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Oreocharis crispata, a new species of *Oreocharis* (Gesneriaceae) from Guangxi, China

RUN-ZHENG CHEN^{1,4,5}, WEN-HONG CHEN^{1,4}, YI-GANG WEI², FANG WEN², XUN-LIN YU³ & YU-MIN SHUI^{1,4,*}

¹ Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, the Chinese Academy of Sciences, Kunming 650201, China

² Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences, Guilin 541006, China

³ College of Forestry, Central South University of Forestry and Technology, Changsha 410004, China

⁴ Karst Conservation Initiative of Yunnan, Kunming 650201, China

⁵ University of Chinese Academy of Sciences, Beijing 100049, China

* Corresponding author: ymshui@mail.kib.ac.cn

Abstract

Oreocharis crispata, a new species of *Oreocharis* (Gesneriaceae) from northeastern Guangxi, China, is described and illustrated. The new species is compared with its most morphologically similar species *O. nemoralis* and *O. magnidens*. Besides, the relationship between the new species and *Oreocharis* × *heterandra* is discussed here.

Key words: Gesneriaceae, Guangxi, new species, *Oreocharis crispata*

Introduction

The new species was firstly found in northeastern Guangxi (Quanzhou County) by one of the authors (WYG) in 2009. It was identified as *Opithandra obtusidentata* W.T.Wang (1982: 38) [= *Oreocharis obtusidentata* (W.T. Wang) Mich. Möller & A. Weber (2011: 24)], a species distributed in Qianyang County [Hongjiang City], western Hunan of China and depicted in Wei (2010)(Fig. 1A–C). Although the flowers were illustrated in Wei (2010), they had not been collected in the field for comprehensive morphological studies until recently. To study the morphological characters of flowers, we collected living plants with fruits in the field in 2013 and cultivated them at Kunming Botanic Garden, where they flowered in April 2014. Based on meticulous observations of fresh flowers, we eventually confirmed these plants representing a species of *Oreocharis* Bentham (1876: 1021) in strict sense as it originally circumscribed by the presence of 4 stamens with free anthers other than a member of the former *Opithandra* B.L.Burt (1956: 162), which had been recognized by two posterior stamens with coherent anthers (Wang 1987, Wang *et al.* 1990, 1998, Li & Wang 2004). Recently, *Opithandra* was synonymized into *Oreocharis* (Möller *et al.* 2011). By comparison with other species in *Oreocharis*, we concluded that these plants belonging to an undescribed species, hereafter we name it *Oreocharis crispata*. Considering the foliar and floral morphology, this new species is more similar to *O. nemoralis* Chun (1946: 288) (Fig. 1D) and *O. magnidens* Chun ex K.Y.Pan (1987: 276) (Fig. 1G–I) than to other species in *Oreocharis*. It is described and illustrated with photographs below.

Taxonomic treatment

Oreocharis crispata W.H.Chen & Y.M.Shui, *sp. nov.* (Fig. 2)

Type:—CHINA. Guangxi: Quanzhou County, Caiwan Township, in flowering, on 5 April 2014 transplanted at an experimental greenhouse in Kunming Botanical Garden, Y.M.Shui & W.H.Chen B2014-601 (holotype KUN! isotype IBK!).

Diagnosis:—This new species is similar to *O. nemoralis* and *O. magnidens* in leaf shape and subequal corolla lobes, but it differs by its rugose leaf surface (*vs.* slightly rugose or smooth leaf surface in *O. nemoralis* and conspicuously bulliform leaf surface in

O. magnidens), crispate and irregularly dentate leaf margin (vs. serrate to subentire in *O. nemoralis* and regularly dentate in *O. magnidens*), and oblong corolla lobes with obtuse apex (vs. lanceolate corolla lobes with acute apex in *O. magnidens*).

