

中国马蓝属(爵床科)新组合和新分类群

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摘要:采用广义的马蓝属(*Strobilanthes* Blume)概念, 提出3个新组合: 匍匐半插花(*S. primulifolia* (Nees) Y. F. Deng & J. R. I. Wood), 直立半插花(*S. cumingiana* (Forst.) Y. F. Deng & J. R. I. Wood)和狭叶马蓝(*S. atropurpurea* var. *stenophylla* (C. B. Clarke) Y. F. Deng & J. R. I. Wood); 描述了8新种: 南岭马蓝(*Strobilanthes austrosinensis* Y. F. Deng & J. R. I. Wood)、冯氏马蓝(*S. fengiana* Y. F. Deng & J. R. I. Wood)、陶氏马蓝(*S. taoana* Y. F. Deng & J. R. I. Wood)、启无马蓝(*S. wangiana* Y. F. Deng & J. R. I. Wood)、景东马蓝(*S. atroviridis* Y. F. Deng & J. R. I. Wood)、西畴马蓝(*S. rostrata* Y. F. Deng & J. R. I. Wood)、黄连山马蓝(*S. spiciformis* Y. F. Deng & J. R. I. Wood)和匍匐马蓝(*S. procumbens* Y. F. Deng & J. R. I. Wood)。对南岭马蓝、黄连山马蓝、景东马蓝和匍匐马蓝的花粉形态进行了观察。

关键词:爵床科; 中国; 新组合; 新种; 马蓝属

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New Combinations and New Species of *Strobilanthes* Blume (Acanthaceae) from China

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Abstract: In the course of preparing the manuscript of *Strobilanthes* for the forthcoming Volume 19 of *Flora of China*, a broad concept of *Strobilanthes* is accepted. Eight new species are described and illustrated: *Strobilanthes austrosinensis* Y. F. Deng & J. R. I. Wood, *S. fengiana* Y. F. Deng & J. R. I. Wood, *S. taoana* Y. F. Deng & J. R. I. Wood, *S. wangiana* Y. F. Deng & J. R. I. Wood, *S. atroviridis* Y. F. Deng & J. R. I. Wood, *S. rostrata* Y. F. Deng & J. R. I. Wood, *S. spiciformis* Y. F. Deng & J. R. I. Wood, and *S. procumbens* Y. F. Deng & J. R. I. Wood. Three new combinations are necessary to be made: *Strobilanthes primulifolia* (Nees) Y. F. Deng & J. R. I. Wood, *S. cumingiana* (Forst.) Y. F. Deng & J. R. I. Wood, and *S. atropurpurea* var. *stenophylla* (C. B. Clarke) Y. F. Deng & J. R. I. Wood. Pollen morphology of *S. austrosinensis* Y. F. Deng & J. R. I. Wood, *S. atroviridis* Y. F. Deng & J. R. I. Wood, *S. spiciformis* Y. F. Deng & J. R. I. Wood and *S. procumbens* Y. F. Deng & J. R. I. Wood is illustrated.

Key words: Acanthaceae; China; New combination; New species; *Strobilanthes*

Strobilanthes Blume is the second largest genus of the family Acanthaceae distributed in tropical and

subtropical regions of Asia. Estimates of the number of species in *Strobilanthes* Blume range from 250

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species^[1-2] to 350^[3] or 450 or more^[4]. Bremekamp^[5] divided *Strobilanthes* and its allies into over 54 genera arranged in 27 informal groups in his monograph of the subtribe Strobilanthinae. Terao^[4] recognized a broadly circumscribed *Strobilanthes* comprising all species of Strobilanthinae. The results of recent molecular studies^[6], statistical analysis^[2] and pollen and gross morphology^[4,7-8] demonstrate clearly that adequate diagnosis of the majority of groups into which the Strobilanthinae has been divided by Bremekamp^[5] and others^[1,9-10] is problematic and that a single monophyletic expanded *Strobilanthes* should be recognized^[2,6].

In the course of preparing the manuscript of *Strobilanthes* Blume of Acanthaceae for the forthcoming Volume 19 of *Flora of China*, the broad circumscription of *Strobilanthes* Blume is accepted and some new combinations are necessary to be made. Many species have been newly reported from China^[11-17]. In this paper, eight new species from China are described and illustrated. In total, 126 species, one subspecies and four varieties will be recognized in the genus from China.

Strobilanthes austrosinensis Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China. Guangxi: Guilin, Guangxi Botanical Garden, Deng Yunfei 19372 (holotype, IBSC; isotypes, FHO, MO). Fig. 1

Inter species quae Bremekamp ad *Championellam* Bremek. ascripsit affinis *S. oliganthae* Miq. et *S. tetraspermae* (Champ.) Druce sed ab illa foliis ellipticis vel late obovatis minoribus (non ovatis), bracteis obovatis, corolla minore (usque 3 cm, non usque 3.5 cm), a hac foliis semper pilosis, bracteis obovatis (non oblanceolatis), corolla flexuosa (non recta) differt.

Isophyllous perennial herbs, drying a distinct dark-green colour; stems procumbent, rooting at the nodes, eventually ascending to ca. 50 cm, sulcate, bifariously pubescent, especially above, with reflexed, whitish, large-celled hairs. Leaves sessile or petiolate; petioles 0~2 cm, bifariously hirsute with reflexed, whitish, large-celled hairs; blades 2~8 cm ×

1~4.5 cm, elliptic to suborbicular, apex acute to obtuse, margin serrate, becoming subentire toward the base, base attenuate, upper surface pilose and hirsute especially toward the base, densely covered with white cystoliths, lower surface pilose along the veins. Inflorescence of terminal leafy, few-flowered, head-like spikes, often elongating at maturity; spikes 1~2 cm long; rachis densely whitish pilose. Bracts shortly petiolate, foliose, broadly obovate-spathulate, 15~18 mm × 5~8 mm, apex rounded or obtuse, margin entire below and 1~3-dentate upward, densely abaxially densely covered with whitish, multicellular hairs toward the base, adaxially subglabrous; bracteoles spathulate, 8~11 mm × 1~2.5 mm, abaxially densely covered with whitish, multicellular, large-celled hairs toward the base, adaxially whitish pilose. Calyx 1~1.2 cm, 5-lobed almost to the base, lobes oblong-lanceolate, midrib prominent, apex obtuse, margin ciliate with thick white upwardly spreading cilia, abaxially pilose, adaxially subglabrous. Corolla 2.2~2.8 cm long, straight to slightly curved, ventricose-infundibuliform, bluish-purple, outside pilose when young, then glabrescent, inside glabrous except for hairs retaining the style, tube base cylindrical for 1.2~1.5 cm long and ca. 2 mm wide, then gradually widened to ca. 1.5 cm at mouth. Stamens 4, included, didynamous; filaments hirsute, the longer pair ca. 8 mm long, the shorter pair ca. 6 mm long; anthers oblong, ca. 1.2 mm × 0.4 mm; pollen 58 μm × 41 μm, subglobose, tricolporate, pseudocolpate, echinulate, echinulae rounded and variable in the degree of the development (Plate I: A). Ovary ovate, ca. 2 mm long, glabrous except for comose to tip; style ca. 1.5 cm long, hirsute; stigma unequally 2-fid. Capsule ovate-oblong in outline, ca. 9~10 mm × 3 mm, glabrous except for pilose tip and along the suture, 4-seeded. Seeds ovoid, ca. 2.5 mm × 2 mm, densely pilose with mucilaginous hairs and a small glabrous areole.

Distribution. The species is centred on the Nanling Range on the Guangdong-Guangxi-Hunan border region extending east to Jiangxi and Fujian

Provinces.

Habitat. It grows in thickets and forest margins from 100 ~ 1500 m.

Etymology. The specific epithet is derived from Latin “austrosinensis” meaning “south China” because the species was found in South China.

Conservation status. The species is very common in the Nanling Ranges which cover more than 20000 km². Therefore it should be considered Least Concern (LC) according to IUCN Red List criteria^[18].

The species clearly belongs to the complex of species placed by Bremekamp^[5] in *Championella* Bremek. because of its herbaceous, decumbent habit and distinctive echinulate pollen illustrated in Deng *et al.*^[14]. Although it has long been identified as *S. oligantha* Miq. or *S. tetrasperma* (Champ.) Druce as having something of the appearance of an intermediate between the two in corolla size and shape as well as in leaf dimensions, they appear to be only distantly related. From both, *S. austrosinensis* can be distinguished by its more hirsute leaves and its obovate bracts: in *S. oligantha* these are ovate to elliptic in shape whereas in *S. tetrasperma* they are oblanceolate.

