

Viola nujiangensis (Violaceae), a new species of from northwestern Yunnan, China

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Abstract

A new species of *Viola* (Violaceae) from northwestern Yunnan, China, namely *V. nujiangensis* is described and illustrated. It is most similar to *V. perpusilla*, but differs by its rhizome and root stout, spur ca. 4 mm long, stipules and petiole purplish, and leaf blade glabrous on both surfaces.

Keywords: new species, *Viola* sect. *Adnatae*, Nujiang River

Viola Linnaeus (1753: 933) is a genus of about 550 species (Chen *et al.* 2007). This genus is richly represented in China, which constitutes a most important part of one of the primary centers of morphological and taxonomic diversity of this genus, i.e. the center of the Himalayas and mountainous Asia (Ballard *et al.* 1999). In *Flora of China*, 96 species were recorded as native in China (Chen *et al.* 2007). However, new species are still found in China in recent years (Zhou & Xing 2007; Zhou *et al.* 2008; Chen & Yang 2008, 2009; Dong *et al.* 2009; Ning *et al.* 2012).

During an expedition in April 2014 at Gongshan County, northwestern Yunnan, Dr. Xiao-Hua Jin collected a strange violet growing on sandy or rocky slopes of fluctuating zone of Nujiang River (Salween River). After morphological comparison, it is determined as an undescribed species and hereafter is described and illustrated.

Taxonomy

Viola nujiangensis Y.S. Chen & X.H. Jin, *sp. nov.* (Figs. 1–2)

Type:—CHINA. Yunnan: Gongshan, Cikai, on sandy or rocky slopes of fluctuating zone of Nujiang river, ca. 1450 m, 4 April 2014, X.H. Jin 14120 (holotype PE!; isotype PE!).

Diagnosis: *V. perpusilla* Boissieu similis, sed rhizomatibus et radicibus crassore, calcaribus circa 4 mm longis, stipulis et petiolis purpureis, laminis utrinque glaberis differt.

Herbs perennial, acaulescent, 2–5 cm tall. Rhizome stout, erect, branched or unbranched, 1–3 cm long, 1.5–2.5 mm in diameter, often surrounded by remains of leaf petioles of previous year in upper part; root usually stout, grayish-white, 10–18 cm long, straight descending. Leaves several, all basal; stipules purplish, glabrous, linear-lanceolate, 7–9 mm long, ca. 2/3 adnate to petioles, the free part 3–4 mm long, apex acuminate, margin entire or remotely denticulate; petioles purplish, 1–2.5 cm long, 0.1–0.2 mm wide, narrowly winged in upper part, glabrous; leaf blade ovate to elliptic-ovate, 1–2.5 cm long, 0.4–1 cm wide, both surfaces glabrous, base attenuate, apex obtuse, margin crenulate. Flowers purple-violet, 1–1.5 cm in diameter; pedicels exceeding leaves, slender, 0.1–0.2 mm in diameter, 2-bracteolate above middle; bracteoles subulate-linear, ca. 2 mm long. Sepals triangular, ca. 3 mm long, ca. 1 mm wide, base rounded or truncate, apex acute, margin entire; basal auricles very short, 0.1–0.2 mm long. Upper petals obovate, 7–8 mm long, ca. 2.2 mm wide, apex rounded; lateral petals oblong 8–9 mm long, ca. 2.3 mm wide, apex rounded, glabrous; anterior petal ca. 1.2 cm long including spur, ca. 2 mm wide, apex rounded; spur ca. 4 mm long, 1.3–1.6 mm in diameter. Stamens 5, anthers ca. 2 mm long. Ovary ovoid-globose, glabrous; style clavate, base conspicuously geniculate; stigma flat at top, conspicuously margined on lateral sides, shortly broken in front. Capsule ovoid, 5–6 mm long, glabrous.