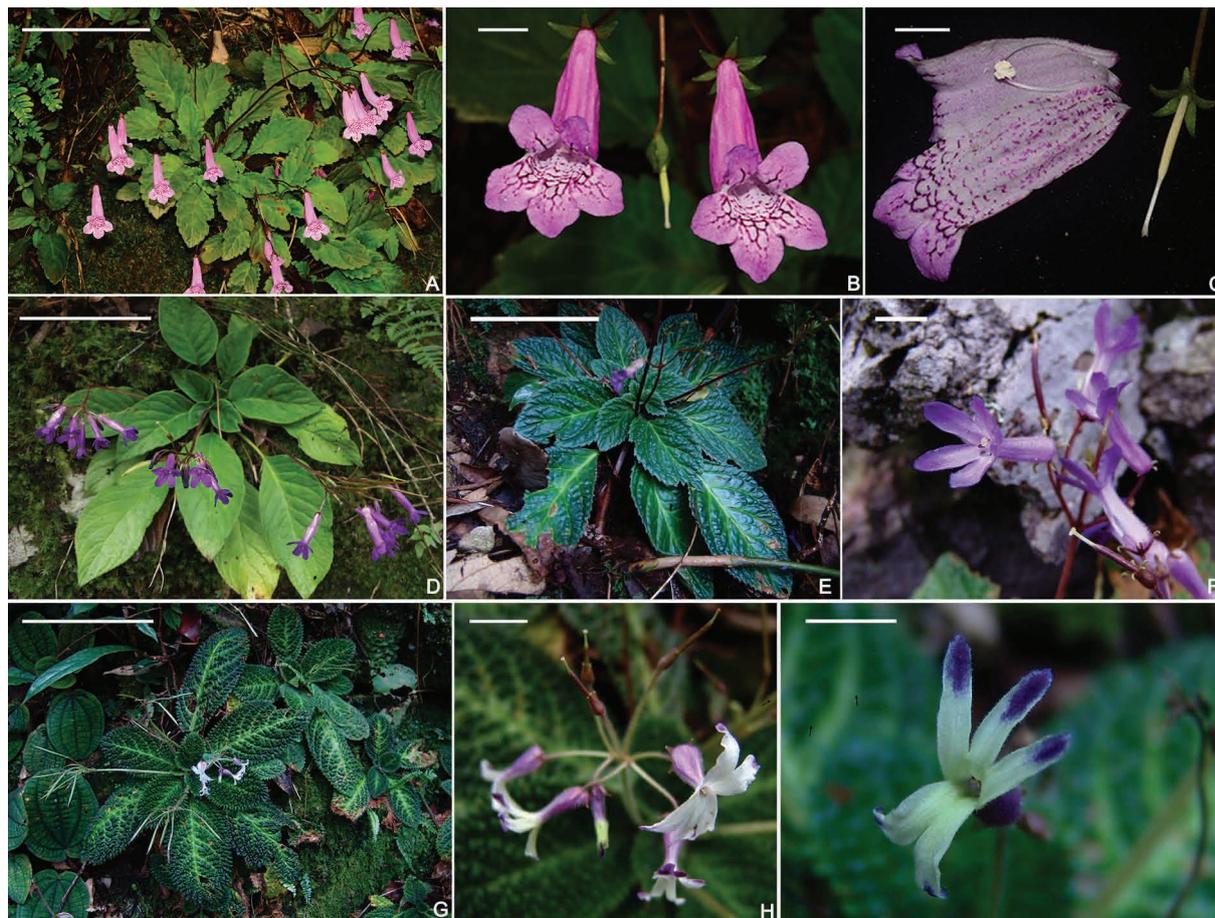


FIGURE 1. *Oreocharis obtusidentata* (A–C, photographed by Yu Xun-Lin), *O. nemoralis* (D, by Yu Xun-Lin), *O. × heterandra* and *O. magnidens* (G–H, by Wei Yi-Gang). A, D, E and G. Plant habit; B, F, H and I. Face view of flower; C. Opened corolla showing number of stamens. Scale bar: A, D, E, and G=10 cm, B, C, F, H, and I=1 cm.