Additional specimens examined (Paratypes). CHINA. **Fujian:** no precise locality, unknown collector 1650 (PE). **Guandong:** Huaiji, Xingang, 27 Oct. 1983, Shi Guoliang 14548 (IBSC); Huaiji Xian, Xingang, 14 Oct. 1984, Shi Guoliang 15072 (IBSC); Lechang Xian, Pingshi, 170 m, 18 Aug. 1942, Chen Shaoqing 2136 (CAS, IBK, IBSC); Lechang Xian, 230 m, 11 Oct. 1987, Exped. Nanling 3983 (IBSC); Lechang Shi, Jiufeng Zhen, 600 m, 3 Oct. 2006, Ye Yushi & Cao Zhaozhong 3767 (IBSC); Liannan Xian, Jinkeng Xiang, 300 m, 11 Sep. 1958, Tan Peixiang 59403 (IBSC, KUN, PE); Lian Xian (now Lianzhou), near Longping Xiang, 240 m, roadside, 7 Oct. 1958, Tan Peixiang 59591 (IBK, IBSC, KUN, MO, NAS, PE, SZ); Lin District, 24 Sep. 1918, C. O. C. B. Clarke 3359 (HK, MO, PE); Renhua Xian, Danxiashan, 13 Nov. 1973, Huang Chengjiu & Zhang Yongtian 31 (IBSC, PE); Ruyuan Xian, Deng Yunfei 19288

(IBSC); Ruyuan Xian, Daqiao Gongshe, Sep. 1971, Ru Yao Team 584 (IBSC, MO); Ruyuan Xian, Xiushui Xiang, 6 Sep. 1941, Liang Baohan 83176 (IBK, IBSC); Ruyuan Xian, Tixia, Baishuikeng, 27 Oct. 1938, S. K. Lau 29110 (IBK, IBSC, MO); Ruyuan Xian, 24 Oct. 1956, C. Wang 42334 (IBSC, MO, SYS); Ruyuan Xian, Qingdong, 14 Sep. 1943, Mai Heyun M338 (IBSC); Wung Yuen District (now Wengyuan), 7 ~ 30 Oct. 1933, S. K. Lau 2554 (GH, IBSC). **Guangxi:** Guilin, Yanshan, 210 m, 10 Sep. 1997, Li Guangzhao 15455 (MO, PE); Guilin, Dabu, 135 m, 31 Nov. 1993, Li Guangzhao 13453 (MO, PE); Guilin, Yanshan, 12 Sep. 1998, Li Ming 745 (MO); Guilin, Yanshan, 26 Nov. 1993, Li Guangzhao 13348 (MO); Guilin, Yanshan, 14 Nov. 1955, Zhong Shuquan A60077 (IBK, KUN); Lingui Xian, Huixian Xiang, 180 m, 25 Oct. 1994, Li Guangzhao 14237 (MO, PE); Lingui Xian, Liutang Xiang, 140 m, 5 Oct. 1997, Li Guangzhao 16443 (PE); Lingui Xian, Liutang Xiang, 120 m, 5 Oct. 1997, Li Guangzhao 16274 (PE); Lingui Xian, Nanbianshan, 180 m, 7 Aug. 1997, Li Guangzhao 15976 (MO, PE); Xing'an Xian, Huajiang Xiang, 600 m, 20 Jun. 1995, Li Guangzhao 14615 (MO, PE); Xing'an Xian, Maoershan, 750 m, 26 Jul. 1997, Li Guangzhao 15114 (MO, PE); Xing'an Xian, Huajiang Xiang, 600 m, 20 Jul. 1995, Li Guangzhao 14615 (PE); Xing'an Xian, Maoershan, 400 m, 20 Oct. 1997, Li Guangzhao 16539 (PE); Xing'an Xian, Huajiang Zhen, 500 m, 25 Oct. 2005, Liu Fei 1690 (PE); Xing'an Xian, Huajiang Xiang, 17 Oct. 1984, Yang Rurong 84403 (PE); Xing'an Xian, 100 m, 19 Sep. 1954, Exped. Xing'an 29 (IBK, IBSC, SYS); Yangshuo Xian, Yangshuo Park, 180 m, 3 Oct. 1979, Zhou Gensheng et al 79116 (PE); Yangshuo Xian, Baisha Zhen, Deng Yunfei 19357 (IBSC); Ziyuan Xian, Yandong Xiang, 550 m, 24 Oct. 2005, Zhang Hong 1747 (PE). **Hunan:** Anhua Xian, 670 m, 6 Sep. 2004, Duan Lindong 3372 (PE); Chili Xian, Suoxiyu, Zhangjianwan, 430 m, 5 Sep. 1984, Exped. Xiangxi 823 (PE); Dong'an Xian, Dongan station to Damiaokou, 90 m, 15 Sep. 1948, Y. Liu 683 (HIB, IBSC, NAS, PE); Guidong Xian, Liangshuikou, 560 m, 25 Sep. 1977, Wan Shaobin & Li Binggui

5584 (HNNU, IBSC); Jianghua Xian, Gaotan gongshe, 250 m, 14 Nov. 1975, Li Binggui & Wan Shaobin 5366 (HNNU, IBSC, KUN, PE); Qidong Xian, Linguan Zhen, 400 m, 18 Sep., 2003, Li Jidong 414 (PE); Rucheng Xian, Reshui gongshen, Lanmulong, 630 m, 13 Oct. 1977, Wan Sahobin & Li Binggui 5654 (HNNU, IBSC); Xinning Xian, Yujiaqiao, 300 m, 26 Sep. 1984, Exped. Ziyuanshan 2017 (PE); Xinning Xian, 300 m, 20 Aug. 1994, Luo Linbo 200 (CAS, IBSC, K, MO, PE); Xinning Xian, 50 m, 3 Sep. 1985, Luo Yibo 3240 (PE); Xinning Xian, Miaoji, 800 m, 13 July 1985, Luo Yibo 2708 (PE); Xinning Xian, Huilong, 270 m, 17 Aug. 1985, Luo Yibo 3162 (PE); Yizhang Xian, Mangshan, 500 m, 22 Aug. 2005, Xiao Bai-zhong 4587 (PE); Yizhang Xian, Mangshan,

480 m, 20 Nov. 2005, Xiao Baizhong 4943 (PE); Yizhang Xian, Mangshan, 7 Oct. 1964, Huang Maoxian 113007 (IBSC, MO); Yizhang Xian, Jinquan Xiang, Mangshan, 360 m, 20 Sep. 1942, Liang Baohan 83512 (IBK, IBSC); Yizhang Xian, Liyuanbao, 130 m, 30 Jan. 1042, Chen Shaoqing 129 (IBK, IBSC); Zhijiang Xian, Q. Z. Lin et al 223 (IBSC). **Jiangxi:** Lushan, Houhuling, 960 m, Cheng Shuzhi & Wan Benben 8 (PE); Lushan, Hiang-shan-tse, Aug. 1934, H. H. Hu 2484 (PE); Lushan, unknown collector 10483 (PE); Pingxiang Xian, Nanyuan Xiang, 270 m, 21 Oct. 1954, Exped. Jiangxi 2704 (NAS, PE); Shangyou Xian, 23 Sep. 1971, Exped. Jiangxi 790 (PE); Shicheng Xian, 19 Oct. 1947, Wan Wenhao & Yu Zhongren 1947 (IBSC, NAS, PE).

