NEW RECORDS AND NEW SYNONYM OF ASTRAGALUS SECTIONS AMMODENDRON AND CAPRINI (FABACEAE) FROM IRAN

Y. Nasseh & M. R. Joharchi

Received 03.12.2011. Accepted for publication 21.02.2012.


Three species, i.e. Astragalus zurmatensis Podlech & Zarre, A. similissimus Podlech & Zarre and A. urgunensis Podlech (sect. Ammodendron) and also A. kopetdaghi Boriss. var. kopetdaghi (sect. Caprini) are reported for the first time for the flora of Iran and compared with their closest relatives. The later variety is characterized by lacking of hairs on the vegetative organs. Moreover, type specimens of A. semiglabricarpus Maassoumi and A. helmat-safaviae F. Ghahremani were revised and compared. Since there are no differences between them, A. semiglabricarpus is considered as a synonym of the latter. A new locality for the rare species A. ahmed-adlilii Bornm. & Gauhe is also reported from Yazd province. Illustrations and distribution map for the taxa are presented.

Yasamin Nasseh (correspondence, <y.nasseh@yahoo.com>) & Mohammad Reza Joharchi, Ferdowsi University of Mashhad, Herbarium (FUMH), Mashhad, Iran.

Key words. Astragalus, sect. Ammodendron, sect. Caprini, Fabaceae, new records, Khorassan.

گزارش‌ها و منادر جدید از جنس گون. "خبری" با کشف و سفر ایرانیان از ایران به خاک A. urgunensis Podlech و A. similissimus Podlech & Zarre، A. zurmatensis Podlech & Zarre (Astragalus از ایران) با مراجعه به کار A. kopetdaghi Boriss. var. kopetdaghi و Ammodendron به دنبال بررسی از بازیابی و یکسانی در مسیر A. helmat-safavvae و A. semiglabricarpus به عنوان منادر مشابه شده. به نظر می‌رسد که A. ahmed-adlilii بیش از همه از درون سطح است. است. A. semiglabricarpus

INTRODUCTION

The Middle Asia in Irano-Turanian region is the main center of diversity of Astragalus sect. Ammodendron and the species of this section are mainly distributed in Asia, Caucasus and North Africa (Komarov 1965, Maassoumi 1998). This section comprises 37 species in Flora Iranica area and 22 species in Iran, 14 of which are Iranian endemics (Podlech et al. 2010). Sect. Caprini is one of the largest sections of Astragalus with 280 species. This section has 171 and 115 species in Flora Iranica area and in Iran, respectively (Podlech 1999). 37 species of this section are known from Khorassan provinces (Nasseh & Joharchi 2009). In the framework of preparing a taxonomic revision on Astragalus sect. Ammodendron in Khorassan provinces, specimens in Herbarium of Ferdowsi University of Mashhad (FUMH) were revised and three species including Astragalus zurmatensis Podlech & Zarre, A. similissimus Podlech & Zarre and A. urgunensis Podlech were identified as new records for the flora of Iran from Razavi-Khorassan province. A specimen of A. kopetdaghi var. kopetdaghi was found among the herbarium material under sect. Caprini in FUMH. The aim of this paper is to report new records to Iran and to introduce a new synonym.

RESULTS

1. Sect. Ammodendron

New records to Iran


Razavi Khorassan: Saraiks, Pole Khatoon, 406 m, Joharchi 43021 (FUMH), Saraiks, between Dowlatabad and Nowrozabad, 300 m, Joharchi 43017 (FUMH).
Fig. 1. Distribution map of the new records of *Astragalus* for Iranian flora.

Table 1. Diagnostic characters of *Astragalus argunensis* and *A. akhundzadehensis*.

<table>
<thead>
<tr>
<th>Species</th>
<th>Leaflet shape and size (mm)</th>
<th>Peduncle length (cm)</th>
<th>Calyx length (mm)</th>
<th>Legume shape and length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>A. argunensis</em></td>
<td>linear, 1 pair; 5-18 × 1-2</td>
<td>up to 18</td>
<td>3.5-4</td>
<td>ovoid; ±5</td>
</tr>
<tr>
<td><em>A. akhundzadehensis</em></td>
<td>narrowly elliptic, 1-2 pair(s); 5-10(-13) × 1.5-3</td>
<td>5-10</td>
<td>±6</td>
<td>long elliptic; 7</td>
</tr>
</tbody>
</table>

Table 2. Diagnostic characters of *Astragalus zurmatensis* and *A. argunensis*.

<table>
<thead>
<tr>
<th>Species</th>
<th>Leaflet size (mm)</th>
<th>Peduncle length (cm)</th>
<th>Bracts length (mm)</th>
<th>Calyx length (mm)</th>
<th>Standard length (mm)</th>
<th>Legume length and indumentum (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>A. zurmatensis</em></td>
<td>15-30 × 2-3</td>
<td>7-15</td>
<td>1-1.5</td>
<td>5</td>
<td>12</td>
<td>8-9 only with long hairs</td>
</tr>
<tr>
<td><em>A. argunensis</em></td>
<td>5-18 × 1-2</td>
<td>up to 7</td>
<td>0.5</td>
<td>3.5-4</td>
<td>6-7</td>
<td>5 with long and short hairs</td>
</tr>
</tbody>
</table>

Table 3. Diagnostic characters *Astragalus similissimus* and *A. squarrosum*.