Herbs, perennial, acaulescent. Leaves in basal rosette; petiole 2–5 cm long, appressed-tomentose; leaf blade elliptic or oblong, 4–15 × 1.6–3.6 cm, rugose, adaxially pubescent, abaxially brown appressed tomentose along veins, lateral veins 8–9 pairs, depressed adaxially, veinlet reticulate on both sides, base cuneate to auriculate, apex obtuse, margin crispate and irregularly dentate. Cymes axillary, inflorescences 2–10-flowered; peduncles 4–10 cm long, appressed tomentose; bracts 2–3, lanceolate, 0.5–0.9 × 0.2–0.4 cm; pedicel 2.2–3 cm long, appressed tomentose, calyx 5-sect from base, lobes entire, lanceolate, ca. 0.5 × 0.15 cm, pubescent on both surfaces; corolla purple with white throat, slightly bilabiate, ca. 2.2 cm in diam., glandular-pubescent on both sides, tube cylindric, ca. 1.3 cm long, 5–6 mm in diam., slightly constricted at throat, adaxial lip ca. 1 cm long, 2-lobed, lobes oblong, ca. 0.8 × 0.6 cm, apex obtuse, abaxial lip ca. 1 cm long, 3-lobed, lobes nearly equal, oblong, ca. 0.7 × 0.4 cm; stamens 4, included, filaments white, thick, linear, glabrous, adaxial stamens ca. 0.9 cm long, adnate to corolla tube 0.3–0.4 cm from base, abaxial stamens ca. 1.2 cm long, adnate to corolla tube 0.4–0.5 cm from base, anthers dorsifixed, free, broadly oblong, dehiscing longitudinally; staminode 1, clavate, ca. 0.4 cm long, adnate to adaxial side of corolla tube near base; pistil glabrous, ca. 1.1 cm long, ovary linear with ridges, ca. 0.8 cm long, style ca. 0.3 cm long, stigma 1, disciform; disc yellowish, ca. 1.5 mm high, ring-shaped, margin slightly undulate with 5 irregularly and shallow lobes. Capsule linear, 4–5 cm long, 1–2 mm in diam. Seeds elliptic, ca. 0.8 mm long, surface reticulate.

Additional Specimens Examined:—CHINA. Guangxi: Quanzhou County, Caiwan Township, 26°07'34.82"N, 110°52'30.99" E, elev. ca. 1683 m, 24 July 2013, under shrubs at forest margins, in fruiting. *Y.M.Shui, Y.K.Sima & W.H.Chen B2013-258* (KUN).

Distribution and habitat:—*Oreocharis crispata* is only known from Caiwan Township, Quanzhou County, Guangxi Province, China. The new species grows on the surface of rocks under shrubs at the forest margin, at the elevation of 1680–1800 m on shady slope of limestone hills. Under shrubs, the common accompanying plants are *Oreocharis xiangguiensis* W.T.Wang (1987: 285) and *Ypsilandra thibetica* Franchet (1887: 94).

