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# *Pseudotaxiphyllum obtusifolium*, a New Species of Hypnaceae (Musci) from China

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**ABSTRACT.** A new species, *Pseudotaxiphyllum obtusifolium* Z. Iwatsuki & B. C. Tan (Hypnaceae, Musci), is described. This moss species is related to *P. pohliaecarpum* (Sullivant & Lesquereux) Z. Iwatsuki, which is widely distributed in East Asia. The two most remarkable characters distinguishing this new species from *P. pohliaecarpum* are the shape of leaf apices, which in the former are widely obtuse to round, and also the larger laminal cells in the new species.

**Key words:** China, East Asia, Hypnaceae, moss, *Pseudotaxiphyllum*.

*Isopterygium* Mitten and related genera in Hypnaceae are one of the difficult groups of mosses and need critical revision, because there are so many species that have been little studied or inadequately examined. The senior author has been investigating this group of mosses for decades (Iwatsuki, 1970, 1987; Iwatsuki & Crosby, 1979).

Years ago, when the senior author studied the many specimens left by the late Prof. A. Noguchi, he found an interesting specimen of *Pseudotaxiphyllum* Z. Iwatsuki sent by M.-J. Lai from Taiwan. Recently, the junior author found the same species in a collection made by Ji Meng-Cheng from Jiangxi Province, China. We studied both specimens and concluded that they are the same taxon and represent a new species of *Pseudotaxiphyllum* based on the revised generic concept proposed by Iwatsuki (1987). The detailed description of the new species is as follows.

***Pseudotaxiphyllum obtusifolium*** Z. Iwatsuki & B. C. Tan, sp. nov. TYPE: Taiwan. Ilan Co., Chi-Tuang, ca. 1000 m, on damp cliff at roadside, 27 Apr. 1983, *Ming-Jou Lai*, s.n. (holotype, NICH 50601). Figures 1, 2.

Planta robusta; caulis elongatus, ad 12 cm longus, pau-

ce ramosus; pseudoparaphyllia nulla; cellulae corticales in sectione transversali parvae, parietibus crassis; folia ovata, 2.0–2.5 mm longa, apice late obtusa vel rotunda; cellulae lineares, 65–110  $\mu\text{m}$  longae, 7–10  $\mu\text{m}$  latae.

Plants light green, often tinged with red to brown, somewhat glossy. Stems 4–12 cm or longer, 0.3–0.4 mm thick at median part, 3–4 mm wide with fresh leaves, loosely foliated, creeping, irregularly branched, in cross section showing small, thick-walled, outer cortical cells; central strand not differentiated; pseudoparaphyllia lacking; brown rhizoids on stems and branches borne below the leaf insertion. Leaves loosely foliated, widely spreading, ovate, 2.0–2.5  $\times$  0.85–1.10 mm wide, distinctly concave; apex widely obtuse to round; margins almost entire throughout; costa thin, usually double, often reaching the middle of leaf; median laminal cells linear, with acute ends, 65–110  $\times$  7–10  $\mu\text{m}$ ,  $\pm$  flexuose, slightly to moderately thick-walled; cells near leaf apices much shorter; extreme basal cells rectangular or sublinear, with  $\pm$  thicker walls; alar cells not differentiated. Branch leaves similar to stem leaves but smaller. Bulbils few, clustered in leaf axils, elongate, thread-like, 0.6–0.75 mm long, 30–40  $\mu\text{m}$  thick, composed of spirally twisted cells, with 2 or 3 small projections at the tips. No sexual organs observed.

**Paratype.** CHINA. **Jiangxi Prov.:** Mt. Matou, on wet rock, Ji Meng-Cheng 13794 (NICH 50602, SINU).

## DISCUSSION

The genus *Pseudotaxiphyllum* was proposed by Iwatsuki (1987) based on several important characters distinguishable from *Isopterygium* Mitten, which was lectotypified by Iwatsuki and Crosby (1979). One of the most important characters distinguishing *Pseudotaxiphyllum* from *Isopterygium* is the lack of pseudoparaphyllia around the branch primordia. Species of *Isopterygium* have filamen-