<table>
<thead>
<tr>
<th>Species</th>
<th>Stipule length (mm)</th>
<th>Raceme</th>
<th>Petiole length (mm)</th>
<th>Calyx indumentum</th>
<th>Legume indumentum</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>A. similissimus</em></td>
<td>4-6</td>
<td>more or less librate</td>
<td>1-1.5</td>
<td>only covered with sub-appressed hairs</td>
<td>long hairs without tubercle on the base</td>
</tr>
<tr>
<td><em>A. squarrosum</em></td>
<td>1.5-3</td>
<td>firstly dense, then lax</td>
<td>0.5</td>
<td>covered with ascending and sub-appressed hairs</td>
<td>long hairs with tubercle on the base</td>
</tr>
</tbody>
</table>
A. urguensis, described from E Afghanistan, is newly reported for the flora of Iran. This species is similar to A. alhunzadahensis Podlech & Zarre but there is some differences between them (table 1).


Razavi Khorasan: Between Gonabad and Torbate Heydariyeh, Lout-e Emrani, 867 m, Memariani & Zangoeei 37467 (FUMH), ibid, 37468 (FUMH).

This species was described from E Afghanistan, Pakta province, is similar to A. urguensis but differs from it in some morphological characters presented in table 2. Here, we report this species as a new record for the flora of Iran.


South Khorasan: Between Neshbandan and Tabasein, Panbe-Nasouz (Asbestos) mine, 900 m, Faghfihinia & Zangoeei 19815 (FUMH).

This species, hitherto known from south-central parts of Afghanistan, is close to A. saspranosus Bunge but differs in some morphological characters shown in table 3. The above-cited specimen is the first record of this species for the Iranian flora.

New synonym
Astragalus helkmat-safavieh F. Ghahremani., Ann. Bot. Fennici 42: 313 (2005), Fig. 5.


A. helkmat-safavieh is another species of sect. Ammodendron described from NE Iran in mountains between Mashhad and Torbate Heydariyeh (Ghahremani-nejad 2005) but has been neglected in flora Iranica (Podlech et al. 2010). Its type specimen was carefully examined and compared with the type specimen of A. semiglabricarpus and also more specimens from locus classicus (Maassoumi 2005) and surrounding area. Since there is no reasonable difference between these taxa, A. semiglabricarpus is considered as a synonym of A. helkmat-safavieh based on priority rule.

Specimens seen: Razavi Khorasan. 64 km on the road of Mashhad towards Torbate Heydariyeh, Bazar-e Hour, 1650 m, Hojat & Zangoeei 28706 (Typus, FUMH); Torbate Heydariyeh, Bezgh village, N slope of Bezh Mt. opposite to Bezh village, 2000-2500 m, Amirabadi & Parayb 4800 (TARI) [type of A. semiglabricarpus]; N Kashmar, 50 km on the road towards Neyshabour, 1600 m, Faghfihinia & Zangoeei 18456 (FUMH); N Kashmar, Chalpo, 1870-1900m, Memariani & Zangoeei 38940 (FUMH); ibid., 38941 (FUMH).

New record to Yazd province
Astragalus Ahmed-adil birn. & Gauba, known only from some locations around Karaj in Alborz province, is reported for the first time from Tabas, Yazd province. This species is endemic to Iran and has only limited distribution in C. Iran.


2. Sect. Caprini
Astragalus kopetdaghi Borias var. kopetdaghi. Figs. 1 & 6.

North Khorasan: SW Bojnord, Salook Protected Area, 2500-2580 m, Memariani & Arjmandi 43947 (FUMH).

A. kopetdaghi is an endemic species to Kopet Dag Mountains with two recorded varieties in Flora Iranica: A. kopetdaghi var. orientalkopetdaghiensis V.V. Niktan from Iran and Turkmenistan, and var. kopetdaghi only from Turkmenistan, near the Iranian borders. This is the first record of the type variety of the species, with glabrous vegetative organs, for the Iranian flora.

ACKNOWLEDGMENTS
We wish to thank Research Council of Ferdowsi University of Mashhad for financial support of the Research project No. 851. Mr. F. Memariani (FUMH) is gratefully acknowledged for revision of the first draft of the paper and producing the distribution map.

REFERENCES


Fig. 2. *Astragalus argyrensis*. –Joharchi 43021 (FUMT).
Fig. 3. *Astrogalus zumatensis* - Memariani & Zangoeei 37467 (FUMH).
Fig. 4. *Astragalus simillimus*. -Faghiinia & Zangooei 19819 (FUMH).
Fig. 5. Astragalus hekmat-safaviae. –Memariani & Zangoeei 38940 (FUMH).
Fig. 6. *Astragalus kopetdaghi* var. *kopetdaghi*. – Memariani & Arjmandi 43947 (FUMH).