Introducing a new species, *Silene ghahremaninejadii* (Caryophyllaceae), from Iran

Ehsan Hoseini¹* & Mostafa Assadi²

Received: 21.04.2016 / Accepted: 27.08.2016

¹Department of Plant Sciences, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran
²Department of Botany, Research Institute of Forests and Rangelands, Agricultural Research Education and Extension Organization (AREEO), P. O. Box 13185-116, Tehran, Iran

*Correspondent author: std_ehsan.hoseini@khu.ac.ir

Abstract. *Silene ghahremaninejadii* (Caryophyllaceae) is described as a new species to science in this article based on critical differences in certain characters of both vegetative and reproductive organs, compared with its closely related taxa, i.e. *S. marschallii* and *S. ruprechtii*. The new species has compact caudex, glabrous leaves and pedicles, cylindrical calyx without indumentums on its inner surface, deeply bifid petals without coronal scales and glabrous filaments. In addition, a hypothesis about the speciation process of the species is proposed.

Keywords. Flora Iranica, Lasiostemones, Sileneae, *Silene marschallii*, *Silene ruprechtii*

INTRODUCTION

*Silene* L., a diverse and well-distributed genus of the family Caryophyllaceae, has approximately 700 species around the world, of which nearly 98-101 species are thrived in Iran by various estimations (Edalatiyan et al., 2010, 2011; Gholipour & Sheidai, 2009; Gholipour & Parsa Khanghah, 2015; Melzheimer, 1988).

Interestingly, at least 28 species out of them are considered as endemics (Edalatiyan et al., 2011); in other words, the distribution of 4 percent of *Silene* species is geographically confined to Iran.

Generally, *Silene* members were classified into 42 sections by Chowdhuri (1957), of which 21 sections are present in Iran (Melzheimer, 1988).

This could be considered to be a good indication of its marvelous diversity and strong appeal for this
speciation. After the publication of the number 163 of Flora Iranica (Melzheimer, 1988) which had been covered previously reported species, only two new species were introduced from Iran, i.e. S. ferdowsii Joharchi, Nejati & F.Ghaheem. (Edalatian et al., 2011) and S. mishudaghensis Gholipour & Parsa Khanghah (Gholipour & Parsa Khan-
ghah, 2015).

Taxonomic studies on Silene in Iran have not re-
sulted in a satisfactory conclusion yet. To fill in
the gap, herbarium specimens from important her-
baria i.e., W, TARI, FAR and T (Thiers, continu-
ously updated) are studied, which led to the discov-
ey of unidentified specimens in TARI herbarium
with interesting characteristics. The authors as-
mused that those specimens do not belong to any
previously described species; hence a new species to
the science, Silene ghahremaninejadii sp. nov.

MATERIAL AND METHODS

The aforementioned specimens were previously
collected from Khamin protected area and deposi-
ted in TARI herbarium. These specimens were not
matched to any previously described species and
could not be identified by the identification keys
of Flora Iranica (Melzheimer, 1988), Flora of Tur-
key (Coode & Cullen, 1967) and Flora of the US-
SR (Schischkin, 1936). Then the specimens were
compared with the type specimens and other relat-
ed materials deposited in G, W, LE and TARI her-
baria (Thiers, 2016) via virtual herbaria and per-
sonal attendance.

RESULTS

Silene ghahremaninejadii Hoseini & Assadi sp.
ov. (Figs. 1, 2).

Holotypus: Iran, Kuhgiluye and Boyerahmad pr-
vince, Gachsaran, ToleTchegah, Khamin protec-
ted area, Khamin mountain, 2700 m, 09.08.2002,
Mehregan 85776 (TARI).

Perennial; Caudex compact, Stems branching
mainly in below part, ascending to erect, upto 58
cm long, puberulent with eglandular hairs in lower
parts (vegetative parts of the stems, i.e. before
the initiation of inflorescent branches), then glabrous
and highly viscid above.

Basal leaves rosette, pedicellate to sessile, line-
ar-lanceolate to broadly lanceolate, subacute, 5-
32x2-4.5 mm, glabrous; cauline leaves smaller in
size and the same in shape. Inflorescence loose

panicle, coinflorescence dichasium. Pedicles more
than half of the length of the calyx, glabrescent to
glabrous. Bracteoles small, with scarious margins,
1-1.5 mm long, ciliate.

Calyx cylindric, subcoriaceous, glabrous in in-
ner surface and outer surface, 7-9 mm long, with 10
interconnecting nerves, sometimes with violet to
purple shade; teeth obtuse, with ciliate and scar-ious margins. Petals white; claw without coronal
scales, glabrous, with broad lateral margins, more or
less included in the calyx; limb 2-3 mm long, gla-
rous, bifid to its base; Stamens more or less inclu-
ed in the calyx; filaments glabrous, more or less
equal in length; Styles 3, glabrous; Capsule oblo-
ng, 6.5-7×2.5-3 mm; Anthophore (carpophore) gla-
brous to minutely puberulent, 2.5-4 mm long.

Distribution. The specimens of S. ghahremanine-
jadii were collected from an isolated high mounta-
in in South-west of Iran. Therefore, the new speci-
es is a good candidate to be regarded as an endem-
ic taxon with a very restricted distribution.