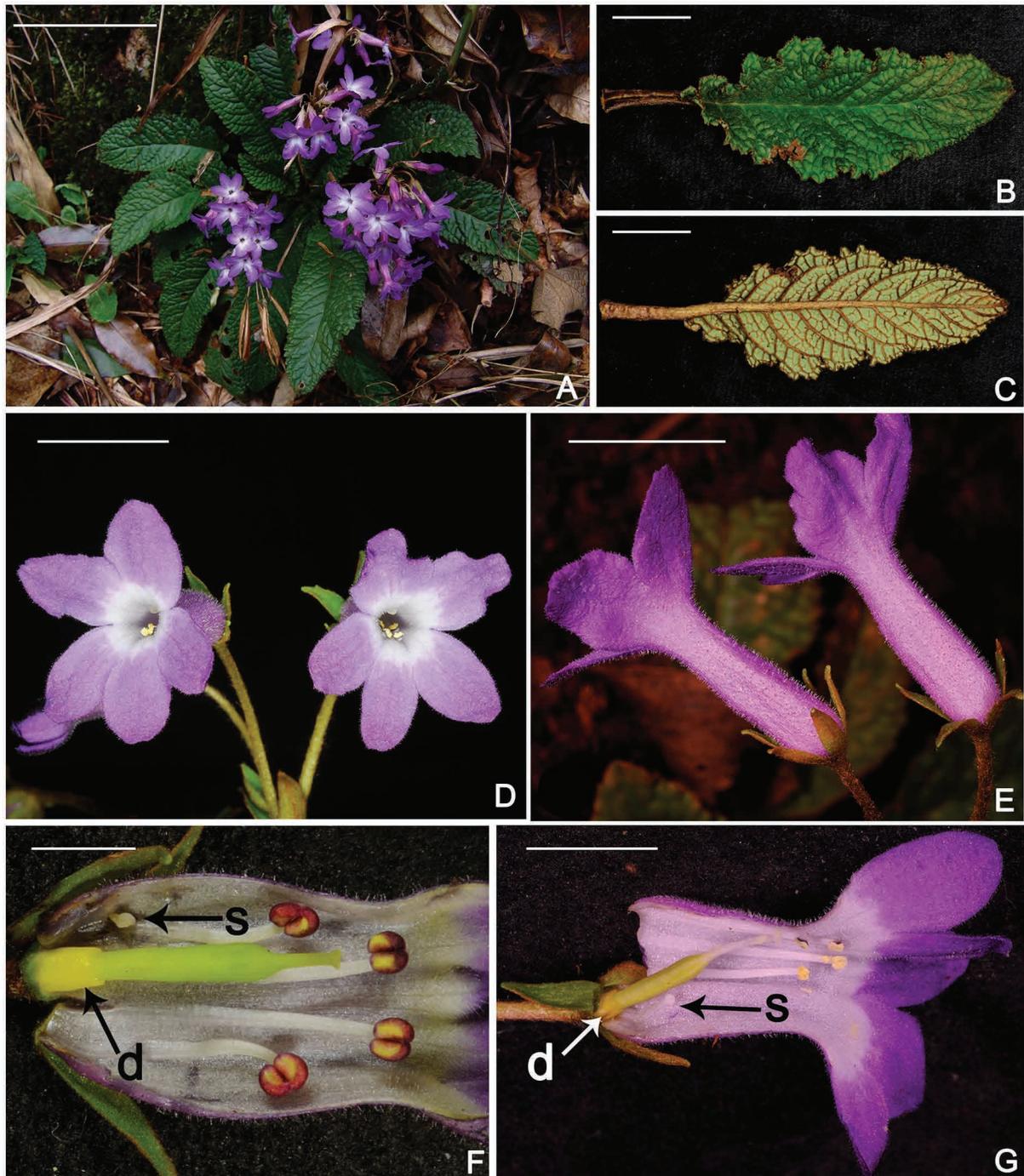


FIGURE 2. *Oreocharis crispata* (A: photographed by Wei Yi-Gang; B–C: by Chen Run-Zheng; D–F: by Shui Yu-Min). A. Plant habit; B. Adaxial leaf showing crispate leaf margin; C. Abaxial leaf surface; D. Face view of flowers; E. Lateral view of flowers; F. Opened young flower showing dorsifixed anthers, pistil with disc (d) and staminode (s) G. Opened corolla showing pistil with disc (d) and staminode (s). Scale bar: A–C=3 cm, D and E =1 cm, F=5 mm, G=2 mm.

Etymology:—The epithet refers to the crispate leaf margin.

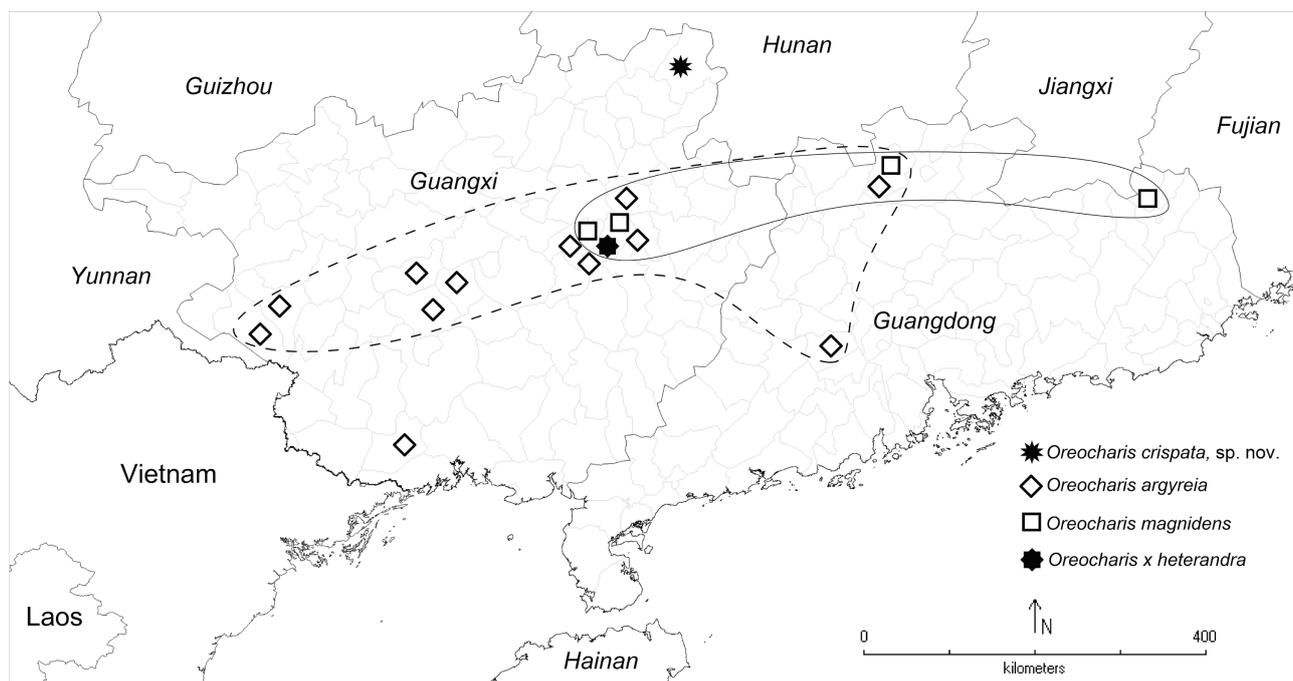
Phenology:—Flowering from April to May; fruiting from April to June.