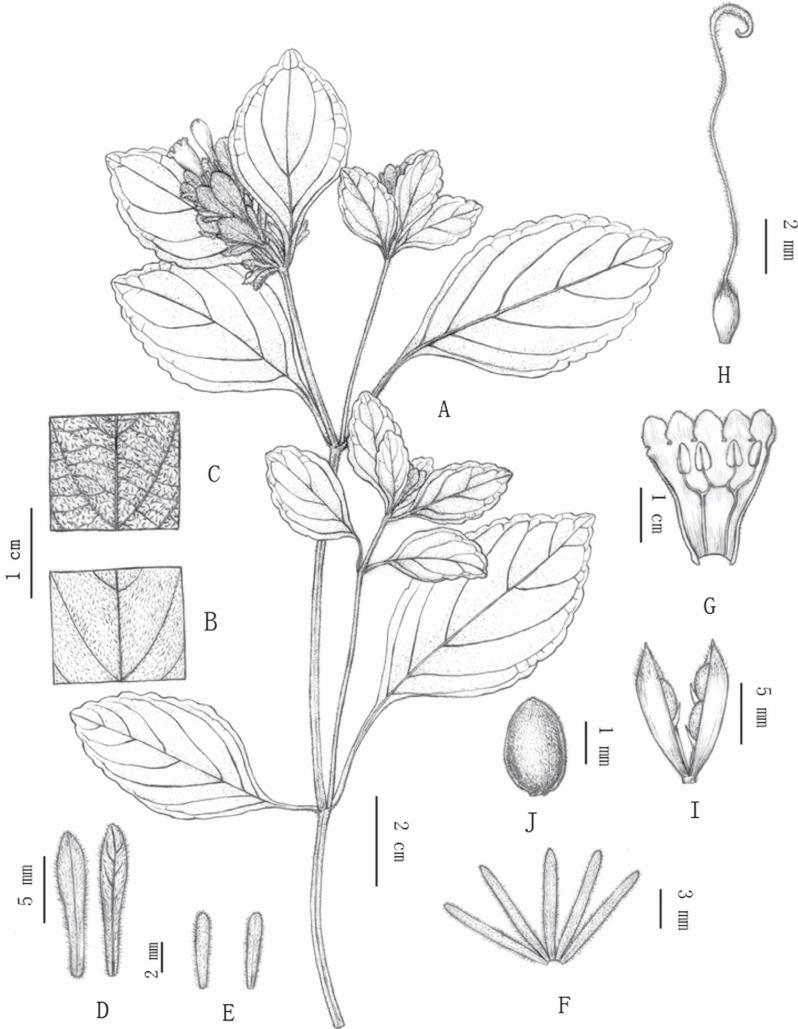


Fig. 1 *Strobilanthes austrosinensis* Y. F. Deng & J. R. I. Wood

A. Habit; B. Upper surface of leaf; C. Lower surface of leaf; D; Bracts; E. Bracteoles;

F. Calyx; G. Corolla opened out; H. Style and ovary; I. Capsule; J. Seed. (Drawn by LIU Yun-xiao)

Strobilanthes wangiana Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China. Yunnan, Yanshan, Ti-mi-ho-shan, 1200 m, in dense forest, 12 Oct. 1939, C. W. Wang 84339 (holotype, KUN; isotype, PE). Fig. 2.

Inter species quae Bremekamp ad *Championella* Bremek. ascripsit corolla flexa grandi *S. oligantham* Miq. accedens sed foliis parvis fere glabris aspectu foliorum *S. tetraspermae* (Champ.) Druce gaudentibus ab ea recedens.

Isophyllous perennial herbs up to 1 m tall; stems sulcate, obscurely bifariously pubescent, glabrescent, nodes pustular, sparsely pubescent. Leaves equal in each pair, petiolate; petioles 0.4 ~ 0.5 (~ 2) cm long, almost glabrous; blades elliptic to ovate-elliptic, 2.5 ~ 6 cm × 1.1 ~ 2.8 cm, apex obtuse, base cuneate and attenuate onto the petioles, margin crenate, both surfaces glabrous except for large-celled hairs along the midrib above, cystoliths prominent; lateral veins 5 ~ 7 pairs on each side of midrib, impressed or flattened above, prominent beneath, tertiary veins inconspicuous above, conspicuous beneath. Inflorescence of few-flowered subcapitate terminal spikes; spikes 2 ~ 4 cm long, flowers sessile, imbricate. Bracts foliose, the lower larger, elliptic, 2 ~ 4 cm × 1 ~ 1.4 cm, serrate, diminishing in size upwards, the upper oblong, 1.4 ~ 2 cm × 0.4 ~ 0.6 cm, entire except for a few teeth near the apex, sparsely pubescent outside and glabrous inside, margin ciliate; bracteoles linear-lanceolate, 9 ~ 11 mm × 1 mm, silky pubescent outside and glabrous inside, margin ciliate. Calyx 10 ~ 13 mm, 5-lobed to ca. 3 mm above base, lobes linear-oblongate, 10 ~ 14 mm × 0.6 ~ 1.0 mm, outside silky pubescent, inside silky pubescent above the middle and glabrescent toward the base, margin ciliate. Corolla purplish (fide Wang), 3.2 ~ 4 cm long, ventricose and bent to 90° at the mouth, outside pubescent, inside glabrous except for hairs retaining the style, tube base cylindrical for ca. 1 cm, 2 mm wide, then gradually widened to ca. 1 cm at the mouth, lobes ovate, 4 ~ 5 mm × 4 ~ 5 mm, apex obtuse. Stamens 4, didynamous, included; filaments pubescent, the longer pair 3 ~ 4 mm long, the shorter

pair 1 ~ 2 mm long, anthers oblong, ca. 1.5 mm long. Ovary glabrous except for few hairs at the tip, 2 mm long. Capsules oblong, ca. 1 cm × 0.3 cm, glabrous, 4-seeded. Seeds compressed, ovate, ca. 3 mm × 2 mm, pubescent, with a small areole.

Distribution. The species is endemic to Yunnan, China.

Habitat. It grows in dense forest at 1200 ~ 2300 m.

Etymology. The species is named after the collector of the type collection Wang Chiwu (1913 ~ 1987), who travelled in South Yunnan and collected about 25000 specimens including more than 500 type collections, adding much to our knowledge of the area.

Conservation status. *S. wangiana* is known only from three localities but no attempt has yet been made to assess its frequency in the field. From a conservation assessment perspective, the species may turn out to be Endangered (EN) in the sense of the IUCN Red List criteria^[18], but for the present must be classified as Data Deficient (DD).

S. wangiana clearly belongs to the group of species placed by Bremekamp^[5] in *Championella* because of the herbaceous habit and the prominently white-ciliate bracts which enclose the terminal few-flowered subcapitate spikes. It is vegetatively similar to *S. tetrasperma*, but has the large bent corolla of *S. oligantha*.

Additional specimens examined (Paratypes). CHINA. Yunnan: Shilin County, Guishan, 2300 m, 4 Aug. 2006, Y. M. Shui, W. H. Chen, M. D. Zhang, H. T. Zhao et al 64350 (PE); Yanshan, Teng-lung-shan, 1300 m, 20 Sep. 1939, C. W. Wang 83606 (IBSC, KUN, PE).

Strobilanthes spiciformis Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China. Yunnan: Luchun Xian, Mt. Huanglianshan, Hydrologic Station, 1700 ~ 1900 m, 22 Oct. 1995, S. K. Wu, Y. M. Shui, Y. P. Yang, L. H. Liu, J. H. He, J. Murata, H. Nagamasu, T. Sugawara, X. Chen & N. Murakami 204 (holotype, KUN, isotypes, IBSC, KUN). Fig. 3.

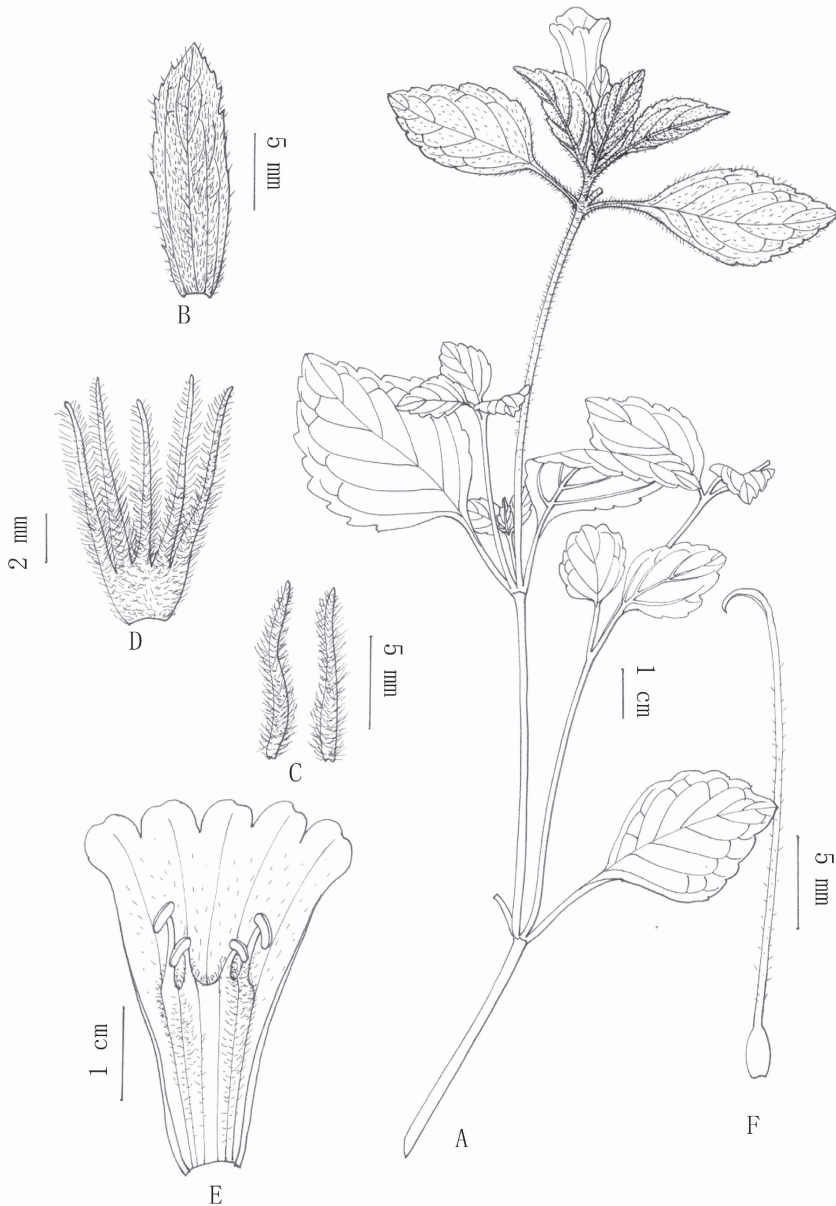


Fig. 2 *Strobilanthes wangiana* Y. F. Deng & J. R. I. Wood.

