Ann. Bot. Fennici 49: 383–386 ISSN 0003-3847 (print) ISSN 1797-2442 (online)
Helsinki 30 November 2012

Viola jinggangshanensis (Violaceae), a new species from Jiangxi, China

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Received 5 Mar. 2012, final version received 12 June 2012, accepted 12 June 2012

Ning, Z. L., Zeng, Z. X., Chen, L., Xu, B. Q. & Liao, J. P. 2012: *Viola jinggangshanensis* (Violaceae), a new species from Jiangxi, China. — *Ann. Bot. Fennici* 49: 383–386.

A new species of *Viola* (Violaceae) from Jiangxi Province, China, is described and illustrated. *Viola jinggangshanensis* Z.L. Ning & J.P. Liao is the sixth species in *Viola* sect. *Diffusae*, and is distinct from the sympatric *V. diffusa* by having conspicuously stipitate spherical glands on the lateral petals, sepals with dark-red spots, leaf blade adaxially dark green, abaxially purplish, both surfaces densely papillose-hispid, base of leaves shallowly cordate or truncate, narrowly decurrent on petioles, and capsules ovoid-orbicular, 3–4 mm long and 1.5–2 mm in diameter.

Viola, the largest genus in the Violaceae includes 525 to 600 species (Clausen 1964, Ballard *et al*. 1999). Becker (1925) divided *Viola* into 14 sections. The largest and taxonomically most diverse of the sections, *Viola*, includes 17 subsections.

During floristic investigations and *ex-situ* conservation fieldwork in the mountainous region of Jinggang Shan, Jiangxi Province, China, at 26°38´N, 114°14´E, in May 2010, we discovered a distinctive population of *Viola* with purple leaves growing on moist rocks. The plants were growing at the elevation of 795 m a.s.l., were in fruit, and no flowers were observed. The abaxially purple leaves, appressed to the rock surfaces, resembled the leaves of some members of the Gesneriaceae. We pressed some plants for herbarium specimens and collected several living individuals and seeds for planting in the South China Botanical Garden, Guangzhou, China. The morphology of the transplanted plants remained unchanged under cultivation for the past two years (2010, 2011). The petals of these plants are lilac and the abaxial side of the leaf blade has remained purple in the plants grown in a shaded bed and in the open outdoors. The plants are most similar to *Viola diffusa*, but there are several differences. After a careful study, it became clear the plants represent an undescribed species.

Viola jinggangshanensis Z.L. Ning & J.P. Liao, *sp. nova* (Fig.1)

Type: China. Jiangxi: Jinggangshan City, Ciping Changgulin Forest farm, 26°38´N, 114°14´E , 795 m, moist rock surface, 15 May 2010 *Z. L. Ning 142* (holotype, IBSC). — Paratype: Same locality, 15 May 2010 *Z. L. Ning & Z. X. Zeng 148* (IBSC).

Etymology: The specific epithet is derived from the name of the type locality, Jinggangshan City, Jiangxi province, China.

Herbs, perennial, 2–3 cm tall. Rhizome short, with numerous white rootlets and fibrous roots.

