A NEW SPECIES OF CAMPANULA FROM KURDISTAN, WEST OF IRAN

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Campanula kurdistanica is described as a new species. It has been collected from Kurdistan province on north to north-west slopes of Shahoo Mountain on shady cliffs and rocks crevices. Campanula kurdistanica differs from its relative species in Iran mainly by deeply divided lobes of corolla about ³/₄ of its length. It is illustrated and differences from its relatives are discussed.

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Key words: Campanula kurdistanica; Section Saxicolae; new species; Kurdistan; Iran

گونه جدید Campanula kurdistanica (خانواده گل استکانی) از کردستان، ایران

محفوظ ادوایی، کارشناسی ارشد سیستماتیک گیاهی از دانشگاه شهرکرد.

حسین معروفی، عضو هیئت علمی مرکز تحقیقات کشاورزی و منابع طبیعی استان کردستان.

گونه معرفی می گردد. این گونه متعلق به زیرجنس Campanula kurdistanica و بخش و Saxicola میباشد. از این بخش در ایران تعداد ۱۰ گونه که تعداد ۸ گونه از آنها انحصاری ایران هستند یافت می شود. این گونه از محتمل ترین خویشاوند خود C. cymbalaria با داشتن صفاتی تفکیک می گردد. گونه از آنها انحصاری ایران هستند یافت می شود. این گونه از محتمل ترین خویشاوند خود C. cymbalaria با داشتن صفاتی تفکیک می گردد. ساقه به طول تا ۱۱ سانتیمتر، در حالیکه طول ساقه در گونه اکار در تا ۳۰ و به ندرت تا ۴۰ سانتیمتر می باشد. لوبهای کاسه گل در که در در گونه C. cymbalaria طول ساقه در گونه کاسه تا ۶ و بعضاً تا ۱۰ میلیمتر میباشد. در که در در در در در در گونه C. cymbalaria طول بریده شده است ولی در گونه جدید همچنین با گونههای میلیمتر و جام در حدود سه چهارم طول بریده شده است ولی در گونه جدید همچنین با گونههای میلیمتر و یک سوم تا یک دوم طول جام بریده شده است. گونه در در ایران شامل C. cymbalaria بریده شده است. گونه که با داشتن میلوندی و تشابه دارد با این تفاوت که با داشتن جام گل استکانی پهن و چرخه ای و نیز خامه غیر بیرون زده از جام با گونه C. perpusilla, C. escalerae, C. hermannii و میشون با داشتن دمگل بدون کرک و لوبهای کاسه کم و بیش هم اندازه با لوله جام و یا اندکی بلندتر از لوله با گونه C. و دودهای تفاوت دارد.

INTRODUCTION

The genus *Campanula* L. includes approximately 500 species throughout the world, which are distributed in temperate and subtropical zones of the northern hemisphere (Lammers 2007). The center of diversity is in the Mediterranean Region extending to the East Caucasus. Endemic species are particularly concentrated in the eastern Mediterranean Region, the Balkan Peninsula, the Caucasus and Turkey (Borsch et al. 2009; Khansari & al. 2012).

The genus *Campanula* is represented with 5 subgenera, *Campanula*, *Megalocalyx* Damboldt, *Sicyodon* (Free) Damboldt, *Brachycodonia* (Fed.)

Damboldt, and *Rapunculus* (Four.) Charadze., in Flora of Iran (Aghabeigi F. 2010). The subgenus *Campanula* is represented by 9 sections and 32 taxa, subgenus *Megalocalyx* is represented by 3 taxa (species), subgenus *Sicyodon* with 1 species, subgenus *Brachycodonia* by 1 species and subgenus *Rapunculus* with 1 section and 8 taxa in Iran (Aghabeigi 2010). By adding this new species, the number of *Campanula* taxa reaches 46 taxa in Iran and about 14 of them are endemics.

During identification of recently collected plant materials of Campanulaceae from Shahoo Mountain an interesting *Campanula* specimen was observed and identified as new pecies.

The aim of this paper is to describe the new species and to compare it with its close relatives.

MATERIALS AND METHODS

The plant specimens collected from north to northwest slopes of Shahoo Mountain in Kurdistan province were studied and identified according to classic methods in taxonomy using identification keys and descriptions in different floras The materials are deposited in herbarium of Research Center of Agricultural and Natural Resources of Kurdistan Province (HKS) and TARI.

RESAULTS

New species

Campanula kurdistanica Advaye & Maroofi, sp. nov. (figs. 1 & 2).

