

NEW OR LITTLE KNOWN EPIPHYLLOUS LIVERWORTS, XVI.

A SMALL COLLECTION FROM LAOS

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Epiphyllous liverworts from Laos
Laos, Indochina, *Cololejeunea*, *Leptolejeunea*

Abstract. *László Peregovits, lepidopterist, made a small collection of epiphyllous liverworts on the request of the author, when visited Laos in 2012. The sample was made in one hectare of the evergreen fagaceous forests of the Phou Samsoun Mountains in Xiang Khouang Province of northern Laos. The material contained 14 species, 13 of them new to the little known bryoflora of this country, this way the known number of liverworts is raised to 59.*

Introduction

Landlocked Laos is from hepaticological point of view the least known country in the Peninsula of Indochina. Only the publication of Hattori & Thaithong (1978) and those of Tixier (1970a, 1973, 1977, 1978, 1981, 1985) contain the 46 original liverwort records from the country, mostly from the collections made by Tixier himself. The moss flora is somewhat better known (Tixier 1970b), but the 145 moss species recorded from the area is also the lowest among Indochinese countries, compared with the 595 species known from Vietnam and the 563 species from Thailand (Tan & Iwatsuki 1993).

The locality of the epiphyllous collection made by Peregovits in Laos is in the Phou Samsoun Mountains, at 2037m altitude, 19°8.169'N 103°47.122'E, at the side of a brook in a montane evergreen forest dominated by *Quercus spp.*. Date: Febr 16, 2012 (Fig. 1). The specimens were identified by the author and deposited in the Herbarium of Eszterházy College, Eger, Hungary (EGR).

Enumeration of the collected species

Species new to Laos are marked by *. The distributional data are based partly on Pócs (1965, 2011, 2012) and Tixier (1985), but mostly on Zhu & So (2001).

**Cololejeunea chenii* Tixier.

Distrib.: China (Guizhou, Xizang, Yunnan, Guangxi) and Vietnam. New Guinea

**Cololejeunea diaphana* A. Evans

Distrib.: Tropical America, Asia and Oceania.

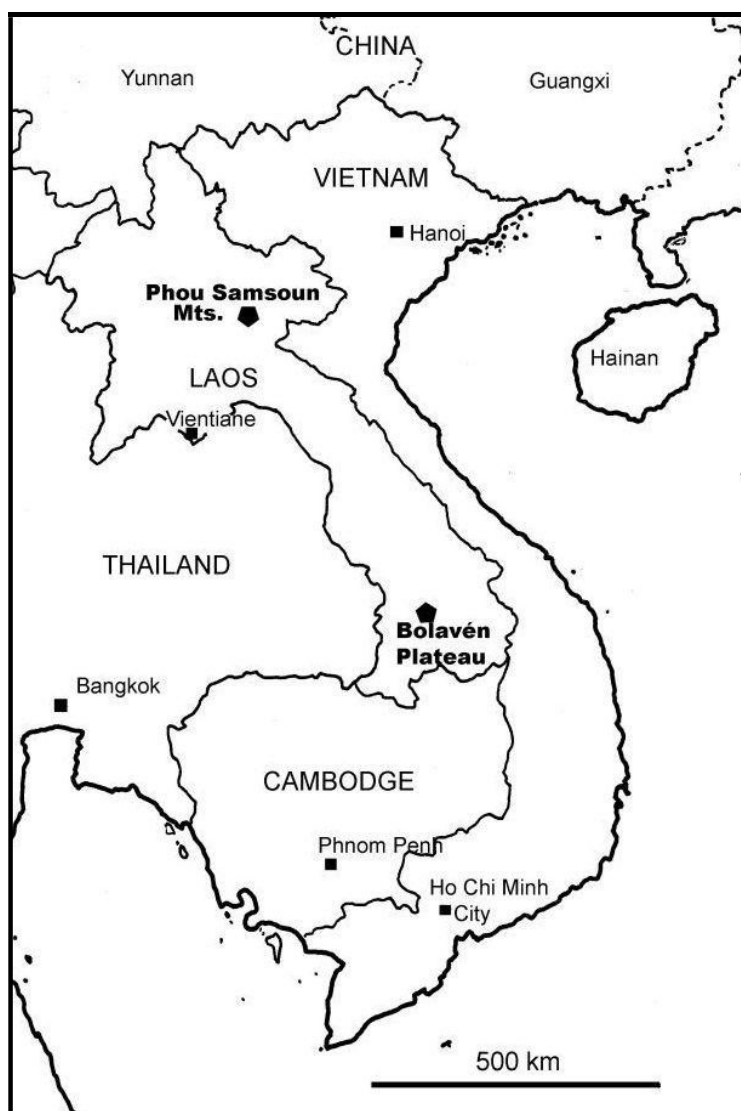


Fig. 1: The collecting sites of *Peregovits* and of *Tixier* in Laos.

