

Viola nanlingensis (Violaceae), a new species from Guangdong, southern China

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Viola nanlingensis J.S. Zhou & F.W. Xing *sp. nova* (Violaceae), a new species from Guangdong province in southern China is described and illustrated. It is compared with the morphologically similar species *V. nagasawai* and *V. diffusa*.

Key words: *Viola*, Violaceae, new species, taxonomy

Viola is the largest genus in the family Violaceae, with 525–600 species in the world (Clausen 1964, Ballard 1996). Wang (1991) recognized 111 species in China, and about 21 species occur in the Guangdong province (Xing 2000). The mountains of eastern Asia are one of the morphological and taxonomic diversity centers of *Viola* (Ballard *et al.* 1999). The genus has been divided into 14 sections, and the most species-rich section, *Viola*, is further subdivided into 17 subsections (Becker 1925).

Sect. *Diffusae*, formerly treated as subsect. *Diffusae* under sect. *Viola* by Becker (1925), is comprised of about four species that are distributed in southern and southeastern Asia. It is characterized by having stolons at anthesis, the stolons with rosulate leaves at apex, and the stigma slightly 2-lobed (Wang 1991).

During an expedition to Nanling National Nature Reserve in northern Guangdong, as part of the project “Study on systematics in the genus *Viola* (Violaceae) in China”, a specimen of *Viola* was found and easily identified as a member of

sect. *Diffusae*, but it could not be placed in any of the previously described taxa and it is thus here described as a new species.

***Viola nanlingensis* J.S. Zhou & F.W. Xing, *sp. nova* (Fig. 1)**

Species V. nagasawai affinis, sed habitu robusto, foliis ovatis, 3–4 × 2–3 cm, foliis fructiferis majoribus, 5–7 × 3–4 cm, stipulis 15–18 × 3–4 mm, floribus majoribus, petalis lateralibus barbatis, calcari longiore differt.

HOLOTYPE: China. Guangdong Province, Shaoguan City, Nanling National Nature Reserve, Ruyang administration, moist places along roadsides, alt. 500 m, 25.III.2004 J. S. Zhou 117 (IBSC). — PARATYPE: China. Guangdong Province, Shaoguan City, Nanling National Nature Reserve, Ruyang administration, alt. 500 m, 20.VII.2004 J. S. Zhou 697 (IBSC).

ETYMOLOGY. The specific epithet is derived from the Pinyin form of the name of Nanling National Nature Reserve, where the specimens of *Viola nanlingensis* were collected.

