *Colura meijeri* Jovet-Ast, but the latter belongs to Section *Gamolepis*, which according to Jovet-Ast (1953) has a valve fused to the hinge and of many more (40-60) cells. The valve of *C.*



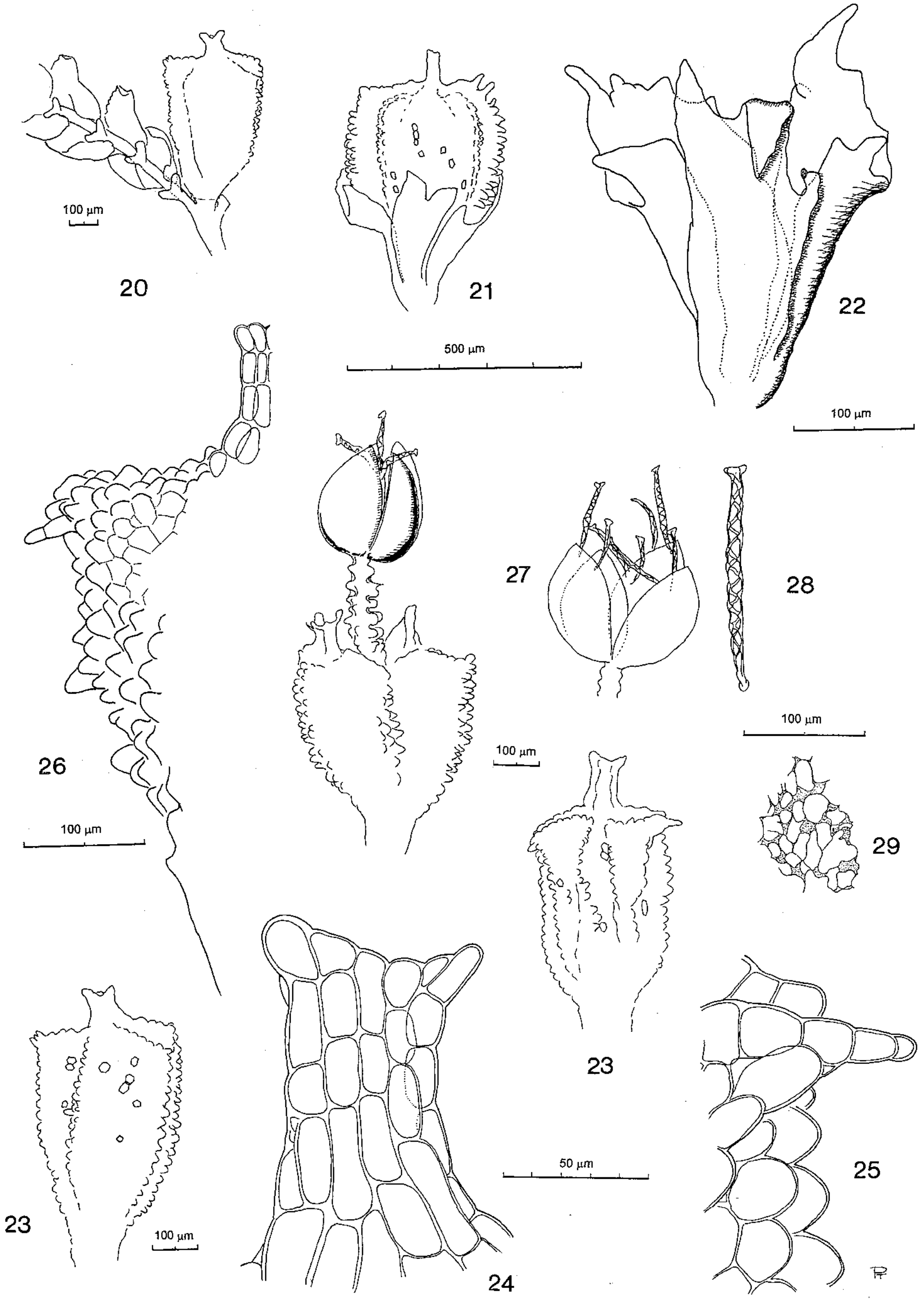
Pl. 1 — *Colura mauritiana* sp. nov., Mauritius. **1**: Ventral view of shoot. — **2**: Conically protuberant sac cells. — **3**: Leaf, dorsal view. — **4**: Valves (in different magnifications). — **5**: Cells of lobe margin. — **6**: of lobe centre. — **7**: of the sac. — **8**: Underleaves. — **9**: Gemma. (Figs 1, 2 and 4 upper two are drawn from *Pócs 9529/BJ* and all others from the Holotype:*Pócs 9530/H*).



Pl. 2 — *Drepanolejeunea helenae* sp. nov., La Réunion. **10**: dorsal view of shoot. On the lower piece the position of ocelli is shown. — **11**: Ventral view. — **12**: Underleaves. — **13**: Lobule with incurved free margin. — **14**: Part of shoot with male branches. Ventral view. — **15**: Male branches with antheridia. **15a**: Crest of a male bract. (All drawn from the Holotype).