A. Habit; B. Bract; C. Bracteoles; D. Calyx; E. Corolla opened out; F. Style and ovary. (Drawn by WANG Ling)

Facie, forma calycis et corolla pubescente *S. extensae* (Nees) Nees congruens sed bracteolis absentibus, foliis superioribus petiolatis, bracteolis absentibus ad *S. oligocephalam* C. B. Clarke accedens sed bracteis non scariois; ab ambabus floribus in spicis longis dispositis distincta.

Anisophyllous perennial undershrubs, ca. 50 cm high. Stems woody, up to ca. 5 mm in diameter, young parts sulcate and angled, nearly glabrous apart from the pubescent nodes. Leaves unequal in each pair, petiolate; petioles (0.5~)1.3~2.3(~2.5) cm long, glabrous; blades of larger leaves 9~15 cm × 3~6 cm,

smaller leaves, 4~7 cm × 2~3.5 cm, ovate, apex acuminate, base cuneate, decurrent onto the petiole, margins serrate, glabrous on both surfaces, cystoliths prominent above; lateral veins 5~6 pairs in each side of midrib. Inflorescence of terminal spikes 4~9 cm long consisting of up to 5 flower pairs, rhachis quadrangular, glandular-pilose. Bracts ca. 8 mm × 5 mm, ovate, rounded, sparsely glandular-pilose above, glabrous below, deciduous as the flowers open; bracteoles absent. Calyx 10~16 mm long, lobes unequal, one distinctly longer than the others, linear-oblong, accrescent and becoming oblanceolate in

fruit, glandular-pilose, 8 ~ 16 mm × 1 ~ 2 mm, apex acute, margins ciliate. Corolla ca. 2.5 cm long, straight, pubescent in bud but soon glabrescent outside, inside glabrous, tube base cylindrical for ca. 1 cm and ca. 2 mm wide, then gradually widened to ca. 8 mm at mouth, lobes ca. 3 mm × 3 mm, orbicular, obtuse. Stamens 4, didynamous, included; filaments pilose, the longer pair ca. 20 mm long, shorter pair ca. 5 mm long; anthers oblong, ca. 2 mm × 1 mm; pollen 79 μm × 46 μm, ellipsoid, tricolporate, bireticate with scalariform pseudocolpi (Plate I: B). Ovary 2.5 mm × 0.8 mm, glabrous except for few glandular hairs at tip; style 2 cm long, glabrous. Capsule 15 ~ 20 mm × 3 ~ 3.5 mm, oblong in outline, glabrous except for a few glandular hairs at the tip and along the ribs towards the tip, 4-seeded; seeds ovate to suborbicular, ca. 3 mm long and broad, pilose.

Distribution. The species is endemic to China.
Habitat. It grows in forest at 1700 ~ 2400 m.
Etymology. The specific epithet “spiciformis”

refers to the clearly spicate inflorescence which is more pronounced than in *S. extensa* or in species such as *S. oligocephala* C. B. Clarke, to which it appears to be related by the absence of bracteoles.

Conservation status. *S. spiciformis* is only found in some localities in S and SW Yunnan and the area covers less than 1000 km². It may turn out to be Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the present is best classified as Data Deficient (DD) because there have been no field searches for the populations of the species.

Additional specimens examined (Paratypes).
CHINA. **Yunnan:** Longling, Huoshan, 2400 m, 18 Aug. 1941, C. W. Wang 90154 (KUN); Luchun Xian, Huanglianshan, Shui Yumin 4272 (KUN); Luchun Xian, Huanglianshan, Shui Yumin 4274 (KUN); Luchun Xian, Huanglianshan, Shui Yumin 4443 (KUN); Luchun Xian, way to Laobian, 2200 m, Oct. 19, 1973, Tao Deding 1045 (KUN).



Fig. 3 *Strobilanthes spiciformis* Y. F. Deng & J. R. I. Wood.
A. Habit; B. Bract; C. Calyx; D. Corolla opened out; E. Ovary and style; F. Capsule; G. Seed. (Drawn by WANG Ling)

The species is intermediate in many features between *S. extensa* and *S. oligocephala*. In facies it resembles *S. extensa* quite closely and, in particular is strikingly similar in calyx structure with the lobes accrescent in fruit, one lobe noticeably longer than the other and clearly oblanceolate in shape. However the upper leaves are petiolate and the inflorescence clearly spicate with some five flower pairs distributed along the rachis. The absence of bracteoles points to a relationship with *S. oligocephala* and *S. pentstemonoides* (Nees) T. Anderson but the spicate inflorescence is distinct and the bracts are not scarious. It also lacks the distinctive falcate leaves typical of most specimens of *S. oligocephala*.

Strobilanthes rostrata Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: CHINA. Yunnan: Sichou Hsien (now Xichou), Faa-doou, 1450 ~ 1550 m, 16 Sep. 1947, K. M. Feng 11800 (holotype, KUN, isotypes, GH, KUN, PE). Fig. 4.

Quoad flores in spicis secundis dispositas, bracteas lineares et corollam glabram ad *S. helictam* T. Anderson accedit, sed spicis in panicula terminali aggregatis et capsula rostrata ab ea recedens.

Slightly anisophyllous perennial herbs, ca. 1 m tall; stems quadrangular, sulcate, glabrous to weakly bifariously-pubescent. Leaves slightly unequal in each pair, long petiolate; petioles (1.5 ~) 3 ~ 8 cm long, glabrous to slightly bifariously scurfy; blades elliptic, (4.5 ~) 11 ~ 16 cm × (2.5 ~) 7 ~ 10 cm, apex obtuse, base subrounded and slightly decurrent, margin serrate, glabrous on both surfaces but with some multicellular cilia on the margins, adaxilly green with numerous cystoliths, abaxilly paler, lateral veins (6 ~) 9 ~ 12 pairs. Inflorescence of branched, axillary spikes bearing a pair of reduced leaves at the branching point and forming a lax terminal panicle; ultimate branches slightly zigzag, only one flower fertile in each pair. Bracts and bracteoles similar, linear to linear-spathulate, 2 ~ 3 mm long, glabrous or with a few gland-tipped hairs, abaxially densely covered with white cystoliths, abaxially cystoliths 2-lined. Calyx 12 ~ 16 mm long, subequally 5-lobed to ca. 2 mm above the base, lobes linear, thinly pilose with gland-

tipped hairs, abaxially densely covered with white cystoliths, adaxilly cystoliths 2-lined along the lobe margins, corolla ca. 3.8 cm long, bluish, ventricose, outside glabrous, inside glabrous except for hairs retaining the styles, tube base subcylindrical for ca. 1.2 cm long and gradually widened from ca. 2 mm wide at the base, then sharply bent to 90° at apex. Stamens 4, didynamous; filaments included, the longer pair ca. 8 mm long, the shorter pair ca. 6 mm long; anthers oblong, ca. 2 mm long. Ovary glabrous, style ca. 2.7 cm long, pilose. Capsule 1.5 ~ 1.6 cm long, glabrous, apex forming a beak ca. 4 mm long; glabrous, 4-seeded. Seeds ovate, ca. 2 mm × 2 mm, appressed pilose with mucilaginous hairs, areole small.

Distribution. The species is endemic to China, occurring in SE Yunnan, China.

Habitat. It grows in forest by streams in limestone areas.

Etymology. The specific epithet is derived from Latin meaning “long-beaked” because of the long-beaked capsule.

Conservation status. *S. rostrata* was only found in one locality in Xichou Xian, Yunnan and the area covers less than 1000 km². It may turn out to be Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the present is best classified as Data Deficient (DD) because there has been no evaluation of this species in the field and no additional collection for more than half a century.

The species is similar to *S. helicta* T. Anderson in the second spikes, in which one of the flowers in each pair aborts, the similar linear bracts and bracteoles and glabrous corolla but differs in its paniculate inflorescence, glandular calyx and bracts and long-beaked capsule.

Strobilanthes procumbens Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China. Chongqing, Nanchuan Xian, Jinfoshan, Daheba, 1000 m, 14 Sep. 1957, Li Guofeng 64172 (holotype, KUN; isotypes, HIB, IBSC, PE, SZ). Fig. 5.