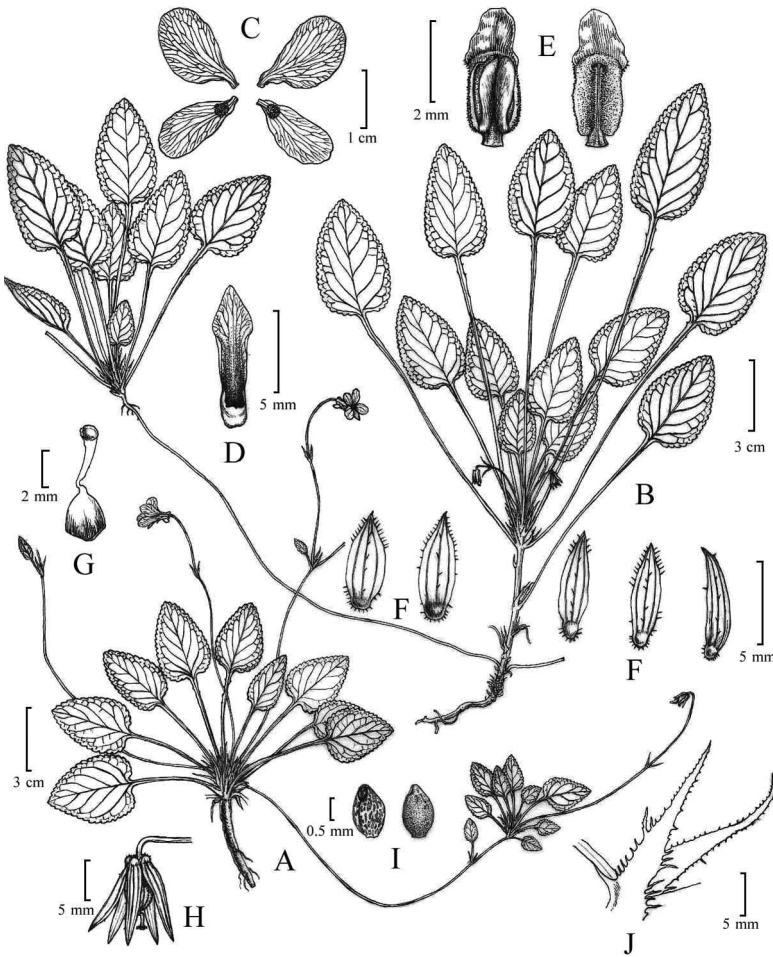


Fig. 1. *Viola nanlingensis* (from the holotype, drawn by Yunxiao Liu). — **A**: Plant with chasmogamous flowers. — **B**: Plant with cleistogamous flowers. — **C** and **D**: Petals. — **E**: Stamen. — **F**: Sepals. — **G**: Pistil. — **H**: Capsule. — **I**: Seed. — **J**: Stipule.

Perennial herb to 15 cm high; rhizome erect, producing stolons at anthesis. Stolon with rosulate leaves at apex, usually producing adventitious roots. Leaves 3–4 × 2–3 cm, ovate or elliptic, broadly cordate at base, acute, crenate, narrowly long-decurrent on petioles, glabrous or puberulous along margin, herbaceous; petioles 3–5 cm long. Stipules 15–18 × 3–4 mm, lanceolate, acuminate, sparsely fimbriate-laciniate, partly adnate to petiole. At fruiting time leaf blades conspicuously enlarged to 5–7 × 3–4 cm, petioles elongated to 5–10 cm. Flowers 30–35 mm across, pale purple with dark violet veins on base petal; peduncles 4–17 cm long, slender, glabrous, with two bracteoles above middle; bracteoles linear, entire, glabrous, 10 × 1.5 mm, acuminate; pedicels of cleistogamous flowers produced from basal leaf axils much shorter than

leaves. Sepals 5–8 × 1–1.5 mm, linear-lanceolate to linear, acute, sparsely fimbrio-ciliate; appendage 0.6–0.8 mm long, rounded, fimbrio-ciliate. Petals obovate, the base petal shortest, acute at apex, lateral petals bearded; spur 2–2.5 mm long, obtuse. Stamens 5, 3 × 1 mm. Style ca. 2.5 mm long, geniculate at base, clavate distally, stigma slightly 2-lobed, shortly beaked in front. Capsule 5–7 mm long, ellipsoid, glabrous. Seeds brown, ovoid, 1–1.2 mm long. Flowering in March–May, fruiting in July–October.

Viola nanlingensis is currently known only from Nanling National Nature Reserve, northern Guangdong (Fig. 2), but it is common there. It grows along margins of an evergreen broad-leaved forests and in moist places along roadsides, at altitudes between 500 and 800 m. Other common species in these habitats are

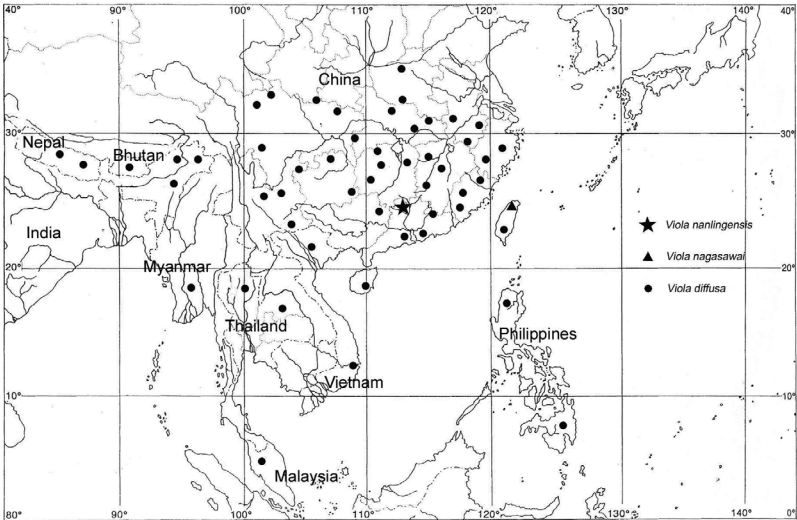


Fig. 2. Distribution of *Viola nanlingensis*, *V. nagasawai* and *V. diffusa*.

