



# *Strobilanthes barbiger* (Acanthaceae), a new species from Vietnam

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**Summary.** A new species of *Strobilanthes*, *S. barbiger* J. R. I. Wood, Nuraliev & Scotland, is described from Vietnam. The new species is endemic to the Chu Yang Sin National Park in the southern part of the country, which is home to a number of other recently described species. *S. barbiger* belongs to the “Sympagis” group within *Strobilanthes* and its distinctive pollen is illustrated. Photographs and line drawings illustrate the new species.

**Key Words.** Chu Yang Sin National Park, pollen, taxonomy.

## Introduction

*Strobilanthes* Blume consists of around 400 species distributed widely throughout India, South China and SE Asia, extending to Afghanistan in the west, Japan in the northeast and New Guinea to the south. Species mostly occur in hill forest in areas with a seasonal monsoon climate, fewer species being found in the true rainforest of the Malay Peninsula or Borneo. Many species are remarkable for their plietesial flowering pattern, which partially explains why many species are rarely collected and poorly known. However, they are sometimes an important element in the forest understorey and may unexpectedly appear in great abundance in a flowering year.

The *Strobilanthes* flora of Vietnam is not very well documented. The richest area appears to be along the Chinese border in the north of the country. Further south there appear to be fewer species and those that do occur are poorly known. Amongst species endemic or near endemic to the southern part of Vietnam are *S. saltiensis* S. Moore, *S. longipedunculata* Terao ex J. R. I. Wood, *S. hypomalla* Benoist (also on the Bolaven Plateau in Laos) and the new species described below from the Chu Yang Sin National Park. This park was established in 2002 and covers an area of nearly 600 square kilometres. The park is mountainous and its highest peak is over 2400 m high. The lower slopes are covered in semi-evergreen forest but the middle altitudes where the *Strobilanthes* grows are covered in montane mixed evergreen forest. Its flora is not

very well known but it is home to a number of Vietnamese endemics including *Vietorchis furcata* Aver. & Nuraliev and *Thismia puberula* Nuraliev, both described from a site close to that of *S. barbiger* (Averyanov *et al.* 2013; Nuraliev *et al.* 2015), as well as *Aspidistra paucitepala* Vislobokov, Nuraliev & D. D. Sokoloff and *Thismia mucronata* Nuraliev, described from other localities but later found in Chu Yang Sin National Park.

## Materials and Methods

This study is based on field work by Nuraliev, Kuznetsov and Kuznetzova in Vietnam combined with studies of herbarium material in Oxford and Kew. Acetolysed pollen was examined using a Scanning Electron Microscope.

## Taxonomic Treatment

***Strobilanthes barbiger* J. R. I. Wood, Nuraliev & Scotland, sp. nov.** Type: Vietnam (southern part), Dak Lak Province, Lak Distr.; Mun. Bong Krang, Chu Yang Sin National Park, 11 km S of Krong Kmar Village, 12°23'15"N 108°20'45"E, 1300 m, 13 April 2012, M. S. Nuraliev 543 (holotype FHO, isotype MW).

<http://www.ipni.org/urn:lsid:ipni.org:names:60474134-2>

Perennial herb, anisophyllous; stems weakly zigzag, glabrous, sulcate. Leaves unequal in each pair, the