Ex affinitate *S. brandisii* T. Anderson, *S. falconeri* T. Anderson et specierum similarium, sed foliis minoribus usque 3 cm longis (non 8 cm excedentibus),

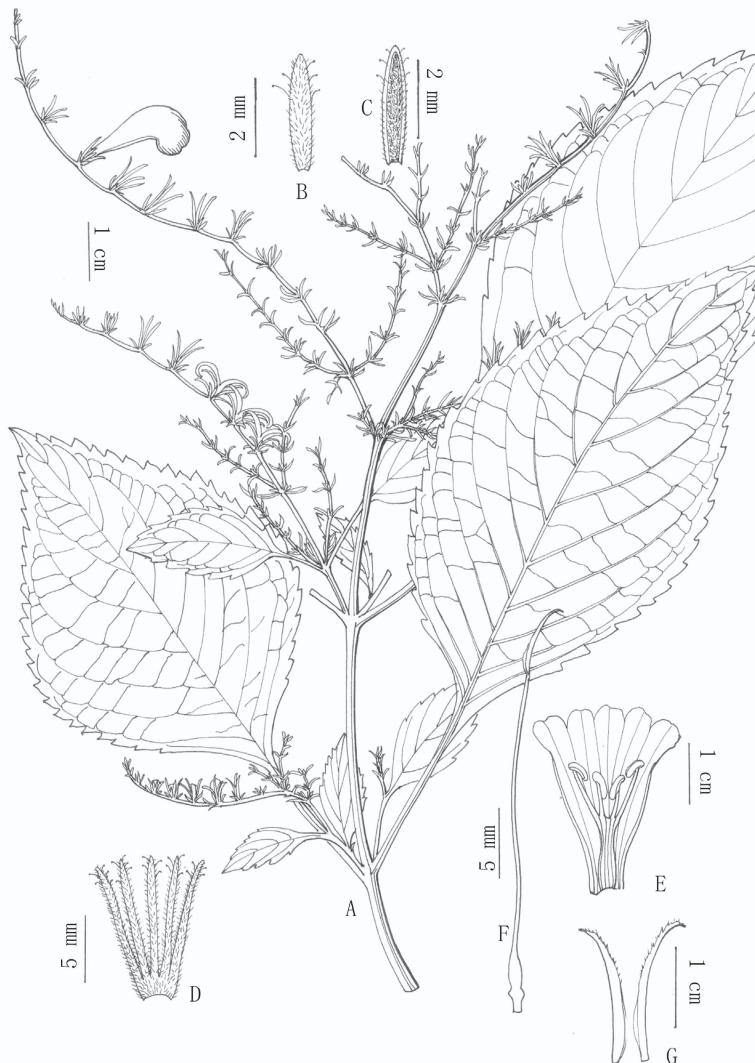


Fig. 4 *Strobilanthes rostrata* Y. F. Deng & J. R. I. Wood

A. Habit; B. Bract; C. Bracteole; D. Calyx; E. Corolla opened out; F. Ovary and style; G. Dehiscent capsule. (Drawn by WANG Ling)

acutis (non acuminatis) bracteis obovato-oblancoelatis (non lanceolatis vel oblango-ellipticis) differt.

Isophyllous perennial herbs, stems at first procumbent and rooting at nodes, then erect to ca. 0.7 m high; stems sulcate, densely pubescent with multicellular hairs. Leaves equal in each pair, petiolate; petioles 0.3 ~ 1.1 cm long, sulcate, densely pubescent with multicellular hairs; blades ovate to rhomboidal, 0.8 ~ 3 cm × 0.3 ~ 2 cm, apex acute, base cuneate and slightly decurrent onto the petioles, margin crenate, both surfaces pubescent with multicellular hairs, adaxially with numerous cystoliths, lateral veins 3 ~ 5 pairs, adaxially impressed and abaxially elevated. Inflorescences of short terminal, subcapitate spikes, ca. 1 cm long. Bracts leaf-like, obovate to

oblancoelate, 4 ~ 12 mm × 2 ~ 4 mm, diminishing in size upward, margin entire or with 1 ~ 2 teeth, silky-ciliate, adaxilly pubescent with yellowish multicellular hairs, abaxilly pubescent; bracteoles linear-spathulate, ca. 5 mm × 1 mm, indumentums as for bracts. Calyx ca. 3 mm subequally 5-lobed to the base, white-pilose, lobes linear, obtuse. Corolla 2.3 ~ 2.8 cm long, white, straight to slightly curved, funnel-shaped, outside pubescent especially on the lobes, inside glabrous except for hairs retaining the styles, tube base cylindrical for ca. 6 mm long and ca. 1 mm wide, then gradually widened to ca. 1 cm at mouth, lobes oblong, ca. 2 mm × 2 mm. Stamens 4, didynamous, filaments of longer pairs pubescent, ca. 4 mm long, the shorter pair glabrous, ca. 2 mm long, anthers

oblong, ca. 1.3 mm long; pollen 66 $\mu\text{m} \times 35 \mu\text{m}$, tricolporate, ellipsoid, bireticulate with scalariform pseudocolpi (Plate I: C). Ovary glabrous except for comose tip, styles ca. 1 cm long, glabrous. Capsule oblong, ca. 0.8 cm long, glabrous except for comose tip, 4-seeded. Seeds lenticular, ca. 1 mm $\times$ 1 mm, pubescent, with a small areole.

Distribution. The species is only found in its type locality, Jinfoshan, Nanchuan Xian, Chongqing, China.

Habitat. It grows in streamside at 800 ~ 1000 m.

Etymology. The name *procumbens* refers to the procumbent habit of the stems.

Conservation status. *S. procumbens* has only been found in Jinfoshan, Nanchuan Xian, Chongqing and the area covers less than 1000 km². It may turn out to be Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the

present is best classified as Data Deficient (DD) because there has been no accurate field assessment of the population of this species.

The new species appears to be most closely related to *S. brandisii* T. Anderson and *S. falconeri* T. Anderson from Myanmar and Thailand and more distantly to *S. esquirollii* H. Lév. With all these species it shares a congested terminal subcapitate inflorescence densely covered with whitish, eventually yellowish hairs and a nearly straight, pubescent corolla. From all of these it is distinguished by its smaller leaves and obovate to oblanceolate bracts and bracteoles.

Additional specimens examined (paratypes). CHINA. **Chongqing:** Nanchuan Xian, Jinfoshan, Daheba, Huangbaichang, 870 m, 18 Nov. 1957, Li Guofeng 65077 (HIB, KUN, PE, SZ); Nanchuan Xian, Jinfoshan, Daheba, 950 m, 22 Sep. 1957, Li Guofeng 64316 (PE, SZ).

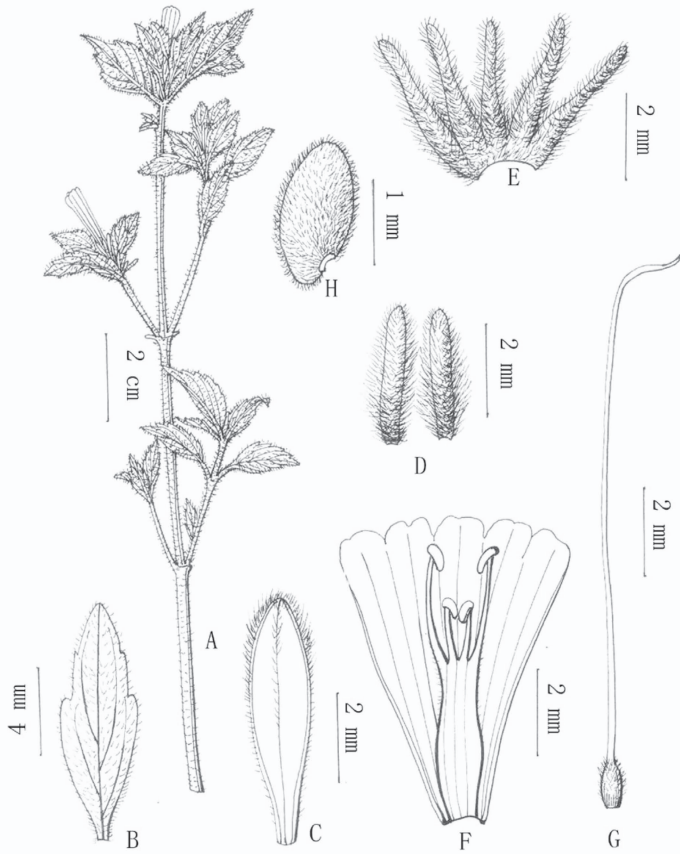


Fig. 5 *Strobilanthes procumbens* Y. F. Deng & J. R. I. Wood
A. Habit; B. Outermost bract; C. Inner bract; D. Bracteole; E. Calyx; F. Corolla opened out; G. Ovary and style; H. Seed. (Drawn by WANG Ling)

Strobilanthes taoana Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: CHINA. Yunnan: Jinghong City, Jinuo Xiang, Youleshan, 2200 m, 24 Jan. 1987, Tao Guoda 38840 (holotype, IBSC; isotype, HITBC). Fig. 6.

Affinis *S. rubescenti* T. Anderson, sed spicis simplicibus rectis, bracteis oblongo-ellipticis persistentibus corolla alba minore fere recta, usque 2.5 cm longa, differt.