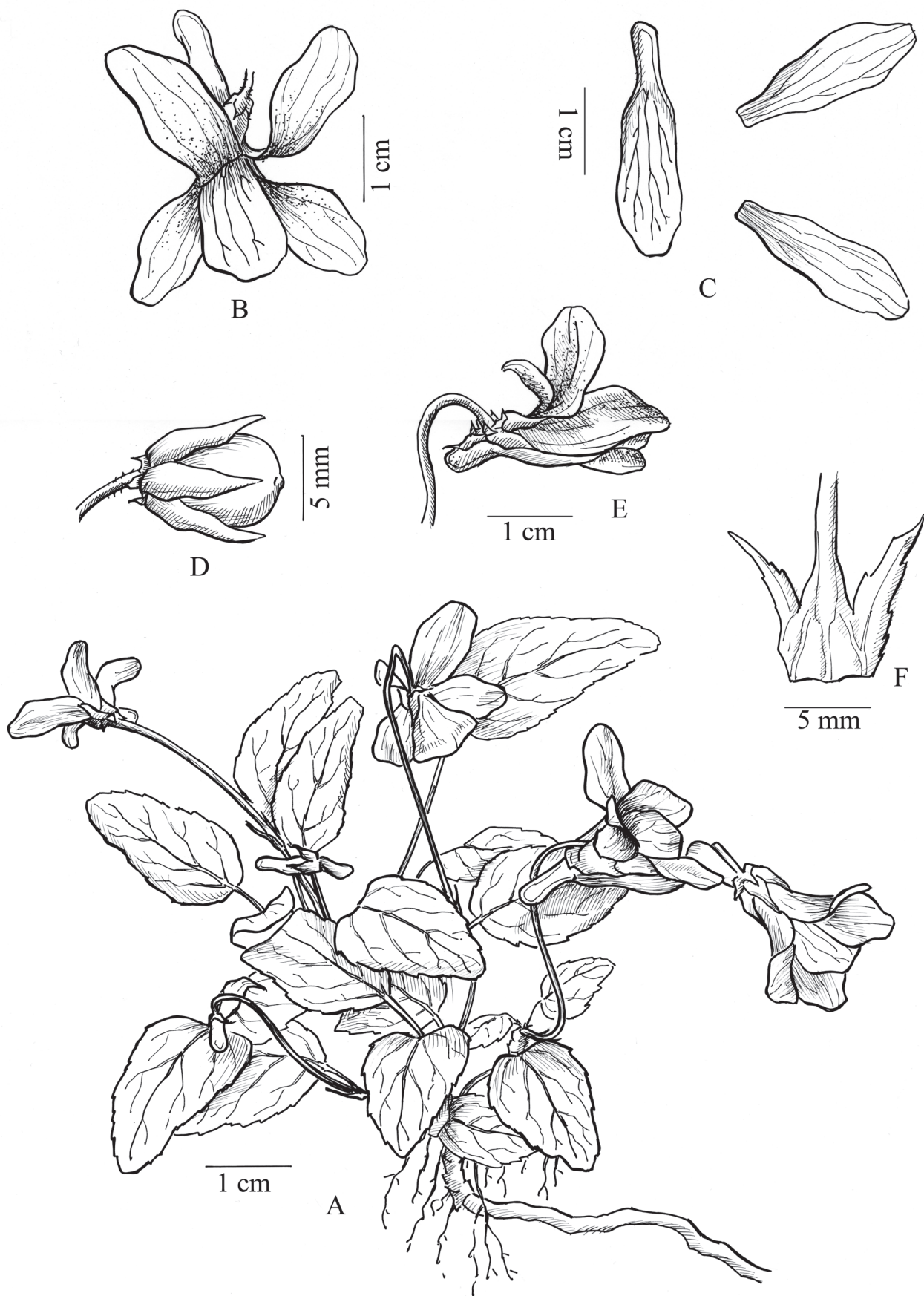


FIGURE 1. *Viola nujiangensis*, A. Habit; B. Flower (front view); C. Petals; D. Fruit; E. Flower (lateral view); F. Stipules. Drawn based on holotype *X.H. Jin 14120* (PE!).

