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Research Note

The Presence of *Campanula radula* Fischer in Turkey

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Abstract: *Campanula radula* Fisch. has been added to the Flora of Turkey with a collection of specimens from rocky places within grid square B9 Muradiye (Van).

Key Words: *Campanula radula*, *Campanulaceae,* Turkey, new record

Campanula radula Fischer'in Türkiye'de Varlığı

Özet: B9 Muradiye (Van) karesindeki kayalıklardan toplanan örneklerle *Campanula radula* Fisch. Türkiye Florasına ilave edilmiştir.

Anahtar Sözcükler: *Campanula radula*, *Campanulaceae,* Türkiye, yeni kayıt

Introduction

Campanula coriacea P.H.Davis (Syn: *C. radula* Fisch. var. *minor* Boiss.) is known to be an endemic taxon distributed on calcareous rocks in Adilcevaz (Bitlis) and Van castle (old Van city) in East Anatolia (Damboldt, 1978). The type specimen of this taxon was collected in 1954 by Davis and Polunin on limestone rocks (1900 m) in Adilcevaz. Davis reported that the specimen collected by McNeill and Kotschy in 1859 from Van castle (the type specimen of *C. radula* var. *minor* no: Kotschy 472) had the same properties as his specimen (*C. coriacea* specimen of Davis); it is isolated (allopatric) from *C. radula* Fisch. As a consequence, the distribution of *C. radula* in Turkey has not been recorded.

The *Campanula* specimens resembling *C. coriacea* were collected from northern Van (the Muradiye-Erciş-Çaldıran triangle) during a botanical excursion. These specimens were found to greatly resemble *C. coriacea* according to the *Campanula* key in the Flora of Turkey (Damboldt, 1978). However, our specimens were found to be different from *C. coriacea* in terms of the proportions of the corolla's lobes (the lobes are shorter than the tube) and style to the tube (style slightly exserted or included), the total length of the corolla and the long soft hairs covering the inferior surface of the corolla tube. Therefore, we decided that these specimens did not belong to *C. coriacea* as it was described in the Flora of Turkey (Damboldt, 1978). We have tried to identify these specimens, after taking into consideration the data obtained from the Flora Iranica (Rechinger & Schiman-Czeika, 1965) and the Flora of the USSR (Fedorov, 1957) and decided that the properties of these specimens are in accordance with those of *C. radula*.

The description of *C. radula* was prepared based on the specimens collected from northern Van.

Campanula radula Fisch. In Tchihatch., Asie Mineure, III, 2 (1860).

Icon.: Fl. USSR. 24:235, tab.13 (1957).

Typus: KY-423, W

Chasmophytic, perennial with thick rhizome. Plant with short hispidulous, crispidulous hairs. Stems numerous, ascending-erect, sometimes flexuous, 7-45 cm, densely leafy, branching in upper part. Cauline leaves thick, firm, ovate, spathulate, shortly petiolate; median largest, broadly ovate, elliptic to orbicular, sessile slightly

amplexicaule, margins crisp-undulate to irregularly dentate, 20-53 x 20-40 mm; upper gradually decreasing in size. Branches of inflorescence 1-5-(7)- flowered (some flowers immature), scabrous, with small leaves. Flowers 15-30 mm long. Pedicels erect, spreading, densely tomentose hispidulous. Calyx lobes triangular-lanceolate, 2-4 mm, with very short appendages. Corolla narrowly cylindrical campanulate, longer than calyx teeth, divided to 1/4-1/3 into triangular lobes barbate inside, corolla tube with soft, long hairs inside, tomentose-hispid outside, dark blue to light blue (sometimes milky white). Ovary hemispherical or shortly obconical, style included or slightly exerted. Seed ellipsoid, 0.7 x 0.3 mm. Fl. and Fr. 7-10, limestone or volcanic crevices, rocks, 1800-2300 m.