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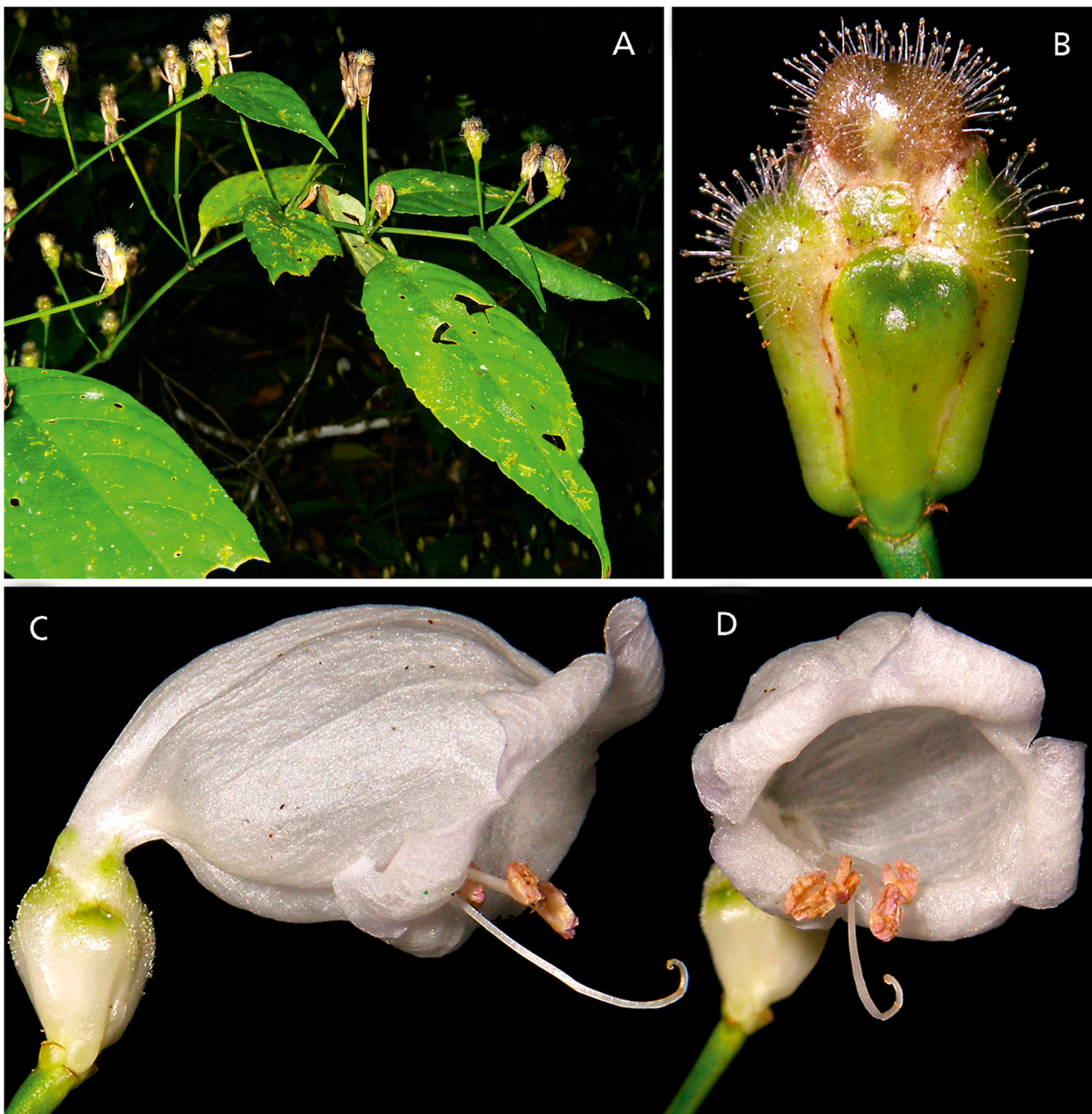
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smaller about half the larger, petiolate,  $2.5 - 10.5 \times 2 - 4$  cm, oblong-elliptic, apex acuminate, sometimes falcate, base slightly asymmetric, attenuate to cuneate, slightly decurrent, margin crenate; both surfaces glabrous, cystoliths present; adaxially often with prominent whitish blotches arranged in two lines on either side of the midrib; abaxially paler; veins 6 – 7 pairs; petioles 0.6 – 1.8 cm, glabrous. *Inflorescence* branched, capitellate, the flowers in few-flowered bracteate heads at apex of the branchlets; *peduncles* axillary, often trifurcate, 2.5 – 6 cm; inflorescence branches c. 4 cm, glabrous but cystoliths prominent; *bracts* at inflores-

cence branching points, shortly petiolate,  $4 - 8 \times 4 - 8$  mm, ovate to suborbicular, rounded to obtuse, cystoliths present, glabrous, eventually caducous, petioles 1 – 2 mm; *bracts* subtending heads similar but sessile and often obovate, obtuse and somewhat caducous, pedicels 0 – 1 mm, glabrous; *floral bracts* 8 – 11  $\times$  3 – 3.5 mm, obovate, sessile, persistent, abaxially with stipitate glands at anthesis, somewhat accrescent in fruit, white-pilose from the elongate glands; *bracteoles* 8 – 10  $\times$  2 – 3 mm, spatulate, persistent, abaxially with stipitate glands at anthesis, somewhat accrescent in fruit, white-pilose from the elongated glands (Fig. 1A – B).



**Fig. 1.** *Strobilanthes barbiger* (Nuraliev 543). **A** branch showing inflorescence in fruit; **B** head post anthesis; **C** corolla and calyx, side view; **D** corolla, front view. PHOTOS: MAXIM NURALIEV.