**Cololejeunea inflata* Steph.

Distrib.: Southeast Asia from Ceylon and China through S Japan to Malaysia and the Philippines, New Caledonia. In Indochina: Thailand, Cambodia and Vietnam.

**Cololejeunea latilobula* (Herzog) Tixier

Distrib.: Widespread Palaeotropical species occurring from tropical Africa through Indomalesia and Southeast Asia to the Pacific (Fiji).

Cololejeunea longifolia (Mitt.) Mizut.

Distrib.: Himalaya, India, Bangladesh, Sri Lanka, Andaman Thailand, Cambodia, Laos, Vietnam, Malaya, Borneo, Sulawesi, Philippines, China, Japan, Korea, New Guinea, Solomons, New Caledonia, Caroline Is and Fiji Islands.

Cololejeunea pseudofloccosa (Horik.) Benedix

Distrib.: From Ceylon, Himalaya through China, Japan Indonesia, Malaysia to the Philippines, Queensland. In Indochina: Cambodia, Laos and Vietnam.

**Cololejeunea cordiflora* Steph.

Syn.: *C. trichomanis* (Gottsche) ssp. *cordiflora* (Steph.) Pócs, *C. serrulata* Steph.

Distrib.: Indomalesia, Southeast Asia and Pacific from Ceylon to Society Islands, Japan.

**Cololejeunea verrucosa* Steph.

Distrib.: Java, Cambodia, Vietnam, S Japan. Malaya, Sumatra, Borneo Sulawesi Moluccas ?Philippines, Solomon Islands, Hainan, Taiwan, ?Caroline Islands, ?Society Islands.

**Colura tenuicornis* (A. Evans) Steph.

Widespread pantropical species.

**Drepanolejeunea yunnanensis* (P.C. Chen) Grolle & R.L. Zhu

Distrib.: Vietnam S-China, Taiwan, S-Japan.

**Leptolejeunea apiculata* (Horik.) S. Hatt.

Distrib.: Thailand, S-China, Taiwan, S Japan.

**Leptolejeunea elliptica* (Lehm. & Lindenb.) Schiffn.

Distrib.: Pantropical species in Africa known only from the Comoro Islands.

**Ptychanthus striatus* (Lehm. et Lindenb.) Nees

Distrib.: Widespread Indomalesian–Pacific species.

**Radula acuminata* Steph.

Distrib.: Widespread Indomalesian–Pacific species.

Discussion

As it can be seen, the list contain 3 species (*Cololejeunea chenii*, *Drepanolejeunea yunnanensis* and *Leptolejeunea apiculata*), which can be considered endemics in a broad sense, of the South China – Indochina and South Japan area. From the rest 7 species can be classified as widespread Indomalesian – Pacific and 4 as Pantropical or at least bicontinental disjunct. It is noticeable that the above species set has almost no overlapping with the epiphyllous community found by Tixier in southern Laos on the Boloven (Bolavén) Plateau. This fact can prove the very high diversity of Laotian epiphyllous flora which needs further investigation.