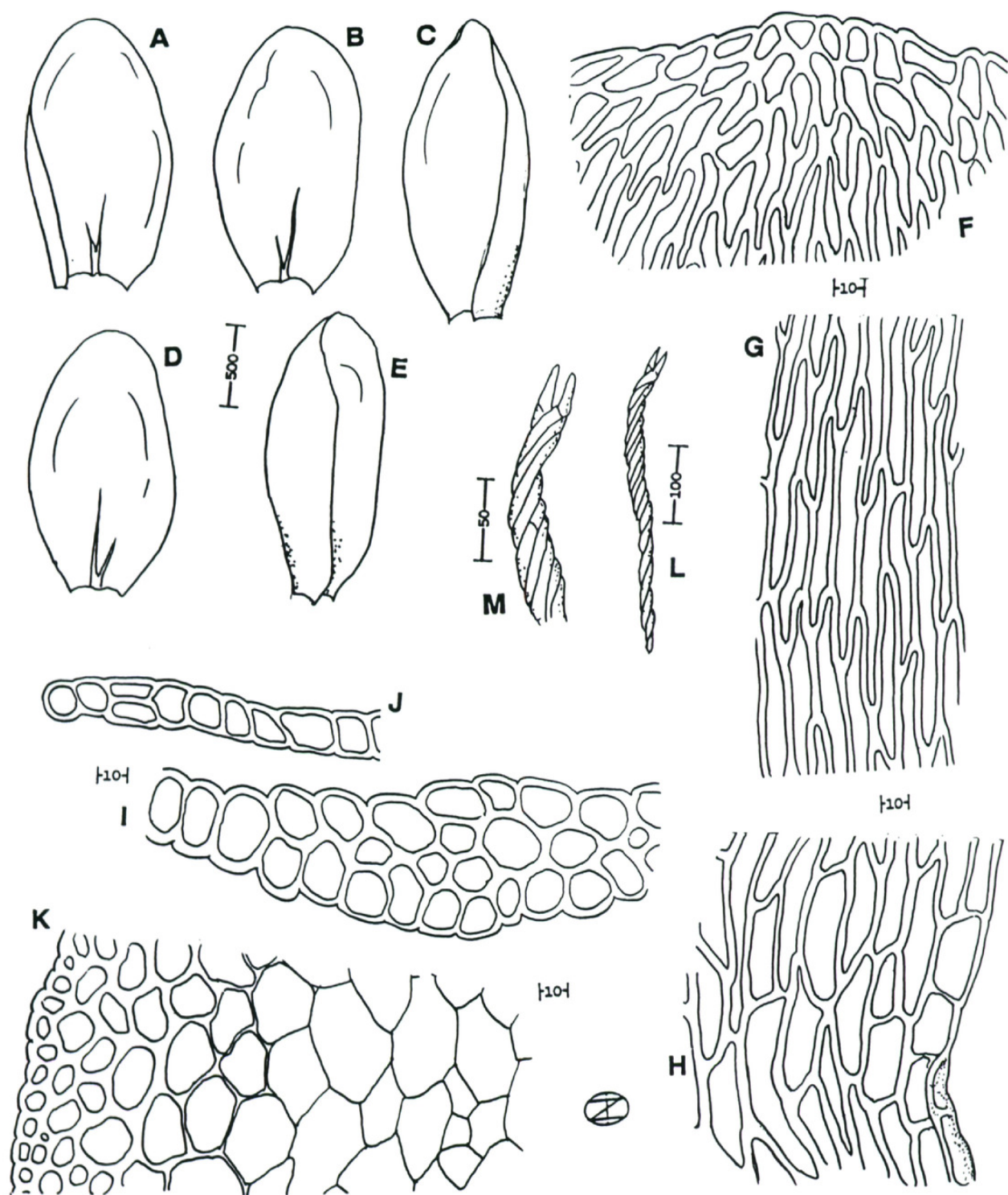


Figure 1. *Pseudotaxiphyllum obtusifolium* Z. Iwatsuki & B. C. Tan. —A–E. Median stem leaves. —F. Cells at apex of leaf. —G. Cells at median part of leaf. —H. Cells at extreme base of leaf. —I, J. Cross sections at basal part of leaf. —K. Cross section of stem. —L, M. Bulbils. All figures drawn from the holotype (Ming-Jou Lai s.n., NICH). All scales in  $\mu\text{m}$ .

tous pseudoparaphyllia, while another closely related genus, *Taxiphyllum* Fleischer, has foliose pseudoparaphyllia. Details of bulbils found in *Pseudotaxiphyllum* were shown by Iwatsuki and Deguchi (1981).

The new species, *Pseudotaxiphyllum obtusifolium*,

has bulbils in leaf axils similar to those of *P. pohliaecarpum*, a common species in East Asia. As shown in Figure 2F, *P. obtusifolium* has no pseudoparaphyllia on stems and branches. The two most remarkable characters distinguishing this new species from *P. pohliaecarpum* are the shape of leaf