Pl. 3 — *Drepanolejeunea helenae* sp. nov., La Réunion. **16**: Leaves with ocelli. — **17**: Oil bodies of ocelli and of a normal lobe cell. In the third cell the chloroplasts are shown. — **18**: Lobules with the variation of lobule teeth and papilla position. — **19**: Underleaf. (All drawn from the Holotype with the exception of 17:*G.Kis 9651/CC*).



Pl. 4 — *Drepanolejeunea helenae* sp. nov., La Réunion. **20**: Female branch with perianth and pycnolejeuneoid subfloral innovation (perichaetial leaves removed for better visibility). — **21**: Perichaetium. — **22**: Perichaetial leaves. — **23**: Perianths. — **24**: Perianth beak. — **25**: Perianth horn. — **26**: Keel of a perianth. — **27**: Sporophyte. — **28**: Elater. — **29**: Sporangium wall thickenings. (All drawn from the type).

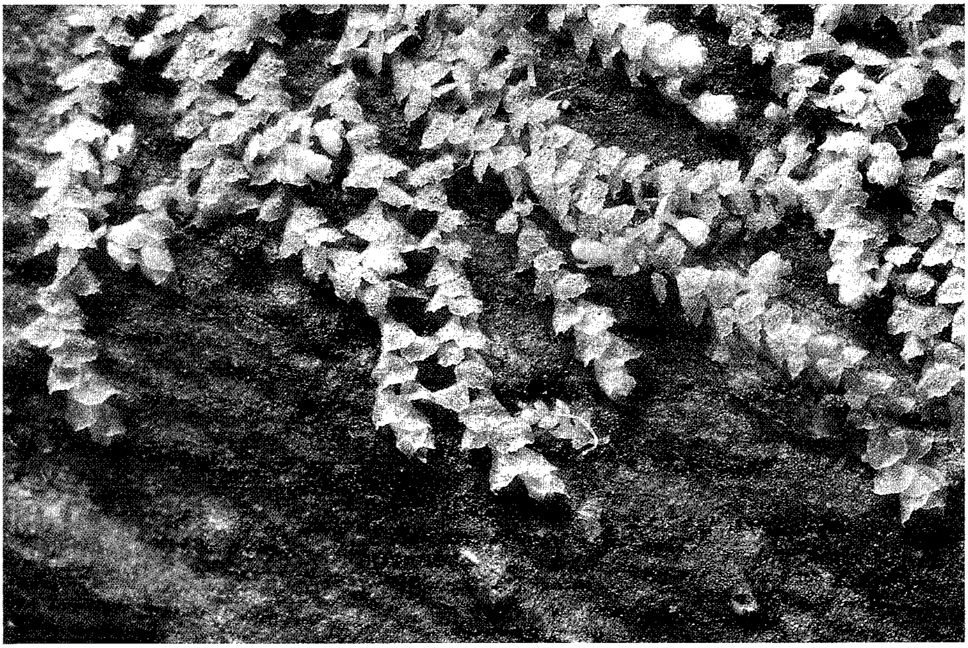


Photo — Type specimen of *Drepanolejeunea helenae* alive, with well visible ocelli. (Photo András Szabó).

bodies (in sense of Gradstein *et al.*, 1977). Leaf apex and margins with smaller, rectangular cells of 12-20 µm.

Lobules oblong ovate, inflated and with often incurved, 4-celled free margin. Lobule cells similar to lobe cells but intermediate thickenings more scarce. First (distal) tooth unicellular, acute and falcate, second (proximal) tooth blunt and separated from the first tooth by one cell, which usually develops at the inner margin surface and is adnate to the first tooth. Hyaline papilla in the notch between the first or second teeth or on the tip of the intermediate cell. Base of the distal lobule margin usually with a cell bulging, opposing the apex of the falcate first tooth (Fig. 18).

Underleaves bilobed with acute lobes of 2-3 cells width at their base and with a wide open sinus between them. Adhesive disk rarely developing, from the median cells of underleaf base (Fig. 12), a real paramphigastrium (Bischler, 1969) not observed.

Androecia on short branches, often more than one near to a gynoecium or on sterile parts of the stem, with 2-4 pairs of bracts, each with one antheridium of 55-70 µm diameter, upper bracts usually with a crest of protuberant cells; 2-3 bracteoles present (Fig. 14).

Gynoecia (Pl. 4) on short side branches, each with one pycnolejeuneoid innovation (Fig. 20). Perichatium about half the length of the perianth, with one pair of unequally bilobed bracts with a few large, irregular teeth. Bracteole acutely bilobed, partially connate with the bracts, in cases with an additional tooth and a hyaline papilla. Perianth obconic or urne-shaped, 0.6-0.7 x 0.4 mm, with scattered ocelli, almost truncate above with an elongated (up to 100 µm), dilatate beak and with 5 spinoso-crenulate keels ending often in an acute horn.

