

NEW OR LITTLE KNOWN EPIPHYLLOUS LIVERWORTS, XXVII. A SECOND COLLECTION FROM LAOS

Tamás Pócs

*Institute of Biology, Eszterházy Károly Catholic University, H–3301 Eger, Pf. 43,
Hungary; E-mail: pocs.tamas33@gmail.com*

Abstract: László Peregovits, entomologist, after 12 years made a new collection of liverworts from Laos. The samples were made in Xaisomboun Province, Ban Kohai and in the Phou Samsoum Mts of Xiangkhouang Province, near one of his previous collecting sites. The material contained 15 species, six of them new to the little known bryoflora of the country, then the known number of liverworts in Laos is raised to 72.

Keywords: *Cololejeunea*, *Colura*, Indochina, Laos, *Leptolejeunea*

INTRODUCTION

Laos still belongs to the bryologically least known countries in Asia. Its history of exploration is detailed in the first liverwort checklist of Laos (Söderström *et al.* 2020). The present paper summarizes the results of a second collection made by László Peregovits, who visited the country to establish scientific cooperation with Hungary and Laos. His first visit and short collecting was carried out in 2012 (Pócs 2012). During the second time he also had some opportunity to visit mountain forest areas for modest collection of foliicolous lichens and bryophytes.

MATERIAL AND METHODS

The epiphyllous bryophytes were collected and dried in paper convolutes. The specimens immediately after their arrival to Hungary, were investigated by the author, till they preserved quite well their original colour, in cases even their oil bodies.



The collecting localities are also indicated on the map of *Figure 1* on page 5, as follows:

No. 2401. XAISOMBOUN Province. Ban Kohai, 1090 m elev. 18°59.250'N, 103°21.661'E. Remnants of tropical forest. Date: 19. Oct. 2024. (Locality D on the satellite image)

No. 2404. XIANGKHOANG Province. Phou Samsoum Mts, Muang Moc, 1678 m elev., 18°5.977' N, 103°42.768'E. Disturbed evergreen forest. Date: 25. Oct. 2024. (Locality C)

No. 2405. XIANGKHOANG Prov. Phou Samsoum Mts, Muang Moc, 1970 m elev., 19°9.131' N, 103°46.6708'E. Montane evergreen forest. Date: 26. Oct. 2024. (Locality A–B)

RESULTS

The following table indicates, which species were collected at the three localities.

Table 1. The species collected at the different localities.

	Collecting localities	2401	2404	2405
A	<i>Cololejeunea amoena</i> Benedix	•	•	•
B	<i>Cololejeunea floccosa</i> (Lehm. & Lindenb.) Schiffn.		•	
C	<i>Cololejeunea lanciloba</i> Steph.	•		
D	<i>Cololejeunea planissima</i> (Mitt.) Abeyw.	•		
E	<i>Cololejeunea pseudofloccosa</i> (Horik.) Benedix	•	•	•
F	<i>Colura acroloba</i> (Prantl) Jovet Ast New to Laos			•
G	<i>Drepanolejeunea vesiculosa</i> (Mitt.) Steph. New to Laos			•
H	<i>Lejeunea flava</i> (Sw.) Nees		•	
I	<i>Lejeunea tuberculosa</i> Steph. New to Laos			•
J	<i>Lejeunea</i> sp. (with perianth)	•		
K	<i>Lejeunea</i> sp. (sterile)	•		
L	<i>Leptolejeunea elliptica</i> (Lehm. & Lindenb.) Besch.			•
M	<i>Leptolejeunea maculata</i> (Mitt.) Schiffn. New to Laos			•
N	<i>Leptolejeunea subrotundifolia</i> Herzog. New to Laos	•		
O	<i>Microlejeunea lunulatiloba</i> Horik. New to Laos			•
P	<i>Microlejeunea lunulatiloba</i> Horik. New to Laos	•		