Turkey, East Anatolia, B9 Van: Muradiye, Babacan village, Derviş yaylası, Hacı cave, crevices of rocks, 2400 m, 08.07.2001 Lütfi Behçet (B 6539); Babacan village, Hüseyin Kom stream, shady and humid crevices of rocks, 2300 m, 27.07.2001 Osman Karabacak (OK 2566); North of Görecek village, Şevkii, arid crevices of rocks, 2300 m, 15.07.2002 Lütfi Behçet (B 6695).

The herbarium specimens are deposited in VANF.

Results and Discussion

The distribution of 111 *Campanula* species (with 11 subspecies and 10 varieties) has been recorded in Turkey. This number is now 112 (Damboldt, 1978; Davis et al., 1988; Güner et al., 2000) following the addition of *C. radula*. Which belongs to section *Rupestres* (Boiss.) Charadze. These section members grow in rocky areas, are perennial and take a suffructicose-caespitose form. They have numerous fragile stems growing up from a thick rhizome, a few flowered, capsules opening by 3 pores from the base, and a calyx with conspicuous or inconspicuous appendages (Damboldt, 1978).

The specimens collected from Van castle in 1859 by Kotschy (Kotschy 472) were called *C. radula* in 1860, then designated as *C. radula* var. *minor* in 1875. Davis decided that the material (D. 24608) collected from Adilcevaz (Bitlis) on 25 August 1954 with O. Polunin was the same as that collected by Kotschy (no: 472) and McNeill (no: 721) from Van castle, and he also decided that they were different from *C. radula*. He called the *Campanula* specimens collected from Van castle and Adilcevaz *C. coriacea* Davis. Fedorov (1957) reported that the variations in the specimens collected from Van by Kotschy were caused by ecology (especially humidity) and that these specimens were *C. radula* (Fedorov, 1957). Davis reported that the flower properties of the specimens collected from Van and Adilcevaz were clearly different (in corolla tube length, indumentum of inside of corolla tube, corolla size, rate of corolla tube and stylus and corolla lobe shape) from *C. radula*, whose distribution is known around Musul in North Iraq and around Daralaghez in Armenia. He also decided that this material was different from *C. coriacea* and it was completely isolated (allopatric).

The differences between the specimens that were collected by us from Van castle, Adilcevaz and Gürpınar (humid and arid rocks) and the specimens that we collected from the triangle of Muradiye, Erciş and Çaldıran (Van) are as follows:

In the light of such findings, the characteristics of the *C. coriacea* specimens collected from a rocky areas of Van castle, Adilcevaz (Bitlis) and Gürpınar (Van) indicate that the length of the corolla tube in all our specimens is shorter (4-7 mm), the corolla is divided into lobes more than 1/2 of total length, whereas in *C. radula* (collected from Muradiye, Erciş and Çaldıran triangle [Van]), the corolla tube is longer (8-17 mm), and the corolla is divided 1/4-1/3 of its length. Similarly, the total length of the corolla and the length of corolla lobes in *C. coriacea*

Species	Corolla length (mm)	Corolla tube length (mm)	Corolla tube lobe length (mm)	Style length (mm)	Calyx length (mm)	Rate of corolla tube style	Indumentum of corolla tube inside	Habitat
C. coriacea	10-15	4-7	4-8	10-12	4-8	less than $^1/_2$	glabrous	usually in dry rocks
C. radula	12-26	8-17	3-9	10-22	5-15	c. $^1/_1$	hairy	usually in shady and moister rocks

are shorter than those of *C. radula*; the corolla tube of *C. coriacea* is glabrous within, but it has soft and long hairs in *C. radula.* The habitat in which we collected the *C. radula* specimens was usually humid, as reported by Fedorov (1957); however, we rarely collected such specimens in rocks.

So far, the distribution of *C. radula* has not yet been reported in Turkey, though it has been reported from neighbouring Armenia and Iraq. The distribution of *C. radula* was found to be close to the geographical area of *C. coriacea* in this record.

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