Ann. Bot. Fennici 44: 146–148 ISSN 0003-3847
Helsinki 26 April 2007

Stereophyllum linisii (Stereophyllaceae), a new moss species from the Philippines

Johannes Enroth[1] & Benito C. Tan[2]

[1)] *Department of Biological and Environmental Sciences and Botanical Museum, P.O. Box 7, FI-00014 University of Helsinki, Finland*
[2)] *Department of Biological Sciences, National University of Singapore, Singapore 119260*

Received 31 Oct. 2006, revised version received 21 Nov. 2006, accepted 12. Dec. 2006

Enroth, J. & Tan, B. C. 2007: *Stereophyllum linisii* (Stereophyllaceae), a new moss species from the Philippines. — *Ann. Bot. Fennici* 44: 146–148.

Stereophyllum linisii Enroth & B.C.Tan, *sp. nova*, is a confirmed generic record for the Philippine moss flora. The new species is described and illustrated in line drawings. It differs from the single widely distributed species in the genus, *S. radiculosum* (Hook.) Mitt., mainly in the completely smooth laminal cells and especially the distinct marginal limbidium in the leaves, consisting of elongate cells.

Key words: mosses, new species, *Stereophyllum*, taxonomy

A noteworthy specimen collected from an isolated ancient volcano in the central part of Luzon Island in the Philippines was brought to our attention by the collector. The specimen proved to provide the first record of the genus *Stereophyllum* for the Philippine moss flora and, upon closer examination, also to represent a species new to science. We are pleased to name the species after the collector of the specimen, Mr. Virgilio Linis at the Philippine National Herbarium (PNH), who has been actively studying the Philippine moss diversity in the recent years.

Stereophyllum linisii Enroth & B.C. Tan, *sp. nova* (Fig. 1)

Species S. radiculosi similia, sed praecipue foliis vitta marginali cellulis longis formata distincta.

HOLOTYPE: Philippines. Luzon Is., Pampanga Prov., Mt. Arayat, on wet, shaded boulder near water source, in lowland forest about 280 m, 13.XII.2003 *V.C. Linis 725-03* (SINU; isotypes H, NY, BM, PNH).

Plants mat-forming, loosely adhering to substrate by tufts of brownish-red, mostly unbranched rhizoids situated just below leaf insertions, hardly glossy, sordid green, older parts brownish, shoot tips often yellowish-green. Stems fairly lax, often arcuate, to ca. 6 cm long, unbranched or sparsely and remotely branched, when wet to ca. 2.5 mm wide with leaves, in cross-section with 3–4 layers of thick-walled cortical cells becoming larger inwards yet abruptly demarcated from larger medullary cells with thinner walls, central strand none. Leaves somewhat pseudotetrastichous, erect-patent, indistinctly dimorphic (dorsal symmetric, lateral slightly asymmetric), more or less contorted and arcuate when dry, becoming non-contorted and more homomallous when wet, leaves on underside of shoots more complanate than those on upper side, to ca. 2–2.5 mm long and 0.8 mm

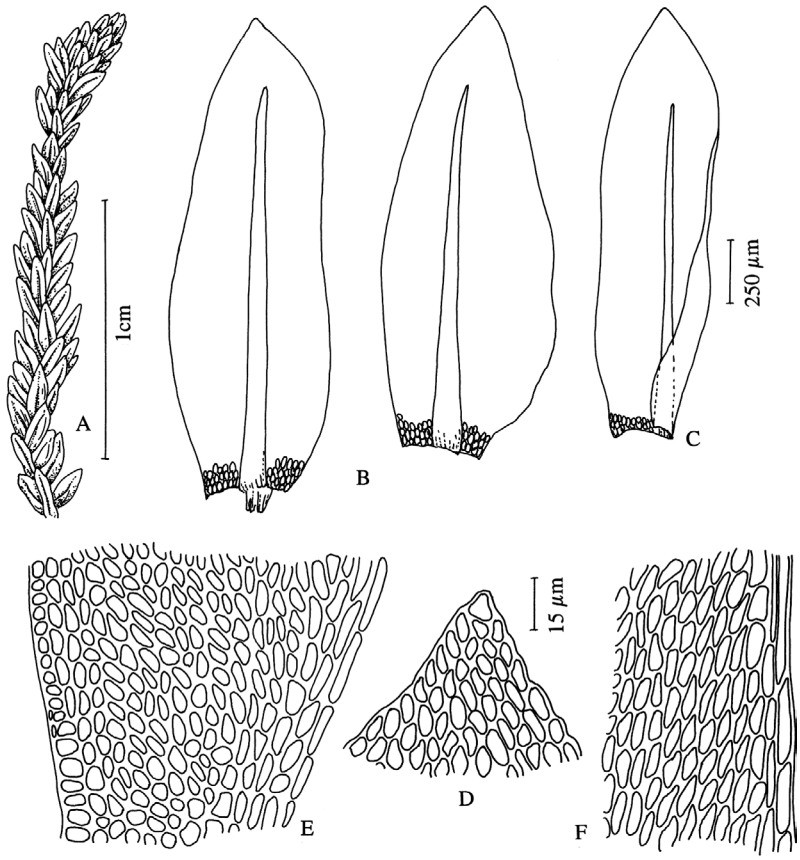

Fig. 1. *Stereophyllum linisii* (from holotype, completed by Nijole Kalinauskaite). — **A**: Tip of branch. — **B** and **C**: Leaves. — **D**: Leaf apex. — **E**: Areolation near leaf base. — **F**: Leaf margin, showing elongated marginal cells.

