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Strobilanthes wallichii (Acanthaceae), a Newly Recorded Species in Taiwan

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ABSTRACT: *Strobilanthes wallichii* Nees (Acanthaceae) is reported for the first time in Taiwan. This species can be distinguished from its congener in Taiwan by having attenuate leaf base and deeply 5-divided calyx. Taxonomic description, distribution information, pollen SEM micrographs, and color photographs are provided for this newly recorded species. Key to all known species of *Strobilanthes sensu lato* in Taiwan and detailed comparison between this new record and closely related species are also provided to aid in identification.

KEY WORDS: Acanthaceae, new record, *Strobilanthes*, *Strobilanthes wallichii*, Taiwan.

INTRODUCTION

The genus *Strobilanthes sensu lato* (Acanthaceae) comprises about 350 species mainly distributed in south and south-east Asia and Malesia (Terao, 1983). The genus has ever been split into numerous small genera by Bremekamp in his early monographic study (Bremekamp, 1944). His classification was adopted by Hsieh and Huang (1974) and then applied in the first edition of Flora of Taiwan in which six species belonging to four genera, i.e. *Baphicacanthus* Bremek., *Goldfussia* Nees, *Parachampionella* Bremek., and *Semnostachya* Bremek., were recognized (Hsieh and Huang, 1978). These 6 species were subsequently recorded in the second edition of Flora of Taiwan (Hsieh and Huang, 2000), however, under the large genus *Strobilanthes sensu lato*. Recently, Seok et al. (2004) described a new species *S. lanyuensis* Seok, Hsieh & Murata characterized by not resupinate corolla from Is. Lanyu. In the present study, a neglected species *S. wallichii* Nees is reported for the first time from northern Taiwan. Taxonomic description, distribution information, pollen SEM plates, and color photographs are provided for this newly recorded species. Key to all known species of the genus *Strobilanthes sensu lato* in Taiwan is also provided to aid in identification.

Key to taxa of *Strobilanthes* (*sensu lato*) in Taiwan

1. Shrubs; ovary or fruits hispid at apex ……. *S. longespicata*
1. Herbs or subshrubs; ovary or fruits glabrous or glandular-hairy .. 2
2. Plant procumbent; leaf base truncate; flower solitary, bract absent ……..... *S. rankanensis*
2. Plant erect; leaves base attenuate; flowers in spike, bract present …….. 3
3. Calyx-segments unequal, posterior one spathulate; leaves membranous …….. *S. cusia*
3. Calyx-segments subequal; leaves chartaceous or thin coriaceous ... 4
4. Calyx deeply 5-divided, all calyx-segments fused at base only …. 5
4. Calyx deeply 3-divided, the three posterior ones out of five calyx-segments fused up to 1/2~2/3 long, other two fused at base only ……..……..... 7
5. Bract persistent; calyx glabrous outside ……..…….. *S. wallichii*
5. Bract deciduous, usually falling before anthesis …..…….…… 6
6. Leaves often glabrous; calyx densely glandular-hairy ..... ……..…….. *S. pentstemonoides*
6. Leaves often hairy; calyx glabrous or pubescent, not glandular-hairy ……..…..…….. *S. formosana*
7. Corolla resupinate; calyx shorter than 2 cm …..…..…. *S. flexicaulis*
7. Corolla not resupinate; calyx longer than 2 cm …...…. *S. lanyuensis*

Strobilanthes wallichii Nees in Wallich, Pl. As. Rar. 3: 87. 1832. ―Type: Nepal, 1821, *C. Wallich 2371* (not traced) 翅柄馬藍 Figs. 1-3

Ruellia alata Nees in Wallich, Pl. As. Rar. **1**: 26. 1830.
Strobilanthes alata Nees in DC., Prodr. 11: 194. 1847. non Blume 1826.
Pteracanthus alatus (Nees) Bremek., Verh. Ned. Akad. Wetensch., Afd. Naturk. 2 sect. **41(1)**: 199. 1944. Hu, Fl. Reip. Popul. Sin. **70**: 129, *pl. 19: 1-5*. 2002.

