

Saponaria suffruticosa (Caryophyllaceae): An enigmatic species from South-west Asia on border of Turkey and Iraq

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Abstract

Saponaria suffruticosa is a species that was first described by Nábělek in 1923. Due to ambiguities on the records of the collection place, deposition of the specimens in a hardly accessible herbarium and other probable reasons, the species has been ignored by the authors of *Saponaria* that has been revised for the Flora Iranica and the Turkish Flora. The studies in the recent collections from southeastern (SE) Turkey and protologue of the species have revealed that it was collected from both Turkey and Iraq. In the present study, the description of the species has been amended in respect of life form, indumentums, calyx and petal shapes, and from taxonomic viewpoint here.

INTRODUCTION

The genus *Saponaria* L. is distributed throughout temperate Eurasia, chiefly in the Mediterranean and Irano-Turanian regions with approximately 40 species [1]. The genus is represented 20 species in Turkey and 11 species in the Flora Iranica area [2-5]. Most species of *Saponaria* have been growing in open places and steppe, while a few are on rock crevices in Turkey.

The specimens of *Saponaria suffruticosa* Nábělek were first collected from SE Turkey and northern

Iraq by Nábělek in 1910 and the species was described by himself [6]. Type material and other probable specimens of this taxon have been deposited in the Slovak Academy of Sciences (SAV) herbarium, Slovakia. Unfortunately, the species have not been yet considered in the major floras of southwest Asia, namely Flora of Turkey and Flora Iranica.

New specimens of the species have been collected from southeast Turkey nearly a hundred years latter by the present author. These specimens could not be identified, based on the available literature during the last six years. In addition, an extensive herbarium studies involving BM, C, E, G, K, L, LE, MO, MW, TARI, TUH, W and Turkish herbaria [7] have revealed that these herbaria have not got any specimen of this species.

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Comprehensive studies in literature, herbaria and databases for identifying the specimens have been revealed that the specimens under examination belong to *Saponaria suffruticosa*. Unfortunately, in all of the floristic accounts or other forms of printed or electronic versions there is no description or herbarium specimen of this species for comparison and verifying the identification. Studies in various databases, such as those in the references [8,9] and the others, led me to find the presence of the type specimen and its description in the Slovakian herbarium, SAV, and in a journal that has not been published any more. Photographs of the type specimens (Figure 1) and protologue of the taxon have been provided by the curator of the herbarium to do more accurate identification.

Studies in the specimens and the original description show that it requires some corrections in terms of both taxonomic and biogeographic features. An amended description based on all gatherings, printed materials and field observations has been supplied in this paper.

***Saponaria suffruticosa* Nábělek in Publ. Fac. Sc. Univ. Masaryk, Brno No. 35, 41 (1923).**

Type: Legi in Kurdistania Turcicae district Berwari in fuscis rupium calcar. montis Choarra-Sia supra pagum 'Ain Nune inter Hasitha et Amadia, alt. ca. 1500 m, ubi sat frequens. 16. VI. 1910 (No. 4181; photo, SAV).

Chasmopytic perennial plants; mat forming in rock fissures, descending, woody at base, stem much branched at base, 8-15 cm, with few sterile and many fertile branches resemble to each other; simple, fragile, greenish to brownish, densely to sparsely white hairy with and glandular patent hairs. Leaves of fertile and sterile branches are different in size; leaves broadly obovate 5-12 in length x 3-8 mm in wide, abruptly constricted into short petiole, cuneate at base, obtuse or slightly acute at apex, slightly ciliate at margin, lamina with white finely

glandular and eglandular hispid hairy, one-nerved. Inflorescence with many flowers at apex with densely glandular and finely hispid hairs; bracts small, linear-lanceolate, acute, 6-9 x 1-2 mm; pedicels 1-1.5 mm. Flowers are of two shape; fertile flowers have well developed capsule with mature seeds, sterile flowers have stamens and ovary without developed seeds. Calyx 8-10 mm x 3-4 mm in fertile flowers, 8-10 x 1-2 mm in sterile flower, cylindrical or oblong-cylindrical, with eglandular patent and glandular hairs, obscurely 13-15 nerved, brownish to green, teeth 2-2.5 x 1-1.2 mm. Petals rose to pale pink or whitish, 10-12 mm in length, claw gradually enlarging upwards into limb top of the calyx tube, appendage absent, limb 2 x 2.5 mm in wide. Stamens 10 (-11), Capsule 6-8 x 3-3.5 mm in fertile flowers with 2 styles, oblong, opening with 4 teeth with 6-8 seeds; carpophores 2 mm, short concealed in calyx; capsule of sterile flowers with rudimentary seeds in calyx tube. Seeds 1.3-1.6 x 1.1-1.3 mm, peltate, tuberculate.