wide, ovate-ligulate, apex acute or nearly obtuse; margins plane, entire throughout or faintly serrulate near apex; costa single, stout, to ca. 150 μm wide near leaf base, mostly ca. 4/5–5/6 of leaf length; leaf cells incrassate, smooth, rhombic to oval, near apex ca. 20–30 × 10–15 μm, towards leaf base and near costa longer in a variable degree, alar cells and basal laminal cells subquadrate or oblate-rectangular, ca. 20–30 × 20 μm, especially in asymmetric leaves cells in one side of costa towards leaf base often distinctly longer than in other side of costa, a distinct narrow marginal zone of elongate cells abruptly demarcated from adjacent laminal cells often present in that side of leaf where basal cells are longer, that zone reaching to ca. 2/3–3/4 of leaf length where gradually vanishing, occasionally partly bistratose. Paraphyllia rare, foliose, 2–3 cells broad. Pseudoparaphyllia to ca. 150 μm long, fragile, mostly filiform, basal parts sometimes biseriate. Presumably dioicous. Perichaetia not seen. Perigonia bud-shaped, ca. 1 mm high, having numerous hyaline, filiform paraphyses intermixed with antheridia.

Stereophyllum linisii is distinctive in having a stereophylloid leaf areolation, but differs from the widely distributed and variable *S. radiculosum* by its entirely smooth leaf cells, a differentiated limbidium consisting of elongate cells and being occasionally partly bistratose, and by its semi-aquatic habitat.

The lack of sporophytes and presence of the limbidium persuaded us first to consider the present specimen as representing the limbate, rheophytic taxa of *Neckeropsis* sect. *Pseudoparaphysanthus* (*see* Touw 1962, Touw & Ochyra 1987, Ochyra & Enroth 1989, Enroth 1999), but we were unable to find a good match of the species character suite. The unequal distribution of quadrate alar cells found in the leaf of Philippine specimen, which forms a broad band across the basal part of lamina is certainly not a *Neckeropsis* character but points, as well as the general leaf areolation, to *Stereophyllum* instead.

The presence of a marginal, sometimes partly bistratose limbidium in *S. linisii*, not unlike that encountered in rheophytic members of *Neckeropsis*, is intriguing from an evolutionary point of view. As Enroth (1999) noted, nearly all of the rheophytic members of the Neckeraceae have more or less well-differentiated inframarginal or marginal limbidia in the leaves. It thus seems that similar morphological adaptations are evolving in a very distantly related species of a wet habitat, unusual for the genus *Stereophyllum*.

Stereophyllum, recently revised to become a monotypic genus, has not yet been recorded from the Philippine archipelago. The formerly reported species from the Philippines, namely *S. anceps* and *S. ligulatum* (Tan & Iwatsuki 1991), are now placed in *Entodontopsis* (Buck & Ireland 1985). The nearest localities in Asia of *Stereophyllum* (*S. radiculosum*) are in Thailand and India. We hypothesize that spores of *S. radiculosum* could have been brought by long distance dispersal to Mt. Arayat, an ancient and extinct volcano, and isolated in the middle of the vast central plain of Luzon Island. The isolated population that survived in wet and shaded habitat on this volcanic mountain has evolved into the present species.

SPECIMENS OF *STEREOPHYLLUM RADICULOSUM* EXAMINED. — North America: **USA**. Texas, 6.VIII.1980 *Reese 14104* (B, Bryo237565). — South America: **Colombia**. 22.-23.VII. 1986 *Churchill et al. 14641-b* (B, Bryo264006). **Haiti**. 6.I.1926 *Leonard 8546* (B, Bryo106033). — Africa: **Togo**. 17.IX.1973 *Hiepko & Schulze-Motel 445* (B Bryo211361). — Asia: **India**. Madras, 1924 *Foreau s. n.* (B Bryo 220571). **Thailand**. Peninsular, waterfall at Yala, 21.X.1970, *Charoenphol, Larsen & Warncke 4137* (H 3138934). — **Australia**. Queensland, 30.VI.1986 *Streimann 37589* (B, Bryo276259).

References

Buck, W. R. & Ireland, R. R. 1985: A reclassification of the Plagiotheciaceae. — *Nova Hedwigia* 41: 89–125.

Enroth, J. 1999: A review of the rheophytic Neckeraceae (Musci). — *Haussknechtia Beih.* 9: 121–127.

Ochyra, R. & Enroth, J. 1989: *Neckeropsis touwii* (Musci, Neckeraceae), new species from Papua New Guinea, with an evaluation of sect. *Pseudoparaphysanthus* of *Neckeropsis*. — *Ann. Bot. Fennici* 26: 127–132.

Tan, B. C. & Iwatsuki, Z. 1991: A new annotated Philippine moss checklist. — *Harvard Pap. Bot.* 3: 1–64.

Touw, A. 1962: Revision of the moss genus *Neckeropsis* (Neckeraceae) I. Asiatic and Pacific species. — *Blumea* 11: 373–425.

Touw, A. & Ochyra, R. 1987: Additional notes on *Neckeropsis* 2. — *Lindbergia* 13: 97–104.