Perennial herbs, *ca.* 40 cm tall. Stems erect, sometimes decumbent, rooting at nodes, much branched, quadrangular, glabrous or sometimes pubescent on the angles. Leaves chartaceous, ovate-oblong, subisophyllous, 3.5-10 cm long, apex acuminate to obtuse, base gradually narrowed, margins serrate, hirsute or glabrous, lateral nerves 4-6 per side; petioles 5-15 mm long. Spikes very crowded, 1-3-flowered. Bracts folious, hirsute or glabrous, ovate to subdeltoid, uppermost ones often smaller, ovate, *ca.* 4 mm long, 3 mm wide, others 10-15 mm long, 10-15 mm wide; bracteoles 2, linear-oblong, 2 mm long or sometimes absent. Calyx 1-1.8 cm long, elongated to 2 cm when fruiting, deeply 5-divided, segments linear, glabrous, fused at the base. Corolla purple, campanulate, *ca.* 3.5 cm long, glabrous or with minute

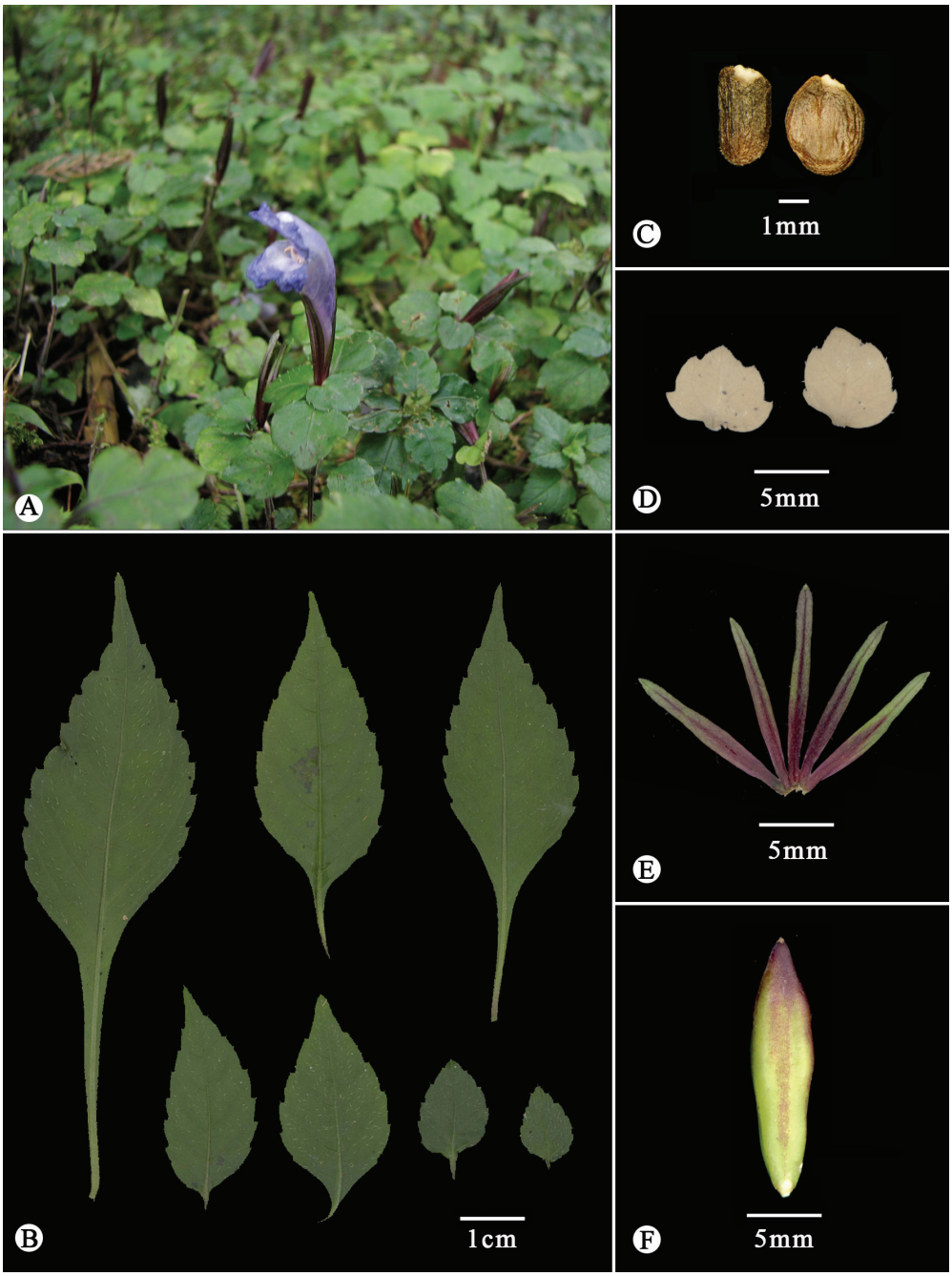

Fig. 1. *Strobilanthes wallichii* Nees. A: Habit. B: Leaves. C: Seeds. D: Bracts. E: Calyx. F: Capsule.

lines of hairs within, lobes 5, round. Stamens 4, didynamous, longer filaments base coherent to corolla with membrane, free part *ca.* 4 mm long, hirsute, glabrous near top; shorter filaments 2 mm long, glabrous; anthers oblong-linear, 2 mm long. Style filiform, *ca.* 1.3 cm long; stigma subulate, pubescent with glandular hairs. Capsules linear-fusiform, 1.5-1.8 cm long, glabrous. Seeds 4, compressed-ovate, *ca.* 2-3 mm long, appressed pilose.