Weakly anisophyllous undershrubs; stems somewhat sulcate, woody below, pilose with multicellular hairs, eventually glabrescent. Leaves unequal in each pair, the smaller about two-thirds the size of the larger, subsessile; petioles 0 ~ 2 mm long, pilose; blades 4 ~ 10 cm × 2 ~ 5 cm, broadly ovate, apex acute to shortly acuminate and commonly

falcate, base slightly asymmetric, rounded to subcordate, briefly decurrent onto the petiole, margin serrate, adaxilly green with inconspicuous cystoliths, nearly glabrous except for a few scattered, hispid hairs and a strigose or scurfy midrib, abaxilly paler, glabrous except for a few hairs on the veins, densely covered with prominent cystoliths on both surfaces. Inflorescence of axillary spikes, 2 ~ 5 cm long, the flowers in opposite pairs but frequently single because of the abortion of one flower; rhachis pilose, straight. Inflorescence bracts similar to leaves, diminishing in size upwards; floral bracts oblong-elliptic, 3 ~ 6 mm × 2 ~ 4 mm, acuminate, glabrous; bracteoles obovate to oblong-lanceolate, glabrous, 3 ~ 5 mm × 1 ~ 2 mm. Calyx subequally 5-lobed to ca. 1 mm above the base, the lobes 9 ~ 16 mm × 1 ~ 2 mm linear, obtuse, almost



Fig. 6 *Strobilanthes taoana* Y. F. Deng & J. R. I. Wood
A. Habit; B. Upper surface of leaf; C. Lower surface of leaf; D. Bract; E. Bracteole; F. Calyx;
G. Corolla opened out; H. Ovary and style; I. Stigma; J. Capsule; K. Seed. (Drawn by LIU Yun-xiao)

colourless, glabrous, covered with cystoliths. Corolla 2~2.5 cm long, white, funnel-shaped, outside glabrous, inside glabrous except for the hairs retaining the style, straight, ca. 2 mm wide at base, gradually widened to 1.2 cm, 5-lobed, lobes ovate, 4~6 mm long, apex rounded. Stamens 4, didynamous, filaments glabrous, the longer pair ca. 6 mm long, the shorter pair ca. 2 mm long, anther-thecae globose, ca. 1 mm in diameter, glabrous. Ovary glabrous; style ca. 2 cm long, glabrous. Capsule not seen.

Distribution. The species is only known the type locality, Jinghong City, Yunnan, China.

Conservation status. *S. taoana* is only known from Youleshan, Jinghong City, Yunnan and the area covers less than 1000 km². It may turn out to be Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the present is best classified as Data Deficient (DD) because no field assessment has been made.

This species resembles *S. rubescens* T. Anderson in its ovate, shortly petiolate to subsessile ovate leaves and inflorescence of axillary spikes with distant flowers and small oblong-elliptical floral bracts, but differs in its unbranched spikes with a nearly straight rhachis, persistent bracts and straight, white corolla.

Strobilanthes atroviridis Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China. Yunnan: Gingtung (now Jingdong), His-So-Tou-Shan, 2400 m, 26 Nov. 1939, M. K. Li 2086 (holotype, IBSC; isotypes, HITBC, KUN). Fig. 7.

Corolla flexa ad *S. yunnanensem* Diels et affines accedens sed floribus in spicis brevibus, subcapitulatis pedunculatis, calyce bilabiato et corolla glabra ab ea recedens, calyce bilabiato ad *S. dryadum* Benoist et *S. longispicam* (H. P. Tsui) J. R. I. Wood & Y. F. Deng accedens sed floribus in capitulis vel spicis brevibus pedunculatis dispositis ab eis recedens.

Weakly anisophyllous undershrubs up to to 3 m high. Stems branched, quadrangular, sulcate, glabrous, densely covered with prominent white cystoliths; nodes pustular, pubescent. Leaves slightly unequal, long petiolate; petioles 2~9 cm, glabrous;

blades 5~24 cm × 2~14 cm, ovate-elliptic, apex acute to long acuminate, base abruptly narrowed and then decurrent onto the petiole, margin serrate, drying blackish-green, above glabrous or with a few multicellular hairs, sparsely covered with prominent cystoliths especially along the veins, beneath glabrous, paler; lateral veins 6~10 pairs on each side of midrib, prominent on both surfaces, curved, net nearby the margin, tertiary veins conspicuous. Inflorescence of shortly-pedunculate axillary spikes, commonly reduced to capitula, spikes 1~3 (~6) cm, flower 1 (~4)-paired; peduncles 1~20 mm, sometimes bearing a small leaf below spike; rhachis glandular-pubescent, with gland-tipped hairs. Bracts 9~14 mm × 2~3 mm, linear-lanceolate, glandular-pubescent outside, glabrous inside; bracteoles 7~10 mm × 1~2 mm, linear-lanceolate, glandular-pubescent outside, glabrous inside. Calyx 10~15 mm long, glandular-pubescent outside, glabrous inside, 2-lipped, the lower lip 2-lobed almost to the base, the lobes 9~14 mm × 2~3 mm, linear-lanceolate, acute, the upper lip 3-lobed with 3 lanceolate teeth 5~7 mm long, connate for 4~7 mm. Corolla purplish blue (fide collectors), 3~4 cm long, glabrous outside and inside, strongly bent above base, the tube ca. 2 mm wide at the base, then gradually widened to ca. 2 cm at the mouth, the lobes ovate, ca. 1 cm × 1 cm, emarginate. Stamens 4, didynamous; filaments sparsely pilose below, the longer pair ca. 8 mm long, the shorter pair ca. 6 mm long, styles ca. 2 cm, glabrous; pollen 70 μm × 37 μm, ellipsoid, tricolporate, bireticulate, pseudocolpi scalariform (Plate I: D). Capsules unseen.

Distribution. The species is only known from its type locality, Wuliangshan, Jingdong Xian, Yunnan, China.

Habitat. It grows in wet places in forest at 2100~2400 m.

Etymology. The name *atroviridis* refers to the characteristic blackish-green colour of the leaves, which are similar to those of *S. cusia* (Nees) Kuntze.

Conservation status. *S. atroviridis* is only found in Wuliangshan, Jingdong Xian, Yunnan and the area covers less than 1000 km². It may turn out to be

Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the present is best classified as Data Deficient (DD) because there has been no accurate field assessment of the population of this species.

The species shares with *S. dryadum* R. Bennoist and *S. longispica* (H. P. Tsui) J. R. I. Wood & Y. F. Deng in a 2-lipped calyx with the three upper calyx lobes fused for about half of their length. However, it differs in a number of characters including its wingless rhachis, symmetrical leaves and glabrous,

strongly curved corolla, the latter recalling species such as *S. yunnanensis* Diels. It is unusual in having very poorly developed spikes which are commonly reduced to a single flower pair forming a pedunculate, subcapitate inflorescence.

Additional specimens examined (Paratypes).

CHINA. Yunnan: Jingdong Xian, Wuliangshan, 2150 m, 3 Apr. 1959, Xu Shuogui 3539 (KUN); Jingdong Xian, Wuliangshan, 2130 m, 8 Apr. 1959, Xu Shuogui 4524 (KUN); Jingdong Xian, Di-Shoei-Keng, 2400 m, 1 Jun. 1939, M. K. Li 2768 (IBSC, KUN).