Lithocarpus calophyllus, *Castanopsis eyrei*, *C. fabri*, *Machilus thunbergii*, *Syzygium buxifolium*, *Schima superba*, *Pentaphylax euryoides*, *Daphne odora* var. *atrocaulis*, *Rubus reflexus*, *Rosa laevigata*, *Smilax china*, *Diplopterygium chinensis* and *Senecio scandens*.

Specimens of *Viola nanlingensis* from Nanling National Nature Reserve were formerly identified as the more trivial and widespread *V. diffusa* and have therefore not attracted attention (*Nanling Expedition 531* and *Nanling Expedition*

1543, IBSC). *Viola nanlingensis* is distinguished from all other species of the section by the bigger flowers (30–35 mm across). Morphologically the closest relative of this species is *V. nagasawai* (type TII; see Matsumura & Hayata 1906), which is endemic to Taiwan (Matsumura & Hayata 1906, Wang & Huang 1993), but *V. nanlingensis* differs mainly in its robust habit and bigger flowers. The differences between *V. nanlingensis* and the other two species are given in Table 1.

Table 1. Differences among *Viola nanlingensis*, *V. nagasawai* and *V. diffusa*.

	<i>V. nanlingensis</i>	<i>V. nagasawai</i>	<i>V. diffusa</i>
Habit	robust	slender	slender
Leaves	ovate, 3–4 × 2–3 cm, broadly cordate at base, usually glabrous, broadly cordate at base; leaf blade conspicuously enlarged at fruiting, to 5–7 × 3–4 cm	ovate or elliptic, 1–3 × 1–2.5 cm, hirsute above, broadly cordate at base; leaf blade not conspicuously enlarged at fruiting	suborbicular to ovate or elliptic, 1–4 × 1–3 cm, usually hirsute, cuneate to shallowly cordate at base; leaf blade not conspicuously enlarged at fruiting
Petiole	3–5 cm, conspicuously extended at fruiting, to 5–10 cm	1–7 cm, not conspicuously enlarged at fruiting	1–7 cm, not conspicuously enlarged at fruiting
Stipule	15–18 × 3–4 mm, lanceolate, sparsely fimbriate-laciniate	5–14 × 1–2 mm, linear-lanceolate to lanceolate, acuminate, sparsely fimbriate-laciniate	5–9 × 1–1.5 mm, lanceolate to ovate-lanceolate, acuminate, dentate to ciliate
Flower	30–35 mm across, pale purple	15–20 mm across, pale violet to almost white	7–13 mm across, purple or yellow
Petal	lateral petals distinctly bearded	lateral petals beardless or shortly bearded	lateral petals glabrous or shortly bearded
Spur	2.5–3 mm	1–1.5 mm	0.5–1 mm

Key to *Viola* section *Diffusae* in China

1. Flowers 30–35 mm across; leaf blade conspicuously enlarged at fruiting *V. nanlingensis*
1. Flowers less than 20 mm across; leaf blade not enlarged at fruiting 2.
2. Flowers less than 15 mm across 3.
2. Flowers 15–20 mm across 4.
3. Leaves cuneate or shallowly cordate at base; lateral petals usually bearded *V. diffusa*
3. Leaves cordate at base; lateral petals usually beardless ..
..... *V. tenuis*
4. Leaves ovate, lateral petals beardless
..... *V. nagasawai* var. *nagasawai*
4. Leaves triangular-ovate, lateral petals bearded
..... *V. nagasawai* var. *pricei*

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