From Nepal to SE China (Hu, 2002). Taiwan, on semi-shaded and wet slope or roadside, from medium to high altitudes (1,200-2,500 m) in central and northern parts of this island (Fig. 3).

Specimens examined: TAOYUAN Co.: Lalashan, Oct. 3, 1930, *S. Sasaki s. n.* (TAI). HSINCHU Co.: Chenghsipao, alt. 1850-2200 m, Jul. 16, 1999, *K. C. Yang 1816* (HAST); en route from Chilan to Yuenyang Lake, alt. 1600 m, Dec. 16, 1990, *C. I Peng 13608* (HAST); Yuenyang Lake, alt. 1670 m, Oct. 18, 1993. *Y. F. Wang 842* (TAI). TAICHUNG: Pahsienshan, alt. 2300 m, Jul. 21,

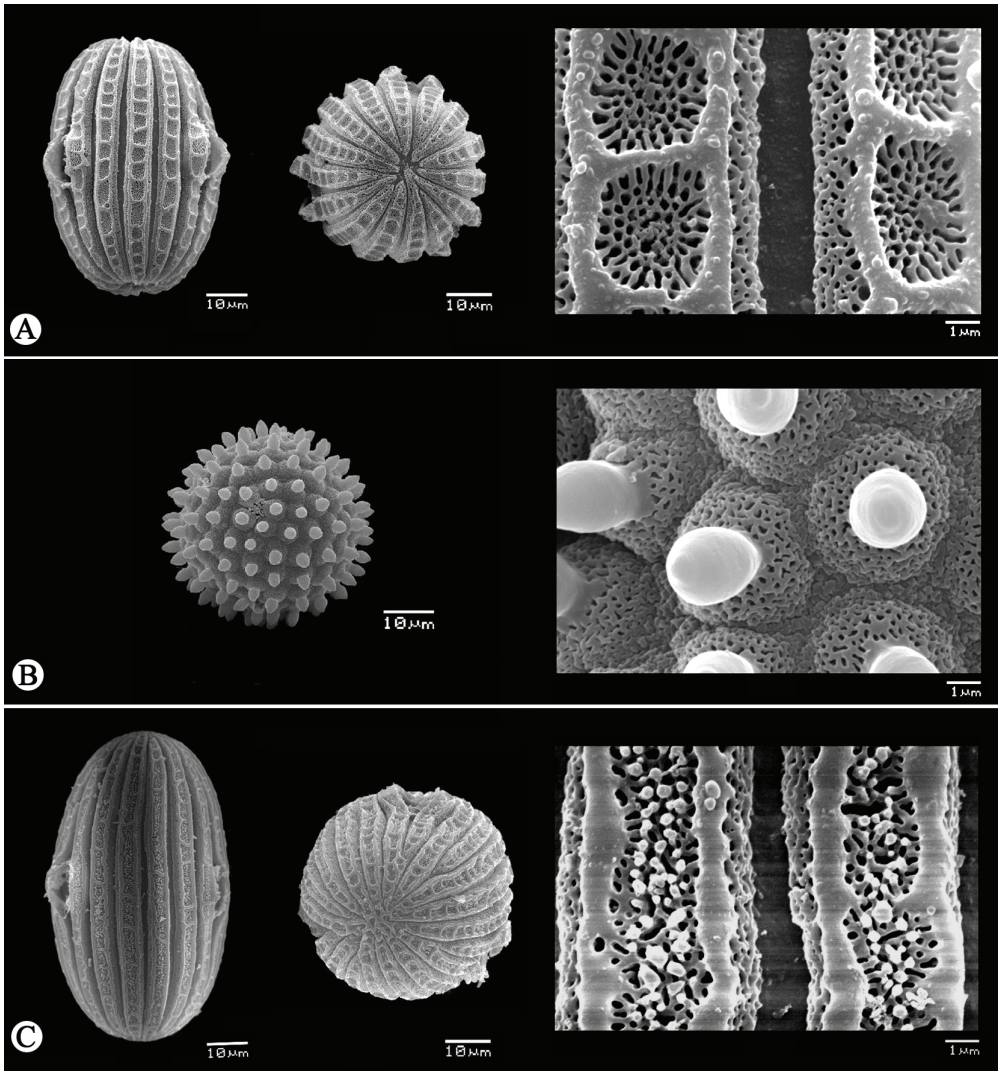

Fig. 2. SEM micrographs of pollen grains of *Strobilanthes flexicaulis* (A), *S. rankanensis* (B), and *S. wallichii* (C).