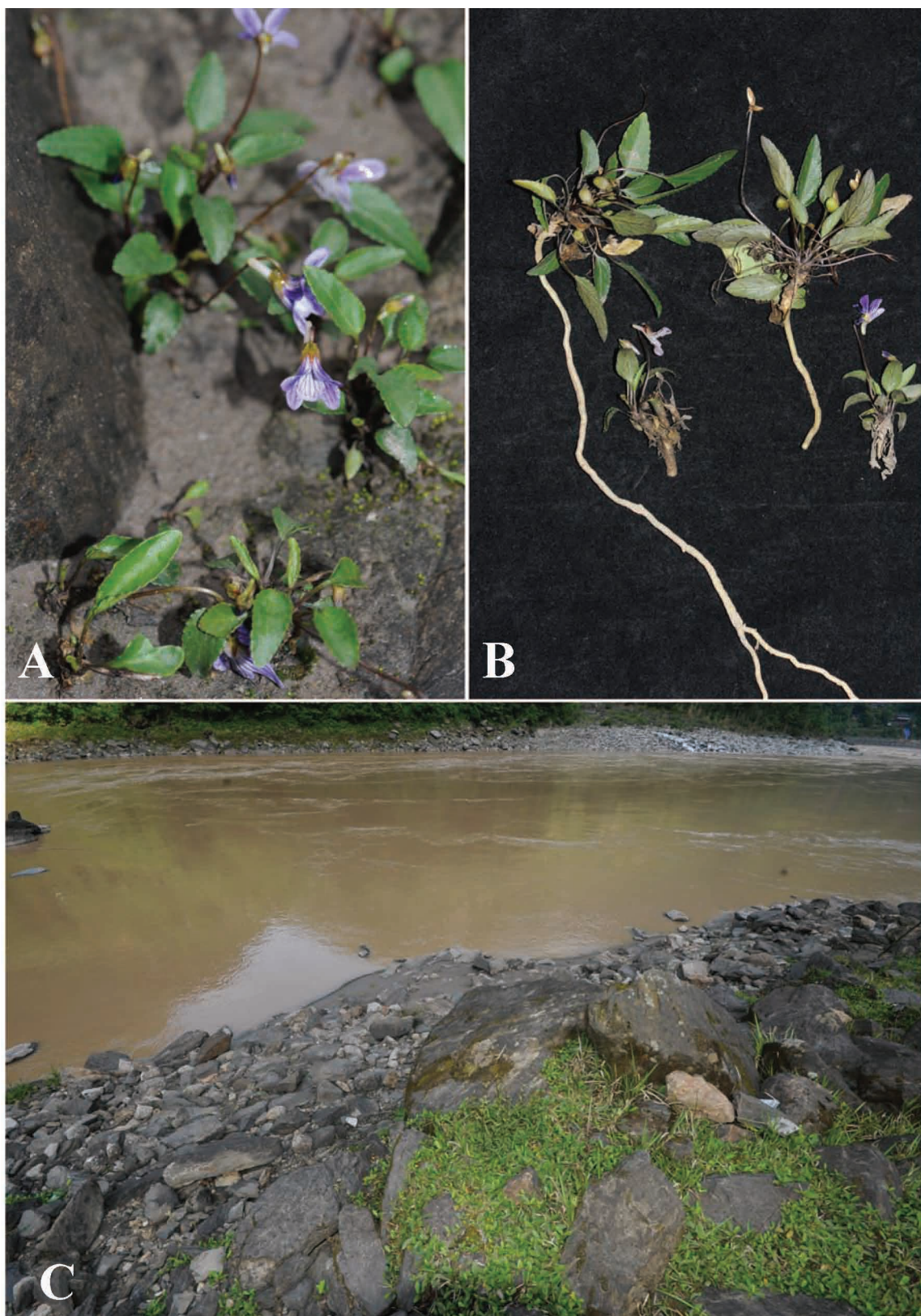


FIGURE 2. *Viola nujiangensis*. **A.** Habit; **B.** Living plants of the type specimens; **C.** Habitat along Nujiang River.

Distribution and habitat:—*Viola nujiangensis* is so far only found in Gongshan, northwestern Yunnan, China, growing on sandy or rocky slopes of fluctuating zone of rivers at altitudes of ca. 1450 m.

Phenology:—Flowering from March to April; fruiting from April to May.

Etymology:—The specific epithet is derived from the type locality name, Nujiang River (=Salween River).

Discussion:—*Viola nujiangensis* belongs to *Viola* subgen. *Viola* sect. *Adnatae* (Becker 1925: 368) Wang (1991:

41) because its stipules adnate to petioles and acaulescent habit. It is most similar to *V. perpusilla* Boissieu (1908: 468) in its acaulescent habit, leaf shape and size, small sepals with very short auricles, but differs by its rhizome and root stout, spur ca. 4 mm long, stipules and petiole purplish, leaf blade glabrous on both surfaces, whereas *V. perpusilla* is distinct by rhizome and root slender, spur ca. 2 mm long, stipules whitish and membranous, leaf blade adaxially pubescent. *Viola nujiangensis* is currently known only from Gongshan County, northwestern Yunnan, whereas *V. perpusilla* occurs in Cangshan Mountain, central Yunnan, growing on grassy slopes at altitudes of 2800–3000 m, flowering from June to October.

To facilitate identification of the 11 species *Viola* subgen. *Viola* sect. *Adnatae* in Yunnan, China, we herewith provide a key to them on the basis of a survey of both literature and herbarium specimens.

Key to species of *Viola* subgen. *Viola* sect. *Adnatae* in Yunnan, China

1. Spur more than 4 mm long2
- Spur less than 3 mm long5
2. Leaf blade lanceolate, margin shallowly crenate, base distinctly decurrent to petioles *V. philippica*
- Leaf blade ovate, margin serrate or deeply crenate, base not decurrent to petiole3
3. Lateral petals glabrous or sparsely bearded *V. belophylla*
- Lateral petals distinctly bearded4
4. Petals violet *V. tienschiensis*
- Petals white *V. sphaerocarpa*
5. Leaf blade orbicular to suborbicular; rhizome densely noded *V. striatella*
- Leaf blade ovate, oblong, elliptic, triangular or cordate; rhizome sparsely noded6
6. Leaf blade ovate or cordate *V. yunnanfuensis*
- Leaf blade elliptic, oblong or triangular7
7. Leaf blade base truncate or cordate; stipules brownish8
- Leaf blade base rounded or cuneate; stipules whitish9
8. Leaves triangular-lanceolate, base truncate, usually distinctly decurrent to petiole; spur short *V. betonicifolia*
- Leaves triangular-ovate, base cordate or truncate, slightly or not decurrent to petiole; sepal auricles usually distinct, spur slender *V. inconspicua*
9. Lateral petals bearded *V. trichopetala*
- Lateral petals glabrous10
10. Rhizome and root slender, spur ca. 2 mm long, stipules whitish and membranous, leaf blade adaxially pubescent *V. perpusilla*
- Rhizome and root stout, spur ca. 4 mm long, stipules and petiole purplish, leaf blade glabrous on both surfaces *V. nujiangensis*

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