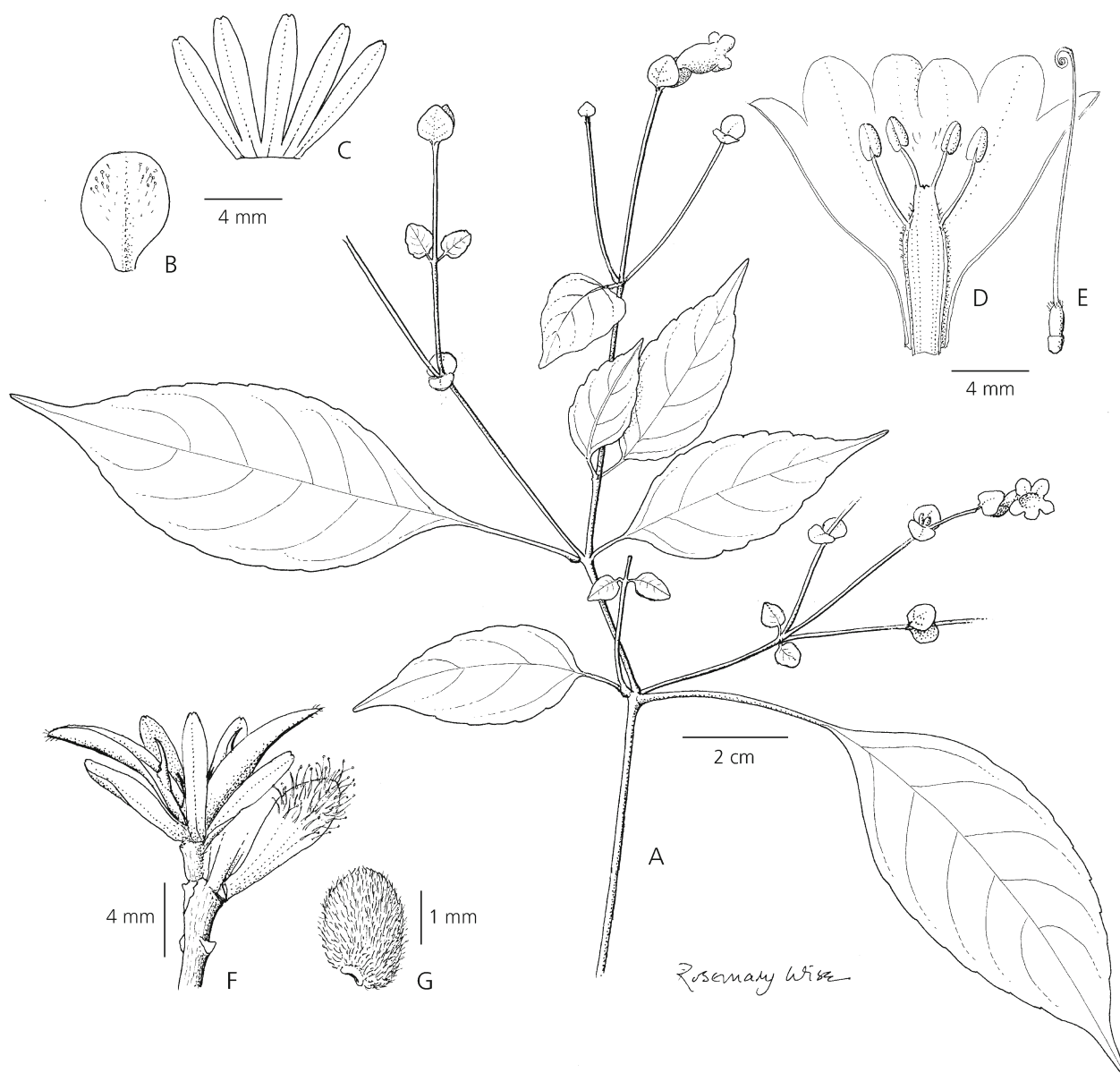


**Fig. 2.** *Strobilanthes barbiger*. **A** branch showing spotted leaves and fruiting inflorescence (Nuraliev 506); **B** pollen grain, side view (SEM image from Nuraliev 543); **C** plant with flowering and pre-flowering heads (Nuraliev 543); note partial spotting on leaves, centre left. PHOTOS: MAXIM NURALIEV.

*Calyx* subequally 5-lobed to base, lobes  $7 \times 1$  mm, linear-oblong, accrescent to  $9 \times 1.5$  mm in fruit and becoming linear-oblongate, apex obtuse or retuse, glabrous, abaxially whitish-green through abundant cystoliths. *Corolla* c. 1.6 cm long, the tube whitish but lobes pale blue, glabrous on the exterior, interior glabrous except for short hairs retaining the style, basal tube widened from 2 mm to 4 mm for c. 4 mm, then bent and abruptly widened to c. 10 mm at mouth, lobes 5, slightly unequal, ovate, rounded, c. 2.5 mm long and broad; *stamens* 4, didynamous, inserted at base of inflated part of corolla, all fertile, two longer exerted at anthesis, the two shorter included (Fig. 1C – D); filaments shortly pilose, shorter pair 2.5 mm long, longer pair 3.5 mm long;

anthers erect, broadly oblong,  $2 \times 1.25$  mm, mucicous, outer pair facing opposite direction to inner pair; *pollen* c.  $50 \mu\text{m}$  diam., spheroidal, triplicate, sexine forming raised narrow longitudinal flanges with transverse ridges creating a subscalariform pattern (Fig. 2B); *style* 13 mm, glabrous, included; *ovary* c. 1.5 mm, comose. *Capsule* oblong in outline,  $10 \times 3$  mm, glabrous apart from a few apical hairs, 4-seeded; *seeds* lenticular, flattened,  $2.25 \times 2$  mm, pilose with appressed mucilaginous hairs; areole small. Figs 1 – 3.