Notes:—*Oreocharis crispata* is closely related to *O. nemoralis* and *O. magnidens*, but differs mainly by the surface and margin of the leaves and by the lobe shape of the flowers. This new species is also similar to *O. nemoralis* in their almost actinomorphic flowers, but it differs in its almost bullate leaves. Moreover, it shares with *O. magnidens* in the almost uneven leaves, while it differs in almost actinomorphic flowers. A morphological comparison for the three species is presented in Table 1.

TABLE 1. Morphological comparison among *Oreocharis crispata*, *O. nemoralis* and *O. magnidens*.

Character	<i>O. crispata</i>	<i>O. nemoralis</i>	<i>O. magnidens</i>
Petiole	Appressed-tomentose	Woolly	Woolly
Leaf blade	Conspicuously rugose	Slightly rugose or smooth	Conspicuously bulliform
Leaf margin	crispate and irregularly dentate	Subentire to serrate	Not crispate and regularly dentate
Leaf indumentum	Adaxially pubescent	Adaxially woolly or sericeous to glabrescent or sparsely hirsute	Adaxially villous
Leaf veinlet	Reticulate on both sides	Inconspicuously reticulate	Reticulate on both sides
Peduncle	Appressed tomentose	Sparsely brownish woolly or pubescent	Glandular-pubescent to villous
Corolla tube	Corolla tube cylindric, slightly constricted at the throat	Corolla tube cylindric, slightly constricted at throat	Cylindric, obviously constricted at the throat
Corolla lobe	Oblong, apex obtuse	Lanceolate, apex obtuse	Lanceolate, apex acute
Anthers	Dorsifixed	Basifixed	Unknown
Phenology	Fl. Apr–May; fr. Apr–Jun	Fl. May–Sept; fr. Aug–Nov	Fl. Jul–Oct; fr. unknown

Oreocharis × *heterandra* D.Fang & D.H.Qin in Fang *et al.* (1994: 563) seems to be morphologically similar to *O. crispata* in flower colour, flower and lobe shape and have similar leaves. However, unlike *O. crispata*, *Oreocharis* × *heterandra*, a naturally occurring hybrid, does not produce normal fertile anthers and fruits (Fig. 1E–F; Puglisi *et al.* 2011). Besides, the distribution of the hybrid is very limited in the narrow region, where *O. argyreia* Chun ex Pan (1987: 283) and *O. magnidens* overlap each other (Puglisi *et al.* 2011). The fact that *O. crispata* grows far from the parental species of *Oreocharis* × *heterandra* and can produce mature fruits, implies that the new species undergoes different evolutionary processes from the above hybrid (Fig. 3). Morphologically, the new species is not related to the hybrid and can be easily differentiated mainly by its crispate leaf margin (*vs.* regularly leaf margin), slightly constricted corolla tube on the throat (*vs.* conspicuously constricted) and oblong corolla lobes (*vs.* narrowly oblong) (Wei 2010, Puglisi *et al.* 2011).

**FIGURE 3.** Geographic distribution of *Oreocharis crispata* and its related taxa in China (Li and Wang 2004, Wei *et al.* 2010, Puglisi *et al.* 2011).

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