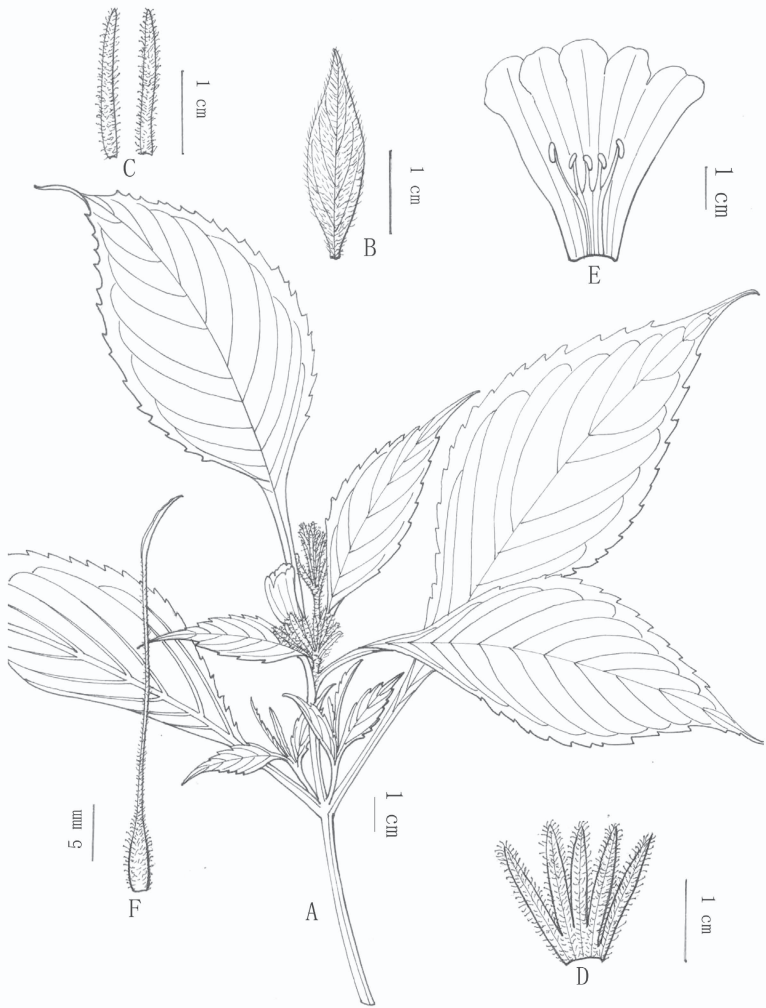


Fig. 7 *Strobilanthes atroviridis* Y. F. Deng & J. R. I. Wood

A. Habit; B. Bract; C. Bracteoles; D. Calyx; E. Corolla opened out; F. Ovary and style. (Drawn by WANG Ling)

Strobilanthes fengiana Y. F. Deng & J. R. I. Wood, sp. nov. TYPE: China: Yunnan: Sichou Hsien (now Xichou), Faa-doou, 1500 ~ 1600 m, 20 Sep. 1947, K. M. Feng 11933 (holotype, KUN; isotypes, KUN, PE).

Inflorescentia terminali paris spicarum brevium subcapitarum composita et corolla flexa *S. sarcorrhizam* (C. Ling) C. Z. Zheng ex Y. F. Deng & N. H. Xia revocans sed foliis ciliatis, bracteis oblongo-lanceolatis, scariosis (non foliosis), lobis calycis

linearis-spatulatis, non attenuatis, et corolla pilosa ab ea recedens; probabilitur ex affinitate *S. yunnanensis* Diels sed inflorescentia terminali et foliis anguste ovato-ellipticis, margine undulatis (non ovatis, serratis), dignoscenda.

Isophyllous perennial herbs, up to 50 cm tall; stems quadrangular, sulcate, glabrescent. Leaves petiolate, slightly unequal in each pair; petioles 1~2 cm long, sulcate, bifariously pilose; blades narrowly ovate to narrowly elliptic, 4~15 cm × 2~6 cm, acuminate to an obtuse apex, margin undulate to crenulate ciliate, base rounded or broadly cuneate, thin in texture, cystoliths prominent, sparsely pilose on both surfaces but especially on the margins and veins abaxially, paler abaxially, lateral veins 4~7 pairs. Inflorescence terminal formed of dense, shortly pedunculate, head-like spikes, 1.5~3 cm long, from the uppermost leaf axils; peduncles pubescent. Bracts oblong-lanceolate, 1~1.5 cm × 0.3~0.4 cm, adaxially sparsely pubescent, abaxially glabrescent; bracteoles linear-lanceolate, 8~10 mm × 1~2 mm, adaxially densely covered with multicellular large-celled hairs, abaxially glabrous. Calyx 1.1~1.2 cm long, 5-lobed almost to the base, one lobe longer than the others, lobes linear-spathulate, margin ciliate with multicellular hairs, abaxially covered with multicellular hairs upward. Corolla lavender, 3~3.5 cm long, bent to 90° above the middle, outside pilose with large-celled hairs, inside glabrous except for hairs retaining the style, tube base cylindrical for ca. 1.5 cm long and ca. 2 mm wide, then gradually widened to ca. 1.3 cm at mouth. Stamens 4, didynamous, included; filaments pilose, the longer pair ca. 8 mm long, the shorter pair ca. 6 mm long; anthers oblong, ca. 2 mm long. Capsule oblong, 1.2~1.4 cm × 0.3~0.4 cm, glabrous, 4-seeded. Seeds ovate, 3 mm × 2 mm, pubescent, with a small areole.

Distribution. The species is only found from type locality, Xichou Xian, Yunnan, China.

Habitat. It grows under the forest at 1200~1500 m.

Etymology. The species is named after the collector, Prof. Feng Kuomei (1917~2007) at

Kunming Institute of Botany, Chinese Academy of Sciences, who collected the type collection of the new species. Prof. Feng was a taxonomist of Theaceae, Ericaceae and so on. He had investigated the plants in Yunnan Province and made more than seven thousand collections including about four hundred type ones^[19].

Conservation status. *S. fengiana* has only been found in Xichou Xian, Yunnan and the area covers less than 1000 km². It may turn out to be Endangered (EN) or Vulnerable (VU) according to the IUCN Red List criteria^[18], but for the present is best classified as Data Deficient (DD) because no assessment of this species in the field has ever been made.

Herbarium specimens of *S. fengiana* have a strong superficial resemblance to *S. sarcorrhiza* in having a terminal subcapitate inflorescence with the short spikes arising from the uppermost pair of leaf axils. This is reinforced by the discoloured leaves and the similar, bent corolla. However, it seems likely that this resemblance is superficial as the bracts of *S. fengiana* are somewhat scarious and very different from the foliose bracts of *S. sarcorrhiza*. This character, in fact, suggests an affinity with *S. yunnanensis* Diels, a supposition supported by the linear-spathulate calyx lobes and pilose corolla. However, almost all specimens of *S. yunnanensis* have a clearly axillary inflorescence, the leaves ovate rather than ovate-elliptic and the bracts acute, rather than acuminate.

Additional specimens examined (paratypes).

CHINA: Yunnan: Si-chow Hsien (now Xichou), Fadow, 1200 m, 2 Dec. 1939, C. W. Wang 85193 (KUN); Xichou Xian, Fadou, 1750 m, 28 Sep. 1980, Li Heng 140 (KUN); Xichou Xian, Fadou, Caoguoshan, 1450 m, 14 Nov. 1962, Wu Quan-an WEN62-299 (KUN); Xichou, Xiaoqiaogou, Ciliuchong, 1400 m, 10 Nov. 1992, Wang Yinzheng 92043 (PE); Xichou Xian, Fadou Xiang, Caoguoshan, 1500 m, 22 Dec, 2004, Deng Yunfei 17565 (IBSC).

Strobilanthes atropurpurea Nees var. *stenophylla* (C. B. Clarke) Y. F. Deng & J. R. I. Wood, st. nov. Basionym: *Strobilanthes stenophylla* C.

B. Clarke in Hook. f., Fl. Brit. Ind. **4**: 469. 1885. TYPE: India, Meghalaya, Khasia Mts., alt. 3 ~ 5000 ft., J. D. Hooker & T. Thomson 2033 (lectotype K, chosen here).

Strobilanthes martini Lév., Repert. Spec. Nov. Regni Veg. **12**: 99. 1913. syn. nov. TYPE: China, environs de Tchen-lin-tcheou, propr. de Kouy-tcheou, Oct. 1897, E. Bodinier & L. Martin 1930 (holotype, E; isotypes, K, P)

Distribution. It is disjunct in E. Himalayan region (India and Myanmar) and Guizhou of China.

The variety differs from var. *atropurpurea* only in its lanceolate leaves. In var. *atropurpurea*, the leaves are always ovate to ovate-elliptic. This variety is not well-known.

Strobilanthes cumingiana (Nees) Y. F. Deng & J. R. I. Wood, comb. nov. Basionym: *Ruellia cumingiana* Nees in DC, Prodr. **11**: 148. 1847. *Hemigraphis cumingiana* (Nees) F.-Vill., Fl. Philipp. ed. **4**(13A): 3. 153. 1880. TYPE: Philippines, Luzon, Cuming, 1310 (lectotype, K, chosen by Moylan et al, 2002).

Distribution. The species is distributed in China (Taiwan), Indonesia, Malaysia, Philippines.

Additional specimens examined. CHINA: Taiwan: Taitung Hsien, Lanyu Hsiang, Hongtou Village, 29 May 1996, T. Y. Yang, C. H. Chu & S. Y. Jen 6684 (KUN); Taitung Hsien, Lanyu, ca. 350 m, 6 April 1987, Ching-I Peng 10736 (CAS); Taitung Hsien, Lanyu, 8 May 1984, Ching-I Peng 6675 (CAS); Taitung Hsien, Lanyu, 400 m, 27 Feb. 1993, Chi-Cheng Liao 1221 (GH, MO); Taitung Hsien, Lanyu Hsiang, alt. 320 m, 7 Apr., 2002, T. Y. Yang & C. Y. Liu 14679 (MO); Taitung Hsien, Lanyu, 50 ~ 300 m, 16 Apr., 1992, S. F. Huang & Y. C. Hsu 4717 (GH).