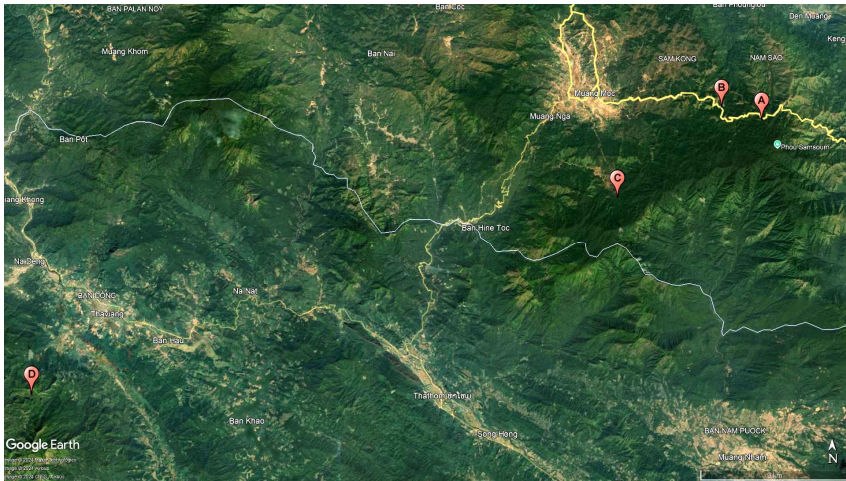


Figure 1. Collecting sites in north-eastern Laos; **A-B.** Locality 2405; **C.** Locality 2404; **D.** Locality 2401.

Most species have Indomalaysian-Pacific or Palaeotropic distribution. Some of them proved to be new to Laos, which are discussed below.

Colura acroloba (Prantl) Jovet-Ast (*Figure 5*)

It has Indomalayan-Australasian-Pacific distribution (Zhu and So 2001; Pócs 2013), as an obligately epiphyllous species, not everywhere common. Easily recognisable from its truncate lobe and regularly developed inflated lobule sac narrowing into a tubular body. The valve is fused to the rest of the lobule without a hinge. Underleaves distant, segments in V shape, narrow lanceolate, acute, consisting only from 1–2 cell rows.

Drepanolejeunea vesiculosa (Mitt.) Steph. (*Figure 6*)

Quite common Palaeotropic species distributed all over tropical Africa and Asia to the Pacific islands (Miller *et al.* 1983). It can occur in moist tropical forests on any substrate. Leaves acute, often with falcate apex, caducous, lobe cells dorsally papillose. Underleaf lobes obtuse.

Lejeunea tuberculosa Steph.

A widespread Palaeotropic species distributed from West Africa to Southeast Asia and to the Pacific (Lee 2013). Distinct by its very plane, orbicular lobe forming a sharp angle with the keel of lobule

and especially by its perianth mammillose tuberculate at least on the keels.

Leptolejeunea maculata (Mitt.) Schiffn.

One of the commonest epiphyllous liverwort in Palaeotropics, easily recognisable from its often dentate lobe margin constricted ventrally near the lobule end. Cell walls possess large trigones and intermediate thickenings. It becomes fast blackish-brown after collection.

Leptolejeunea subrotundifolia Herzog (*Figures 7–8*)

It is a seemingly rare species with scattered distribution. Known only from Borneo (Kalimantan), Thailand and Madagascar (Pócs and Váňa 2015). Morphologically quite distinct from the other *Leptolejeunea* species by its small, suborbicular leaves with one large basal ocellum and by its narrow, incurved underleaf segments. In addition, it is not adherent to its substrate. It can grow both on leaves and more often on bark of trees.

Microlejeunea lunulatilobula Horik. (*Figures 9–10*)

It is a species of uncertain position. Horikawa (1931) described it from the Pacifics on the base of elongate underleaves with narrow to filiform segments, not as rounded as in *Microlejeunea cucullata* (Reinw. *et al.*) Steph. (See also in Miller *et al.* 1963). The Laos specimen has such underleaves, but *M. cucullata* with variable underleaves is described also from China (Zhu and So 2001) or from the Eastern Himalayas (Dey and Singh 2012). Therefore, the species probably falls in the synonymy of *M. cucullata*. The Laos specimen in addition, develops abundant microphyllous branches for vegetative propagation.