Etymology. The new species was named after Pr-
of. Dr. Farrokh Ghahremaninejad (Tehran, Iran), a
prominent Iranian botanist.

DISCUSSION

The most closely related taxa to S. ghahreme-
njadii were S. marschallii C.A.Mey. and S. rupe-
rechtii Schischk. Major differences between these
species are listed in Table 1, but some additional
notes must also be taken into consideration.

The distribution of neither of the related taxa st-
retched southward near the location of the discov-
ered specimens of S. ghahremaninejadii, so there
is no co-occurrence of S. ghahremaninejadii with
S. marschallii or S. ruprechtii based on our prese-
nt knowledge.

S. marschallii is more expansively distributed
than the other related taxon, especially in Turkey,
Iraq, Caucasus and North-western to the center of
Iran. The southernmost known locality of the spec-
ies in Iran is confined to the north of Semirom in
Isfahan province.

Semirom is about 140 kilometers north of the
Gachsaran, the area where the specimens of S. gh-
ahremaninejadii has been collected.

S. ruprechtii is confined to the northwest of Iran,
Caucasus and Turkey, hence fairly unconnected to
the habitat of S. ghahremaninejadii.
Fig. 1. The type specimen of *Silene ghahremaninejadii*. 

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[DOI: 10.21859/acadpub.nbr.3.2.131]
Table 1. Comparison of Silene ghahremaninejadii with S. marschallii and S. ruprechtii.

<table>
<thead>
<tr>
<th>Character / Taxa</th>
<th>S. ghahremaninejadii</th>
<th>S. marschallii (s.s)</th>
<th>S. ruprechtii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caudex</td>
<td>Compact</td>
<td>Caespitose</td>
<td>Compact</td>
</tr>
<tr>
<td>Plant height (cm)</td>
<td>Up to 58cm</td>
<td>Up to 53cm</td>
<td>17-26cm</td>
</tr>
<tr>
<td>Leaves indumentum</td>
<td>Glabrous</td>
<td>Puberulent</td>
<td>Glabrous</td>
</tr>
<tr>
<td>Dimension of basal leaf</td>
<td>5-32×2-4.5mm</td>
<td>27-47×1-3mm</td>
<td>10-25×(40)×0.5-3mm</td>
</tr>
<tr>
<td>Pedicel</td>
<td>Glabrous to Glabrescent</td>
<td>Puberulent</td>
<td>Glabrous</td>
</tr>
<tr>
<td>Calyx shape</td>
<td>Cylindric</td>
<td>Campanulate</td>
<td>Campanulate</td>
</tr>
<tr>
<td>Inner calyx indumentum</td>
<td>Glabrous</td>
<td>Pubescent</td>
<td>Pubescent</td>
</tr>
<tr>
<td>Patell Limbs</td>
<td>Bifid down to the base</td>
<td>Bifid up to 1/3 (-1/2)</td>
<td>Bifid down to the base</td>
</tr>
<tr>
<td>Coronal Scale length</td>
<td>Absent</td>
<td>1.5-2 mm</td>
<td>1-1.5 mm</td>
</tr>
<tr>
<td>Petal Claw</td>
<td>Not auriculate, broad</td>
<td>Auriculate, narrow</td>
<td>Auriculate, narrow</td>
</tr>
<tr>
<td>Petal Claw Indumentum</td>
<td>Glabrous</td>
<td>Pilose</td>
<td>Pilose</td>
</tr>
<tr>
<td>Filament Indumentum</td>
<td>Glabrous</td>
<td>Pilose</td>
<td>Pilose</td>
</tr>
<tr>
<td>Style</td>
<td>Glabrous</td>
<td>Pilose</td>
<td>Glabrous</td>
</tr>
<tr>
<td>Antophore</td>
<td>Glabrescent</td>
<td>Pubescent</td>
<td>Pubescent</td>
</tr>
<tr>
<td>Capsule Shape</td>
<td>Ovoid-oblong</td>
<td>Ovoid</td>
<td>Ovoid-oblong</td>
</tr>
</tbody>
</table>

Fig. 2. A: Integrated floral parts (left) and Calyx (Right), B: Middle part of a petal; note the lack of auricles and coronal scales C: Integrated floral part.
The separation of *S. ghahremaninejadii* from *S. marschallii* subsp. *sahendica* (Boiss. & Buhse) Melzh. is justified based on the plant height and the diameter of the basal leaves. Moreover, it is also noteworthy that the new species resembles to *S. ruprechtii* more than the *S. marschallii* by having compact caudex, glabrous pedicles and leaves, oblong-ovoid capsule and glabrous styles. However, it could be assumed that both *S. ghahremaninejadii* and *S. ruprechtii* were diverged separately from adjacent populations of *S. marschallii*.

Thus, the shared features of *S. ghahremaninejadii* and *S. ruprechtii* should be regarded as the examples of parallelism.

**ACKNOWLEDGEMENT**

The authors wish to thank curators and staff of the mentioned herbaria for preparing related specimens and digital materials for the study.

**REFERENCES**