Strobilanthes primulifolia (Nees) Y. F. Deng & J. R. I. Wood, comb. nov. Basionym: *Ruellia primulifolia* Nees in DC., Prodr. **11**: 144. 1847. *Hemigraphis primulifolia* (Nees) F.-Vill., Novis App. 153. 1880. TYPE: Philippines, Sorsogoo, Haenke s.n. (lectotype, PR, chosen by Moylan et al., 2002).

Ruellia reptans G. Forst., Fl. Ins. Austr. Prodr.

144. 1786, non *Strobilanthes reptans* Bojer ex Nees (1847). *Hemigraphis reptans* (G. Forst.) T. Anderson ex Hemsl., Bot. Voy. Challenger **1** (3): 173 1886. TYPE: Vanuatu, Tanu Island, Forster s.n. (lectotype, BM, chosen by Moylan et al., 2002).

Hemigraphis pacifica Hosakawa, Trans. Nat. Hist. Soc. Form. **25**: 127. 1935. TYPE: Melanesia, Palau Islands, Hosokawa 7400 (holotype, TAI).

Distribution. The species is distributed in China (Taiwan), Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Australia and Pacific islands (New Caledonia).

Ecology. It is a weed of roadsides, ponds, and streamsides below 400 m.

Additional specimens examined. CHINA. Taiwan: Pingtung Hsien, Kengting National Park, Nanjenshan, 300 m, 17 Sep. 1991, Chih-Chia Wang 545 (GH); Taitung Hsien, Yehyu Stream, 13 Apr., 2004, Shih-Wen Chung 8044 (MO); Taitung Hsien, Lanyu, 8 May, 1984, Ching-I Peng 6692 (CAS); Taitung Hsien, Lanyu, 350 m, 6 April 1987, Ching-I Peng 10734 (CAS); South Cape, Schmines A. Henry 1214 (K); Taitung Hsien, Lanyu, 21 July, 2002, Tien-Tsai Chen 12042 (PE); A-Ts'ai Hsien, Kuraru, Kôsyun, Mar. 30, 1932, S. Sasaki s. n. (MO); Hengchun Peninsula, Kuraru, 11 Oct., 1929, S. Saito 6940 (GH).

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References

- [1] Hu C C, Tsui H P. Acanthaceae [M]// Flora Reipublicae Popularis Sinicae Tomus 70. Beijing: Science Press, 2002: 1-309. (in Chinese)
- [2] Carine M A, Scotland R W. Classification of Strobilantheae (Acanthaceae): Trying to classify the unclassifiable [J]. Taxon, 2002, 51: 259-279.
- [3] Marbberley D J. Mabberley's Plant-book: A Portable Dictionary of Plants, Their Classification and Uses [M]. 3rd ed. Cambridge: Cambridge University Press, 2008: 1-1021.
- [4] Terao H. Taxonomic study of the genus *Strobilanthes* Bl. (Acanthaceae). Generic Delimitation and Infrageneric Classification [D]. Kyoto, Japan: Kyoto University, 1983: 1-104.
- [5] Bremekamp C E B. Materials for a monograph of the Strobilantheae

[J]. Verh Kon Ned Akad Wetensch, Afd Natuurk, Sect. 2., 1944, 41 (1): 1–305.

[6] Moylan E C, Bennett J R., Carine M A, et al. Phylogenetic relationships among *Strobilanthes* s.l. (Acanthaceae): Evidence from ITS nrDNA, TrnL-F cpDNA, and morphology [J]. Amer J Bot, 2004, 91: 724–735.

[7] Wood J R I. Notes relating to the flora of Bhutan: XXIX. Acanthaceae, with special reference to *Strobilanthes* [J]. Edinb J Bot, 1994, 51: 175–274.

[8] Wood J R I. Notes on *Strobilanthes* (Acanthaceae) for the flora of Ceylon [J]. Kew Bull, 1995, 50: 1–24.

[9] Cui H B (Tsui H P). Materiae ad Floram Acanthaceae Sinicarum (1) [J]. Acta Bot Yunnan, 1990, 12: 269–278.

[10] Hsieh C F, Huang T C. The Acanthaceous plants of Taiwan [J]. Taiwan, 1974, 19: 19–57.

[11] Chen W H, Deng Y F, Shui Y M. *Strobilanthes adpressa* J. R. I. Wood, a newly recorded species of Acanthaceae from China [J]. J Trop Subtrop Bot, 2006, 14: 345–346. (in Chinese)

[12] Deng Y F, Wang H, Zhou S S. Two newly recorded species of *Strobilanthes* (Acanthaceae) from China [J]. Acta Phytotaxon Sin, 2007, 45: 849–854.

[13] Deng Y F, Xia N H. Validation of the name *Strobilanthes sarcorrhiza* (Acanthaceae) [J]. Novon, 2007, 17: 154–155.

[14] Deng Y F, Wood J R I, Scotland R W. New and reassessed species of *Strobilanthes* (Acanthaceae) in the flora of China [J].

Bot J Linn Soc, 2006, 150: 369–390.

[15] Deng Y F, Wood J R I, Li H. *Strobilanthes ovata* (Acanthaceae), A new species from Gaoligong Shan, in Yunnan, China [J]. Novon, 2010, 20: 143–146.

[16] Deng Y F, Wood J R I, Fu Y. *Strobilanthes biocullata* (Acanthaceae), A new species from Hunan, China [J]. Novon, 2010, 20: (in press).

[17] Wood J R I, Scotland R W. The 2-lipped species of *Strobilanthes* (Acanthaceae) [J]. Kew Bull, 2003, 58: 83–129.

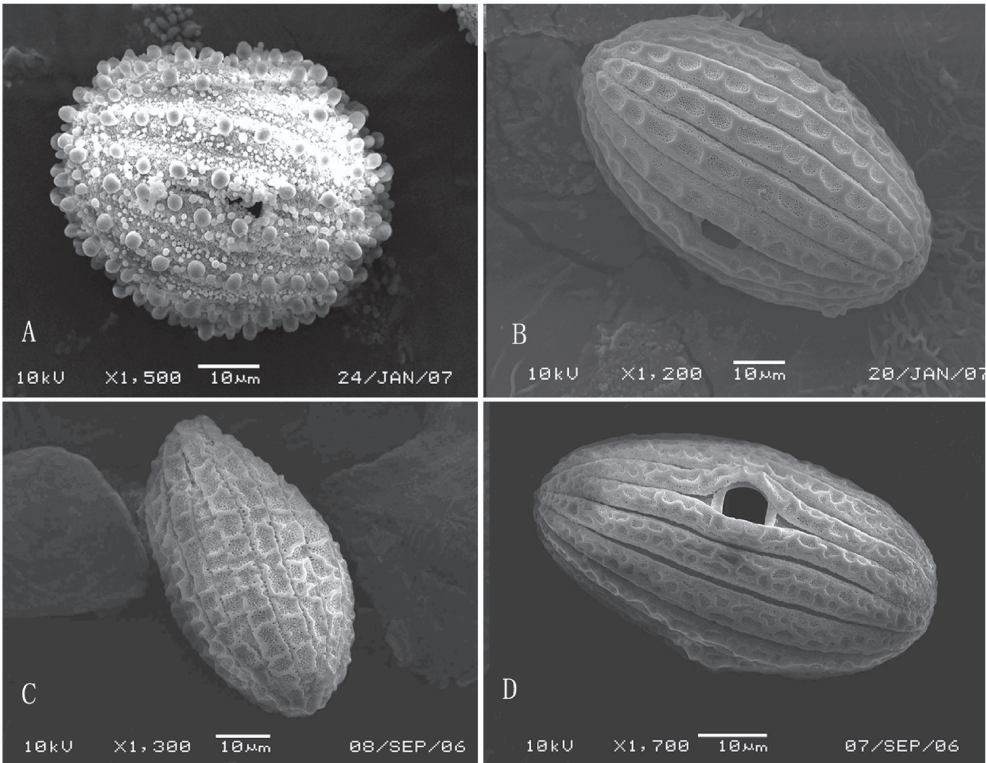
[18] IUCN. IUCN Red List Categories and Criteria Version 3.1. Prepared by the IUCN Species Survival Commission [M]. Gland, Switzerland: IUCN, 2001: 1–30.

[19] Bao S Y, Mao P Y, Yuan S X. A Brief History of Plant Collection in Yunnan (1919–1950) [M]. Beijing: China Science and Technology Press, 1998: 1–214. (in Chinese)

Explanation of plate

Plate I

A. Pollen of *Strobilanthes austrosinensis* Y. F. Deng & J. R. I. Wood from Y. S. Ye & Z. Z. Cao 3767 (IBSC); B. Pollen of *S. spiciformis* Y. F. Deng from S. K. Wu et al 204 (IBSC); C. Pollen of *S. procumbens* Y. F. Deng & J. R. I. Wood from Li Guofeng 64172 (KUN); D. Pollen of *S. atroviridis* Y. F. Deng & J. R. I. Wood from Xu Shuogui 59–3539 (KUN).



DENG Yun-fei, et al.: Plate I