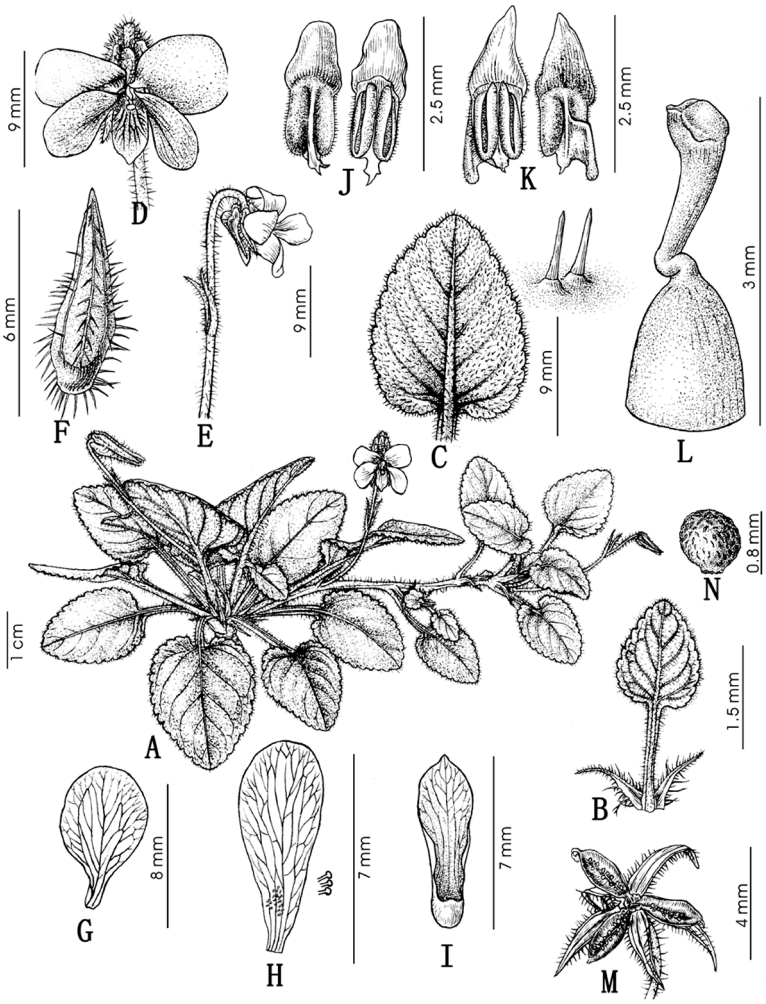

Fig. 1. *Viola jinggangshanensis* (drawn from the holotype by Yun-Xiao Liu). — **A**: Habit. — **B**: Leaf. — **C**: Leaf blade and papillose puberulence. — **D** and **E**: Flowers. — **F**: Sepals. — **G**: Upper petal. — **H**: Lateral petal. — **I**: Anterior petal. — **J** and **K**: Stamen. — **L**: Pistil. — **M**: Capsule. — **N**: Seed.

Stolons with rosulate leaves at apex, usually producing adventitious roots. Stipules adnate to petiole at base, 2/3 free, 7–10 × 2.5–4 mm, linear-lanceolate, margin fimbriate-dentate, apex acuminate. Basal leaves numerous, fasciculate and rosulate or alternate on stolons; petiole 0.5–2 cm long, densely puberulent; leave blade ovate or elliptic, 1.5–2.5 × 1–1.8 cm, base shallowly cordate or truncate and narrowly decurrent along petiole, margin 10–15 crenate and ciliate, apex obtuse, abaxially purple, both surfaces densely papillose-hispid, puberulous along veins and margin; not conspicuously enlarged at fruiting time. Pedicels 2–5 cm long, slender, densely puberulous, with two bracteoles above middle; bracteoles 5–7 mm long, lanceolate, sparsely puberulous; pedicels of cleistogamous flowers arising from basal leaf axils, much longer than leaves. Flowers in basal leaf axils and axils of stolons, 4–6 mm across; sepals dark-red spots, 5–6 × 1–1.2 mm, linear-lanceolate, apex acute, sparsely fimbriate-ciliate, basal auricles 0.3–0.5 mm long, rounded, fimbriate-ciliate; petals pale purple with dark violet veins at base; upper petals obovate, 6–7 × 3–4 mm; lateral petals obovate or oblong-obovate, 7–9 × 3–4 mm, stipitate glandular; base petal shortest, 6–6.5 mm long (include spur), apex acute; spur 1–1.2 mm long, obtuse, slightly exserted beyond basal auricles of sepals; stamens 5, 2.5 × 1 mm; ovary glabrous; style ca. 1.8 mm long, geniculate at base, clavate distally; stigma slightly 2-lobed, shortly

beaked. Capsule ovoid-orbicular, 3–4 mm long, 1.5–2 mm diameter, ellipsoid, glabrous. Seeds brown, ovoid, 0.3–0.8 mm long. Flowering in December–April, fruiting in March–October; cleistogamous flowers produced throughout the year.