**RECOGNITION.** This species shows several characteristics of the “*Sympagis*” group of *Strobilanthes* as defined by Wood *et al.* (2003: 133), having in particular capitellate inflorescences, persistent floral bracts, small corolla



**Fig. 3.** *Strobilanthes barbiger* A habit; B floral bract; C calyx; D corolla opened out to show stamens; E ovary and style; F fruiting inflorescence showing pilose bracteole capsule; G seed. A – E from Nuraliev 543, F – G from Nuraliev 457. DRAWN BY ROSEMARY WISE.

with exserted stamens and a subequally 5-lobed calyx. This placement is confirmed by examination of its pollen which is typical of this group (Fig. 2B) and closely resembles that of *S. alata* Blume (Bennett & Scotland 2003: 12) and *S. serrata* J. B. Imlay, treated as Type 12 in the *Flora of China* (Hu *et al.* 2011: 382). Amongst species placed in the “Sympagis” group it is superficially similar to the Javanese species, *S. alata* (Bennett & Scotland 2003: 49 – 50) not only in pollen but also in gross morphology, particularly in the 3 – 5-flowered capitellate inflorescences with persistent obovate floral bracts and bracteoles borne on axillary, often trifurcate peduncles. It differs markedly in lacking winged stems and peduncles, the presence of prominent accrescent hairs on the abaxial surface of the floral bracts and bracteoles and in the comose ovary and capsule. Amongst Vietnamese species it is most similar to *S. paniculata* (Nees) Miq., particularly in its tendency to have obtuse to retuse calyx lobes but differs in the spheroidal, not ellipsoidal pollen, suborbicular to broadly ovate floral bracts and the distinctive hirsute bracteoles in fruit. The tendency to have blotched leaves is also shared by another species in this group, *S. maculata* (Wall.) Nees, but the spicate inflorescence of that species is very different.

**HABITAT & DISTRIBUTION.** Primary evergreen broad-leaved and mixed humid forest on levelled terraces of mountain slopes composed of silicate mother rocks with scattered granite outcrops. Canopy trees are 22 – 24 m high consisting principally of *Illicium* L. (Schisandraceae), *Manglietia* Blume, *Michelia* T. Durand (Magnoliaceae), *Cinnamomum* Schaeff. (Lauraceae), *Exbucklandia* R. W. Br., *Rhodoleia* Champ. ex Hook. (Hamamelidaceae), *Altingia* Noronha (Altingiaceae), *Elaeocarpus* L. (Elaeocarpaceae), *Schefflera* J. R. Forst. & G. Forst. (Araliaceae), as well as the conifers *Dacrycarpus imbricatus* (Blume) de Laub. and *Podocarpus neriifolius* D. Don (Podocarpaceae). The new species is known from two populations between 1300 – 1650 m with a distance of 1.3 km between them. Both are located in shaded ravines along small streams. In one of the known locations (*M. S. Nuraliev* 543) *Strobilanthes barbigera* co-occurs with *S. echinata* Nees. Late flowering and fruiting was observed in April.

**SPECIMENS SEEN. VIETNAM:** Dak Lak Province, Lak Distr.; Mun. Bong Krang, Chu Yang Sin National Park, 14 km S of Krong Kmar Village, 12°22'41"N 108°21'09"E, 1640 m, 2 April 2012, *M. S. Nuraliev* 457 fr. (FHO, MW); *ibid.*, 9 April 2012, *M. S. Nuraliev* 506 fr. (FHO, MW); *ibid.*, 11 km S of Krong Kmar Village, 12°23'15"N 108°20'45"E, 1300 m, 13 April 2012, *M. S. Nuraliev* 543 fl. (FHO, MW).

**CONSERVATION STATUS.** Data deficient. At the present time this species is known from two populations in a protected area, one of these, that at a higher altitude, consisted of numerous individuals along a stream over a distance of 50 to 100 m.

**NOTES.** The filament curtain is unusual in this species in having very short hairs.

**EPONYMY.** The epithet “barbigera” refers to the prominent long white glandular hairs that develop on the abaxial surface of the bracteoles as they age (Fig. 1B, 3).

## Acknowledgements

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