Seta strongly articulate. Capsule 250 µm in diameter, capsule wall with very pale, irregular thickenings (Fig. 29). Elaters 180 µm long, with well developed unispiral band (Fig. 28). Spores unknown.

The new species is dedicated to the Dr. Hélène Bischler-Causse, well known monographer of the Neotropical species of genus *Drepanolejeunea* and many other critical groups of Hepaticae.

Specimens examined — **Réunion:** W of Ste Anne, epiphyllous in remnants of tropical rainforest in the valley around "le **Grand Etang**", at 500-550 m altitude, 21°4′42″ S, 55°38′50″ E, 29 Aug.1994. Associated with *Ceratolejeunea belangeriana, Cololejeunea* aff. *bebourensis, C. borbonica, C. duvignaudii, C. marginata, C. obliqua, C. tanzaniae, Colura digitalis, Diplasiolejeunea cavifolia, D. cornuta, Drepanolejeunea madagascariensis, D. trematodes* and all transitions between the two, *Lejeunea caespitosa, Frullania apicalis, Taxilejeunea furciornuta* and others. *A. Vojtkó 9433/AN* (Paratype, in the microslide collection of EGR). SSW slope of **Piton de la Fournaise** volcano, at the W edge of **Basse Vallée.** Secundary, naturalized *Psidium cattleyanum* stand with remnants of former montane rain forest trees along the trail GR R2 leading towards Piton Lardé, at 750 m alt., 21°19′S, 55°41′E. Corticolous on the smooth bark of small *Psidium cattleyanum* and *Aphloia theaeformis* trees in open or in shade. Accompanied by *Ceratolejeunea, Diplasiolejeunea, Lopholejeunea and Marchesinia* spp., *Acrolejeunea aulacophora, Bazzania nitida, Drepanolejeunea vesiculosa, Frullania usambarana, Lepidolejeunea delessertii, Plagiochila repanda* and others. (*T. Pócs 9651/DH,* 23 July 1996, Holotype: EGR; Isotypes: REU, G, H, JE, PC, MAU, MO, NY; *G.Kis & A. Vojtkó 9651/CC,* 16 July 1996, from the same site, Paratype, EGR).

The appearence of this plant in the field and under microscope at the first glance suggested an unknown *Harpalejeunea* species because of the falcate, pointed leaves with basal twin ocelli and underleaves with shallow lunate incision. However, Dr. Riclef Grolle (Jena) was kind to call my attention to the pycnolejeuneoid innovations below the perianths, which indicate obviously its proper place in the genus *Drepanolejeunea.* There is only one species within the genus, which shows closer affinity to our species:*Drepanolejeunea ankasica* E.W. Jones (in Jones & Harrington, 1983), described from Ghana, West Africa. The two species have several important features in common, including the falcate leaves with acute, often incurved apex, the irregularly dentate leaf margin, the geminate basal ocelli, four-celled free lobule margin, and the arrangement of the lobule teeth. The autoicous sex distribution (rare feature within *Drepanolejeunea*, cf. Bischler, 1964) is also shared by the two species. Other characters, like the ocellate, obconical perianths and the bulging, distal lobule keel cell opposite the first tooth occur in many other species too (cf. Bischler, 1964, 1968; Herzog, 1930, 1934, 1937, 1939).

The combination of characters of the two species makes it difficult to interpret their subgeneric position. Due to their lobule teeth arrangement, subgen. *Kolpolejeunea* Grolle (Grolle, 1976) is out of question. The free lobule margin formed by four cells suggests subgen. *Drepanolejeunea* Grolle, but the many ocelli (at least in *D. helenae*), the gynoecial arrangement and the leaf shape are typical for subgen. *Pristolejeunea* Grolle, especially the tropical Asian *Drepanolejeunea thwaitesiana* and its relatives (Mizutani, 1990). From these, the two African species are well distinguished by the four-celled free lobule margin, the totally different underleaf lobes. These are horizontally widely spreading in *D. thwaitesiana* group, trapezoid to V shaped in the two African species, like in the species group VI of Bischler, 1964) of neotropical *Drepanolejeunea*. Further studies might justify to delimitate a new subgenus or at least a section to accommodate *D. ankasica* and *D. helenae*.

The new species, which seems to be endemic in la Réunion, differs sufficiently from *D. ankasica* by the many (up to 25) ocelli in the leaf lobe (only 2-3 in *D. ankasica*), by the very different shape of underleaves (obtrapeziform with widely diverging lobes in *D. ankasica*, V shaped with narrower lobes in *D. helenae*), the different perianth keels and beak and by the ocelli in perianth (not reported in *D. ankasica*).

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