Recent collections of *Saponaria suffruticosa* after type materials:

[Turkey] C9 Siirt: 5 km from Siirt to Eruh, Görendoruk region, on limestone crevices, 37° 42' 658" N 042° 15' 712" E, 1202 m, 29. v. 2002, A. A. Dönmez 10744-B.Mutlu; same location, 18. vi. 2003, A. A. Dönmez 11200-B.Mutlu; same location, 18. vi. 2003, A. A. Dönmez 11839. C9 Şırnak: 12.5 km, from Uludere road junction to Beytüşşebap, 37° 23' 353" N, 042° 54' 026" E, 1070 m, 18. vi. 2003, A. A. Dönmez 11233-B.Mutlu; Beytüşşebap, below Başaran village, 18. vi. 2003 A. A. Dönmez 11260-B.Mutlu; Uludere, 500 m from Dağdibi village to main road, limestone crevices, 37° 22' 320" N, 043° 07' 784" E, 1124 m, 26. v. 2004, A. A. Dönmez 11919; Eruh, above Gölgekonak village, *Quercus brantii* opening, limestone crevices, 37° 45' 079" N, 42° 08' 114" E, 930 m, 19. vi. 2005, A. A. Dönmez 12118-I. Al-Shehbaz & M. Menke.



Figure 1. Picture of the type material from the SAV herbarium.

Iconography: Figure 4 in Nábělek 1923: p. 41.

Phenology and ecology: Flowering in May-June. Limestone rock crevices, 1070-1500 m.

Distribution: Restricted to rock crevices of Siirt, Hakkari, Şırnak in Turkey and Amedia in northern Iraq.

Conservation status: The specimens of the species have been collected and probably observed from two localities of Turkey and Iraq by Nábělek a hundred years ago. Recent collections have been carried out from three different localities. Rock crevices a secure habitat for plants, therefore, any conservation measurements are necessary for surviving of the species. On the other hand, any threats for the species have not been observed in the collection sites. In consideration of the time and distribution range of the species, it will be propose that there is not any threat for the species. Although knowing a few collection and restricted information about it, the species has not been put in any categories of threats [10].

DISCUSSION

The description of the species with an illustration was prepared by Nábělek a hundred years ago (Figure 2). Due to some disorganizations and terminological matters of the original description, the species has been amended, and some of its characters have been re-examined by the present author under a stereomicroscope for a better description.

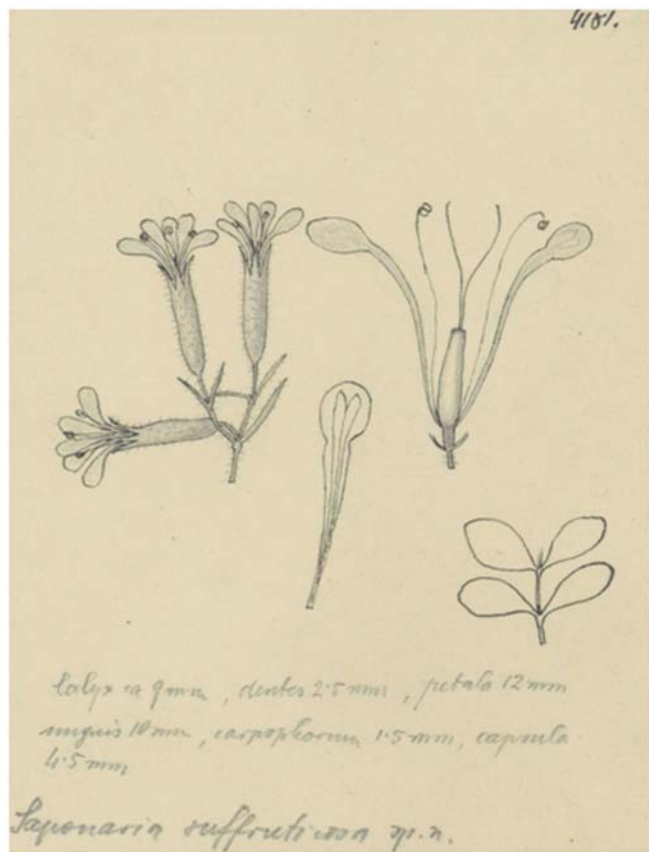
Although woody structure at the base of the stem was explained in the original description, it has been noticed that it is not very distinct feature. The epithet of the species "suffruticosa" explains the suffruticose life form for plants. This species grows on rock

crevices and form mats that do not exceed 15 cm in length. It has been also observed that woody part of the specimens is not more than 2-3 cm in length, and all are in the rock crevices. The upper parts of the specimens are found above rock crevices and they are all herbaceous. Therefore, the specimens have not a suffruticose habit and the epithet does not fit into the specimen. However, according to the International Code of Botanical Nomenclature (Art. 51.1), discrepancy between epithet and morphology or other features does not require alteration of the epithet [11]. On the other hand, *S. pinetorum* Hedge, has been described as a new species with the closest relative of *S. suffruticosa*. Previously, the determination of *S. pinetorum* was based on the description and illustration by Nábělek. Suffruticose habit was one of the basic character for describing *S. suffruticosa*. Hence, a comparative study between these two species is essential for supporting the later described species.