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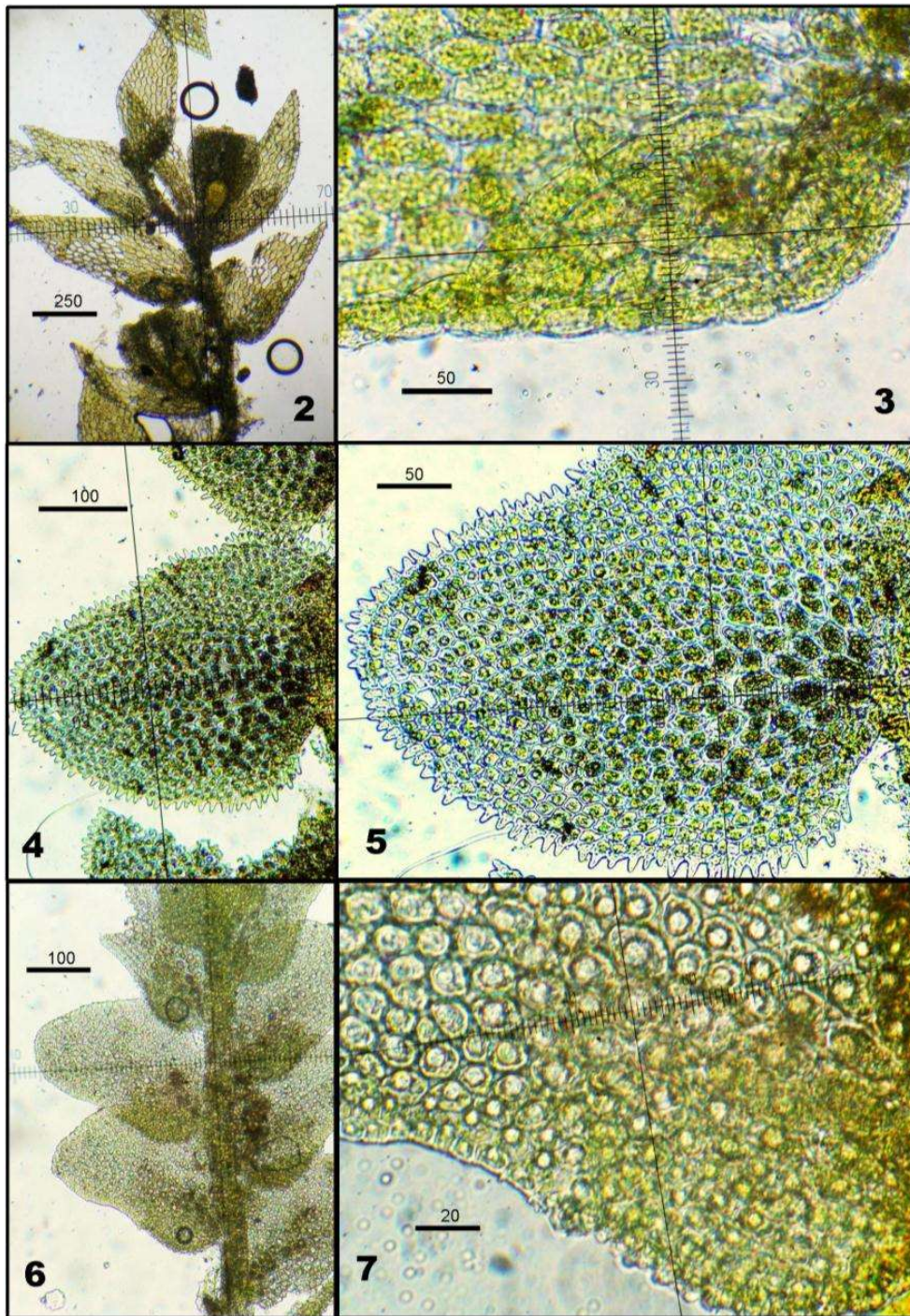


Fig. 2–3: *Cololejeunea longifolia* (Mitt.) Mizut. Fig. 4–5: *Cololejeunea chenii* Tixier.

Fig. 6–7: *Cololejeunea verrucosa* Steph. All from Peregovits, Laos, Phou Samsoun Mountains. Scale bars in μm .

References

- Hattori, S. & Thathong, O. (1978). A Frullania collection made by Dr. Tuyama in Laos. *J. Jap. Bot.* 53: 172–178.
- Pócs, T. (1965). Prodrome de la bryoflore du Vietnam. *Acta Acad. Paed. Agriensis*, n.ser. 3, 453-495.
- Pócs, T. and Piippo, S. (2011). Bryophyte flora of the Huon Peninsula, Papua New Guinea. LXXIV. Cololejeunea (Lejeuneaceae, Hepaticae). *Acta Bryolichenologica Asiatica* 4: 59–137
- Pócs T. (2012). Bryophytes from Fiji Islands, VI. The genus *Cololejeunea* Raddi (Jungermannioptida), with the description of seven new species. *Acta Bot. Hung.* 54(1-2): 145-188.
- Tan, B.C. & Iwatsuki, Z. (1993). A checklist of Indochinese mosses. *J. Hattori Bot. Lab.* 74: 325-405.
- Tixier, P. (1970a). Bryophytae Indosinicae. Bryophytes du Laos méridional (Paksé et Bolovens). *Ann. Fac. Sci. Univ. Pnom Penh* 3: 153–172.
- Tixier, P. (1970b). Bryophytae Indosinicae. Enumeratio muscorum lectorum in ditione laosensi. *Ann. Fac. Sci. Univ. Pnom Penh* 3: 141–148.
- Tixier, P. (1973). Contribution to the knowledge of genus *Cololejeunea* in southeast Asia. III. Some new species. *Nat. Hist. Bull. Siam Soc.* 24: 439–447.
- Tixier, P. (1977). La notion d'espèce chez le genre *Cololejeunea*. *C. schmidtii* et les taxa voisins. *Rev. Bryol. Lichénol.* 43(1): 35–52.
- Tixier P (1978). Contribution à l'étude du genre *Cololejeunea* IV - Le sous-genre *Taeniolejeunea* (Zwickel) Benedix en Malaisie. *Nova Hedwigia* 29: 1025-1042.
- Tixier, P. (1981): La notion d'espèce chez le genre *Cololejeunea*. Le complexe *Cololejeunea floccosa* (Lehm. & Lindenb.) Schiffn. *Cryptog. Bryol. Lichénol.* 2(1) : 47–76.
- Tixier, P. (1985). Contribution à la Connaissance des Cololejeuneoideae. *Bryoph. Biblioth.* 27: 1-439.
- Zhu, R-L. & So, M.L. (2001). Epiphyllous liverworts of China. *Nova Hedwigia*, Beiheft 121: 1-418.