DISTRIBUTION AND HABITAT. *Viola jinggangshanensis* is a narrow endemic currently known only from the Ciping Changgulin Forest Farm in southwestern Jiangxi Province, China. It grows on wet rock.

Viola jinggangshanensis is a member of the section *Diffusae*, which was formerly (Beck 1925) treated as the subsection *Diffusae* under section *Viola*, based on its slightly 2-lobed stigma and stolons terminated by leaf rosettes. The section *Diffusae* comprised four species distributed throughout southern and southeastern Asia (Becker 1925, Wang 1991), with two more species added only recently (Zhou *et al*. 2008, Dong *et al*. 2009). All six species are currently accepted and keyed out below.

Viola diffusa, which is common at the type locality of *V. jinggangshanensis*, is its closest morphological match. The two species have similar purplish petals, accumbent stolons, and leaf petioles with wings, but *V. jinggangshanensis* is distinguished by the characters given in Table 1.

Key to the species of *Viola* sect. *Diffusae* in China

1. Lateral petals stipitate glandulars; sepals dark-red punctate; leaf blade abaxially purple, both surfaces densely papillose-hispid; cleistogamous flowers present all year; capsules 3–4 mm long, 1.5–2 mm in diam. .... *V. jinggangshanensis*
1. Lateral petals bearded or beardless; sepals not spots; leaf blade green or abaxially pale purple with dark violet veins; surfaces of leaves densely white puberulous, or glabrous; cleistogamous flowers present only in summer; capsules > 5 mm long 2
2. Plants caulescent ..... *V. guangzhouensis*
2. Plant stemless 3
3. Fresh flowers 30–35 mm across; leaf blade conspicuously enlarged in fruit ..... *V. nanlingensis*
3. Fresh flowers < 20 mm across; leaf blade not enlarged in fruit 4
4. Leaves conspicuously decurrent on petioles .... *V. diffusa*
4. Leaves not decurrent on petioles 5
5. Bracteoles linear; base of leaves cordate or rounded .... *V. lucens*
5. Bracteoles lanceolate; base of leaves shallowly cordate 6
6. Leaves ovate; lateral petals beardless .... *V. nagasawae* var. *nagasawae*
6. Leaves triangular-ovate; lateral petals bearded .... *V. nagasawae* var. *pricei*

Acknowledgements

We thank David E. Boufford (Harvard University Herbaria) and Qiuyun Xiang (Department of Plant Biology North Carolina State University) for their comments and for corrections on the manuscript, and two anonymous reviewers for their valuable comments to improve the manuscript. We are also grateful to Prof. Fu-wu Xing for his comments on the new species and the assistance of our colleagues Lin Li, Chang-han Li, Lin Bai and Mei-zhen Luo, and to Mrs. Yun-xiao Liu for preparing the illustration. This work was supported by a grant from Projects of Chinese Academy of Sciences (CZBZX-1), the Ministry of Science and Technol-

Table 1. Morphological differences between *Viola jinggangshanensis* and *V. diffusa.*

Characters	*V. jinggangshanensis*	*V. diffusa*
Flowers	4–6 mm across, pale purple, cleistogamous flowers all year	7–13 mm across, purplish or yellowish, cleistogamous flowers only in summer
Leaf blade	ovate or elliptic, leaf blade adaxially dark green, abaxially purplish, both surfaces densely papillose-hispid, densely puberulous along veins and margin	ovate or ovate-oblong, green on both sides, both surfaces of young leaves densely white puberulous, later sparsely so, densely puberulous along veins and margin
Base of leaves	shallowly cordate or truncate	broadly cuneate or rarely shallowly cordate
Petioles	narrowly decurrent	broadly decurrent
Lateral petals	with long stipitate glands	glabrous or shortly bearded
Sepals	dark-red spots	not spots
Capsule	ovoid-orbicular, 3–4 mm long, 1.5–2 mm diameter	oblong, 10 mm long, 3 mm diameter

ogy of the People's Republic of China (2009FY120200), and the Ministry of Finance of the People's Republic of China (KSCX2-YW-Z-1004).

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