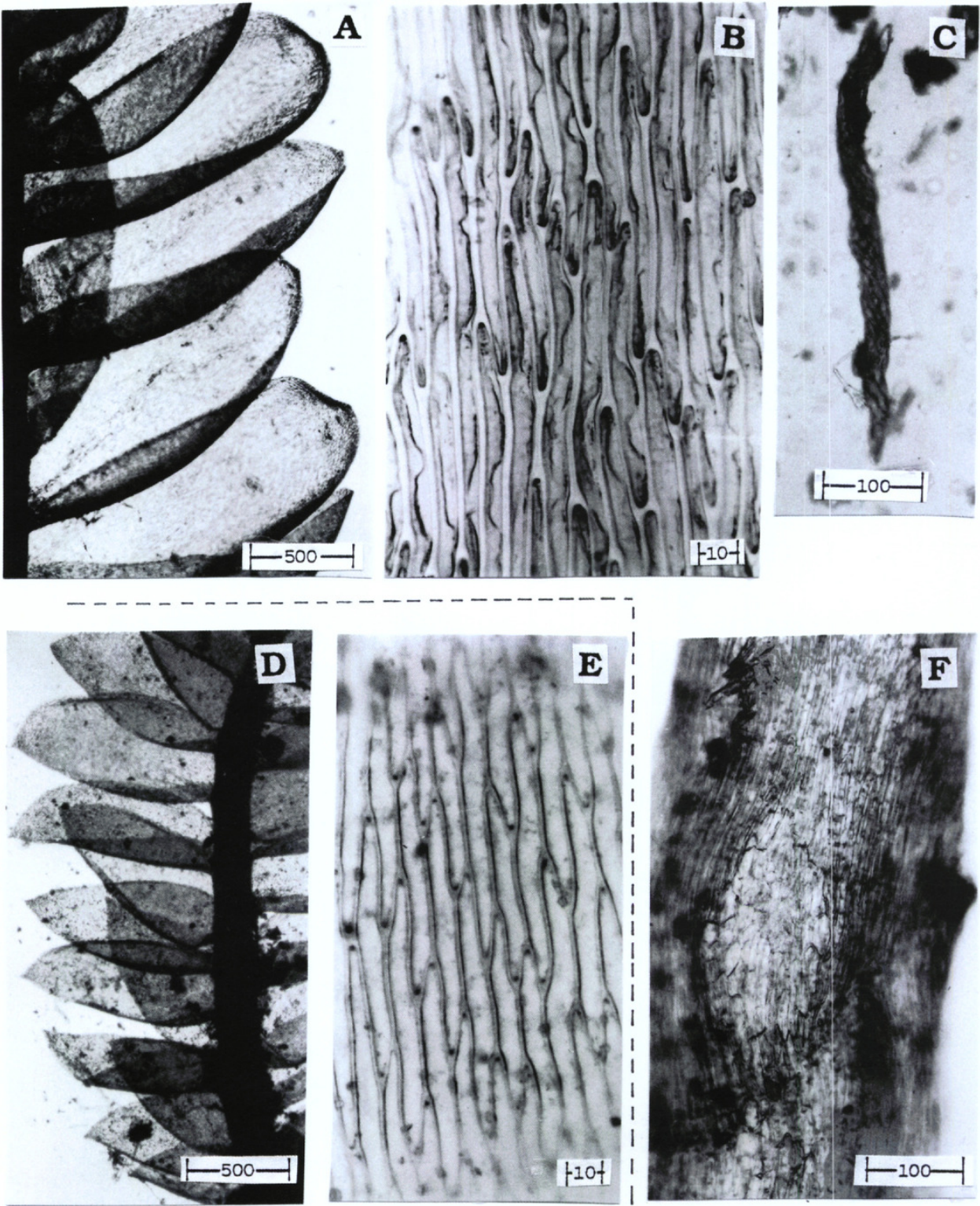


Figure 2. *Pseudotaxiphyllum obtusifolium* (A–C, F) and *P. pohliaecarpum* (D, E). —A, D. Parts of stems with leaves. —B, E. Cells at median part of leaves. —C. Bulbil. —F. Branch primordium without pseudoparaphyllia. A–C, and F, based on the holotype of *P. obtusifolium*. D, E, based on Musci Japonici Exsiccati no. 528 (issued as *Isopterygium pohliaecarpum*). Both specimens at NICH. All scales in  $\mu\text{m}$ .

apices, which in the former are widely obtuse to round, and also the larger laminal cells in the new species (Figs. 1G, 2B). The distinctions between these two taxa are summarized in Table 1.

At present, we know of only two specimens of this new species collected from Taiwan and Jiangxi Province of China, respectively. Both specimens were collected on wet or damp rocks. It may be



Table 1. Diagnostic characters of *Pseudotaxiphyllum obtusifolium* and *P. pohliaecarpum*.

Characters	<i>P. obtusifolium</i>	<i>P. pohliaecarpum</i>
Size of median leaves (mm)	2.0–2.5 × 0.85–1.1	1.0–1.5 × 0.45–0.50
Leaf apices	widely obtuse to round	acute to widely acute
Size of median laminal cells (μm)	65–110 × 7–10	80–100 × 4–6
Walls of median laminal cells	slightly to moderately thick-walled (Fig. 2B)	thin-walled (Fig. 2E)

expected that this new species will be found in similar habitats elsewhere in eastern Asia.

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