Plant tufted perennial, glabrous, prostrate, much branched from the base, up to 11 cm tall, slender, fragile. Radical leaves crowded in rosette, variably shaped including reniform, cordate, orbicular, ovate or rarely triangular, with cordate to reniform base, at the margin mainly with 5-7 angular teeth or subentire to entire, 4-10 mm long and 4-15 mm wide, acute, obtuse or rounded at the tip; petioles thin, 1.5- 4.8 cm long; cauline leaves \pm similar to the basal leaves, smaller, 3-6×3-7 mm, acute; petioles 1-11 mm long. Flowers in lax axillary inflorescence, 1-6 in number, on minute thin bracteolate pedicels. Calyx without appendage, 2-4 mm long; lobes 1.5 mm long and 0.9 mm broad, subulate to triangular, acute; calyx tube 1.1-3 mm long. Corolla broadly campanulate-rotate, white or lilacpinkish or blue to violet, 4.5-9 mm long, divided about ³/₄, 5- or rarely 7 lobed, glabrous; tube 1.5-2.5 mm long; lobes 4-6.5 mm long, lanceolate, acute, patent, glabrous, initially white, at maturity become blue or violet, in dried material mainly creamy. Stamens 3-5.5 mm; filaments white, 0.5-1.5 mm long, densely hairy at base; anthers white, 2.5-4 mm long. Style not exerted, equal or slightly shorter than corolla, 6-7 mm long, covered by dense purple papilla. Stigmas 3, 0.7 mm long. Capsule globose, 3-4×4-4.5 mm. Seeds narrowly ellipsoid to oblong, 0.7 mm long, brown, shiny.

Typus: Kurdistan: Marivan to Paveh, north to northwest slopes of Shahoo Mountain, 1800-3000 m, 06. 06. 2014, Advaye 12447. (holotypus Kurdistan herbarium HKS; isotypus TARI).

Distribution and ecology: Campanula kurdistanica grows on limestone cervices of shady cliffs at 1800-3000 m above sea level, in Shahoo Mountain, west of Iran. Endemic.

Flowering time: May-June.

DISCUSSIONS

The new species "Campanula kurdistanica" belongs to sect. Saxiculae (Boiss.) Charadze. in subgenus Campanula. Section Saxicolae is represented by 10 species 8 of which (except C. conferta A. DC. and C. strigosa Banks & Soland.) are endemic to Iran. Campanula kurdistanica seems to be closely related to C cymbalaria Sm. from Turkey and Lebanon, but differs from it by having the stem up to 11 cm long (not 10-30(-40) cm), calyx lobes up to 1.5 mm long (not 3-6(-10) mm), corolla 4.5-9 mm long (not 10 mm long), divided about $\frac{3}{4}$ (not $\frac{1}{3} - \frac{1}{2}$).

The new species is also related to Iranian species Campanula perpusilla DC., C. escalerae Rech. f. & Schiman-Czeika, C. hermannii Rech. f. and C. humillima DC., but differs from C. perpusilla by broadly campanulate-rotate corolla and style not exserted (not tubular corolla and exserted style), differs from C. escalerae by glabrous pedicel and calyx lobes \pm equal to tube or lobes slightly longer than tube (not pedicel hairy-papillose and calvx lobes two times longer than tube). The main different characters among the new species and other two related species C. hermannii and C. humillima are shown in table 1.

Table 1. Comparison of morphological characters of *Campanula kurdistanica* with two related species.

taxa	Campanula kurdistanica	C. hermannii	C. humillima
characters			
stem lenght (cm)	up to 11	2-3	up to 8
basal leaves size (mm)	4-10×4-15	5×5	8×4-5
calyx length (mm)	2-4	5	2-4
calyx lobes length (mm)	1.5	about 3	1.5
corolla shape	broadly campanulate-rotate	campanulate	narrow infundibular
corolla length (mm)	4.5-9	6	4
calyx length/corolla length	about ½	1/3	1/2
corolla tube length (mm)	1.5-2.5	about 2	up to 1.3
corolla lobes length (mm)	4-6.5	1.5	about 1.5
style position	not exserted	slightly exserted	equal to exserted

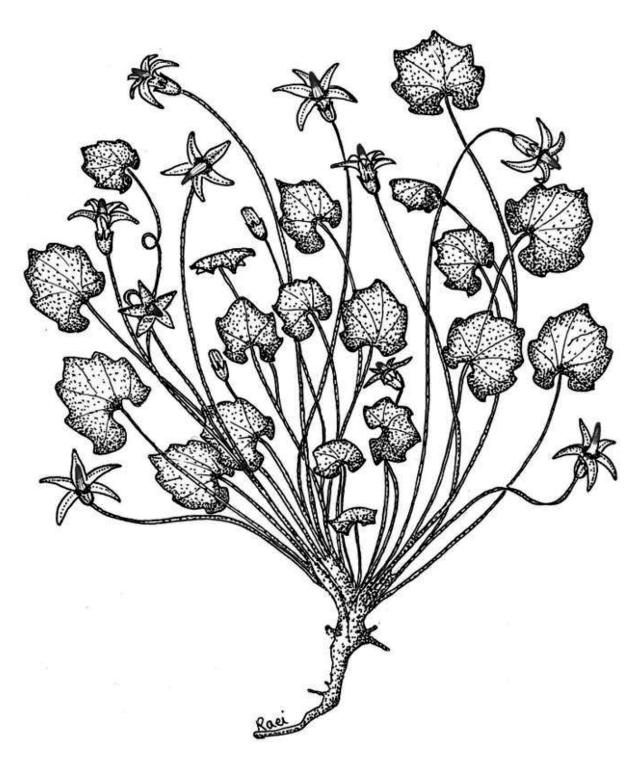


Fig. 1. Campanula kurdistanica ($\times 2$).



Fig. 2. Campanula kurdistanica (photo taken by H. Maroofi in natural habitat of the species).

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