Table 1：Comparison of diagnostic characters among *Strobilanthes flexicaulis*, *S. rankanensis* and *S. wallichii*.

	S. wallichii	*S. flexicaulis*	*S. rankanensis*
Leaf-base	Attenuate	Attenuate	Acute or obtuse
Bract	Ovate	Spathulate to linear	Absent
Calyx	Deeply 5-divided; outer surface glabrous	Deeply 3-divided; outer surface hairy or glandular-hairy	Deeply 3-divided; outer surface hairy or glandular-hairy
Inflorescence	Compact spicate, with 1-3 flowers	Spicate, sometimes crowded	Solitary
Ovary/ Capsule	Apex acuminate; surface glabrous	Apex truncate; surface sparsely glandular-hairy	Apex acute; surface sparsely glandular-hairy
Pollen grains	Ellipsoidal; exine longitudinally banded, bands finely areolate	Ellipsoidal; exine longitudinally banded, bands scalariform-reticulate	Globose; exine echinulate

1999, *J. C. Wang 11059* (TAIF, TNM, TNU). NANTOU Co.: Juiyenhsi Forest Reserve, Jun. 29, 1999, *Y. P. Cheng 2685* (TAIF). CHIAYI Co.: Mienyueh, alt. 2500 m, Oct. 28, 1997, *S. T. Chiu 2839* (TNM); Alishan, Sep. 8, 1991, *M. T. Kao s. n.* (TNM). ILAN Co.: Mingchih, alt. 1200 m, Jan. 29, 2007, *Y. C. Huang 531* (TNU).

Notes: The species has long been neglected in the flora of Taiwan, although many specimens has been collected and deposited in different herbaria of Taiwan. The earliest collection even can be traced as early as 1930. However, most of them were misidentified as *S. rankanensis* Hayata due to the close similarity in morphology and habitat between them. However, *S. wallichii* can be distinguished from *S.*

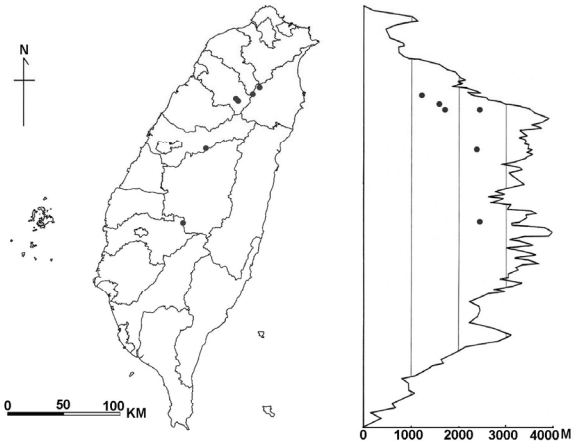

Fig. 3. Distribution of *Strobilanthes wallichii* Nees in Taiwan.

rankanensis in having attenuate (vs. acute or obtuse) leaf base, compact spicate inflorescence with 1-3 (vs. solitary) flowers, folious (vs. absent) bract, and deeply 5-divided (vs. 3-divided, i.e. the three posterior ones out of five calyx-segments fused up to 1/2~2/3 long, other two fused at base only), glabrous (vs. hairy or glandular-hairy) calyx (Table 1). Moreover, their pollen grains are quite distinct: *S. wallichii* are ellipsoidal with longitudinally banded exine while *S. rankanensis* are globose with echinulate exine (Fig. 2). *Strobilanthes wallichii* is also similar to *S. flexicaulis* Hayata in leaves shape, but can be distinguished from the latter by ovate (vs. spathulate) bract and deeply 5-divided (vs. 3-divided), glabrous (vs. hairy or glandular-hairy) calyx. A comparison of diagnostic characters among these three similar species is presented in table 1.

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臺灣新紀錄植物—翅柄馬藍 (爵床科)

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摘要：本文報導臺灣產爵床科新紀錄植物-翅柄馬藍。本種以其逐漸窄縮之葉基以及五等裂之萼片與臺灣產同屬之其餘種類區別。本文提供該種之形態描述、地理分布、花粉 SEM 圖片以及照片，並提供臺灣產馬藍屬植物之檢索表以及此種與相近類群之比較。

關鍵詞：爵床科、新紀錄種、馬藍屬、翅柄馬藍、臺灣。