Figures 2–4. Collecting habitats: **2** and **4.** Montane evergreen forest at locality 2405; **3.** Disturbed evergreen forest at locality 2404.

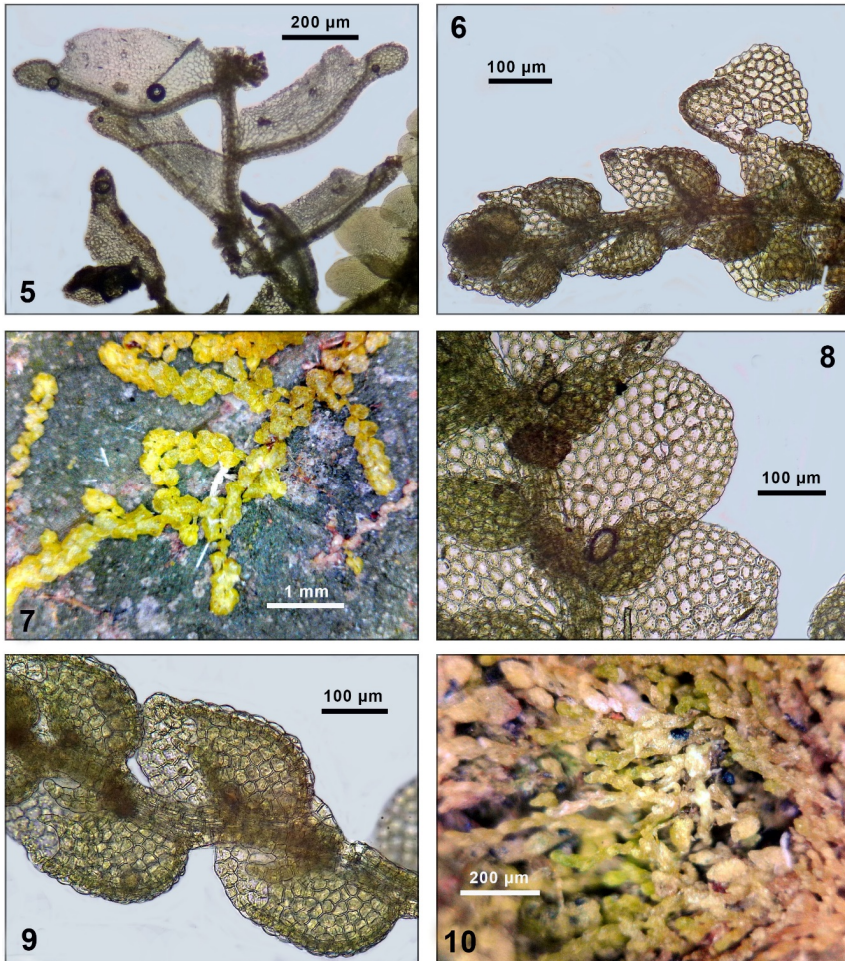


Figure 5. *Colura acroloba* (Prantl) Jovet-Ast, habit, ventral view; **Figure 6.** *Drepanolejeunea vesiculosa* (Mitt.) Steph., habit, ventral view; **Figures 7–8.** *Leptolejeunea subrotundifolia* Herzog. Dorsal view on host leaf, shoot, ventral view; **Figures 9–10.** *Microlejeunea lunulatiloba* Horik. Ventral view of microphyllous branches on the host leaf (All microphotos made by the author).

DISCUSSION

As it was seen also from the previous publication (Pócs 2012) and from the new checklist (Söderström *et al.* 2020), the Laotian liverwort flora and bryoflora in general is very poorly known, compared to the neighbouring countries (more than five hundred

both in Thailand and in Vietnam). Taking in account, that Laos has very high diversity of habitats and still large areas covered by natural vegetation, one should expect the diversity of bryoflora similar to the countries nearby. The completeness of bryophyte inventories is recently studied by Yao *et al.* (2024), proving, that appropriate sampling methodology is crucial to accelerate species discovery. Therefore, it is very desirable to elaborate and conduct a thorough biodiversity exploration in Laos.

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