The specimens are densely hairy on leaves and stem and densely glandular and finely hispid on inflorescence in early developing stages of these plants. The amount of the hispid hairs decreases at maturity. Beside this, the original description explained that the specimens were also glabrous along with glandular and hispid hairs. A careful examination of all available specimens collected from various localities under stereomicroscope during the present study has showed that these specimens are always hairy in various density of glandular and hispid hairs.

The calyx length of the species were correctly measured by Nábělek, but the ratio of tube/teeth (1/3) given by Nábělek has been found to be incorrect, and the teeth are smaller than those mentioned as 1/5 ratio in the original description.

The petal shape is narrowly spatulate without distinct limb and claw that are specific to



Saponaria fragilis sp. n. Teremis suffrutico-
 sa. Radix lignosa cortice flavescenti obtu-
 ta in rupium fissuras longe descendens apice
^{ca 8cm longa}
~~caules~~ caules plurimos ^{rectos simplicis}
^{plurimos simplicis paucos stiles}
 fragillimos basi indurata flavidos glabros
 apicem versus virescentes dense pilis albidis
 distantibus ^{hirsutus} obtusis ^{angulibus}
 et glandulosis
 Folia caulina ad infimiam minutia laterotri-
 dato-obovata in petiolum brevissimum ab-
 supite coarctata, ~~ca~~ ca 4mm longa et 3mm lata,
 superiora obovata spatulata basi cuneata
 obtusa vel subacuta, ca 15mm longa et 8mm lata
 margine ciliata lamina albescenti breviter
 pilosa glanduloso-pilosa hirsuta multinervi.
 Bractae parvae, lineari-lanceolatae, acutae,
 hirsutae, summae ^{longitudo} pedicellos aequantes
 Pedicelli ^{erecti} ~~frangi~~ calyce triplo breviores. ~~♀~~ [♂] !
 Calyx cylindricus vel oblongo-cylindricus distanter
 pilosus et glandulosus indistincte obscure multinervi



viridis ca 9mm longus dentibus ^{ca 12mm longa}
 matris ca 2.5mm longis. Petala rosea ^{marginibus}
 ca 10mm longo sensim dilatata a lamina
 manifeste distincto. ^{ca 2mm longa et 1mm}
 capsula cylindrica carpophoro ca 1.5mm longo
 suffulta, apice ~~truncata~~. Capsula matura
 calycem ca 2mm superans. Lamina tuberculata
 ♀) Inflorescentia multiflora coarctata.

Figure 2. The illustration and the draft description of the type material on the herbarium sheet.

caryophyllaceous plants. When the part of the petal exerted from calyx tube is considered as limb, there is no distinct zone between the limb and claw. However, in the illustration by Nábělek an elliptic to orbicular limb in outline was explained.

The previous description of the species did not exactly explain its morphological features. Habit, indumentum, calyx tube/teeth ratio and description of the petals were not well described. The pictures of the type materials are clearly identical with the

recent collections of the present author, except petal limb. Furthermore, the illustration given by Nábělek supports my observations on the type material and recent collections. Therefore, the description has been amended, according to all the available original and fresh materials.

In the original publication of the species a single gathering "Ain Nune inter Hasitha et Amadia, (No. 4181)" by Nábělek was cited. The collection locality and date of the specimen was clear in his record.

Beside this, he also cited another locality as "Turcicae district Berwari" referring to the Pervari area in Siirt in Turkey. But, there was date and specimen number for collected material from Pervari. The latter citation by Nábělek may have been only observations. The Pervari collection or observation by Nábělek requires further research on herbarium materials, field records and probably his diary. In consideration of a complete set of *S. suffruticosa* collections carried out by Nábělek and the present author shows that the species distributes from Siirt, Şırnak and Hakkari (Turkey) to Amedia (Iraq).

Taxonomic Literature explains that Nábělek distributed some specimens to the herbaria BRA, BRNU, SAV and SLO. Therefore, I am not sure that the specimen, Nábělek 4181, has any duplicate in these herbaria. Hence, the type specimen will require further studies in herbarium materials and other collections of Nábělek which were distributed to the mentioned herbaria. A selection of a specimen as lectotype or holotype is unnecessary for nomenclatural treatment. This may cause confusion without a careful examination of all the specimens of Nábělek. On the other hand, the Pervari citation of Nábělek also requires verification to be certain about whether there has been any herbarium material.

The generic description of *Saponaria* L. explains that some of the species have male-sterile sex forms, e.g. *S. prostrata* Willd. In contrary to this observation, *S. suffruticosa* specimens have female-sterile flowers according to my observation on the collected Turkish materials. The plants have two kinds of flowers; fertile flowers have perfect stamens and well developed capsules with mature seeds. Meanwhile, the other flowers, nearly half of the total, have perfect stamens and undeveloped capsule with rudimentary seeds. Appearance of these two flowers in maturity is also different from each other. Unfortunately, I have not got enough works on the

floral biology of the species. Further research on their pollination and breeding biology is essential.

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