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Two New Records of *Astragalus* Species of the Sections *Anthylloidei* DC. and *Dissitiflori* DC. from Iran

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Abstract: *Astragalus crassispinus* Bunge and *Astragalus nigrolineatus* Sirj. & Rech.f. are new records from Iran. They belong to the sections *Anthylloidei* DC. and *Dissitiflori* DC. These species were endemic to Afghanistan.

Key Words: *Anthylloidei*, *Astragalus*, *A. crassispinus*, *A. nigrolineatus*, *Cercidothrix*, *Dissitiflori*, *Fabaceae*, Iran

Introduction

Astragalus L. is the largest genus of flowering plants, containing up to 3000 species (Lock & Simpson, 1991). The taxa of this genus are placed in many sections. The existence of the sections is very useful and important for the separation and determination of the species.

Iran is one of the largest centres of diversity for the genus. It has nearly 750 species and an endemism rate of nearly 50%. *Astragalus* species in Iran are placed in 62 sections, of which 5 are endemic (based on Maassoumi, 1998; Podlech et al., 2001; Ghahreman et al. 2002; Podlech & Sytin, 2002; Podlech & Maassoumi, 2003; Podlech & Zarre, 2003).

In this paper 2 species are recorded from Iran. One of them is a simple hair species from *A.* sect. *Anthylloidei* DC. (*A. crassispinus* Bunge), and the other is a bifurcated hair species from *A.* sect. *Dissitiflori* DC. (*A. nigrolineatus* Sirj. & Rech.f.).

Astragalus crassispinus Bunge (Sect. *Anthylloidei* DC.)

Mem. Acad. Imp. Sc. Petersb. 11 (16): 132, 1868.

= *A. noziensis* Sirj. & Rech.f. 1958

Type: Afghanistan, W. Griffith 592 (K).

Plant up to 40 cm tall. Stipules 8-20 mm, triangular, densely appressed. Leaves 3-22 cm; leaflets 7-20 paired, elliptical, 2-18 x 1-6 mm, mucronate (mucro 1.8-2 mm). Inflorescence cylindric, 3.5-8 cm, many-flowered,

together with the peduncle 4-18 cm. Bracts membranaceous, 3-8 mm, ovate, acuminate. Calyx 10-25, 4-6 in mm diameter (in fruit 17-30 x 11-18 mm); calyx teeth triangular-acuminate, 3-7 mm. Corolla yellow, glabrous. Standard 15-21 mm, limb 8-10 x 7-10 mm. Wings 18-19 mm; the limb elliptic, 5-6 x 2.1-2.5 mm. Keel 18-19 mm; the limb elliptic, 4.5 x 2.1 mm. Pod 7-12 x 4-5 mm, laterally compressed, densely pilose, stipe 0.5-1.5 mm (Figure 1).

Specimen seen (FAR, FUMH).

Iran, Khorassan Prov.: SE Fariman, between Rekhneh-Gorg and Chenarbu, 28.6.1987, Joharchi & Zangoee 15394.

This species was distributed exclusively in Afghanistan (Podlech et al., 2001). Therefore our specimen shows that its range has extended (Figure 2).

Astragalus section *Anthylloidei* has its centre of diversity in the Armeno-Iranian floristic province (Takhtajan, 1986) of the Irano-Turanian region. This section was originally established by De Candolle (1825), and consisted of 25 species (Podlech et al., 2001).

The species of this section are distributed in Iran (23 species, of which 15 are endemic), Afghanistan, Armenia, Azarbaijan, Iraq, Turkey, and Turkmenistan. Probably Iran is the centre of diversity and an ancestral region for this section.

Twenty-one species of this section (84%) are endemic to the Iranica area (Iran, Afghanistan, W Pakistan, N Iraq,

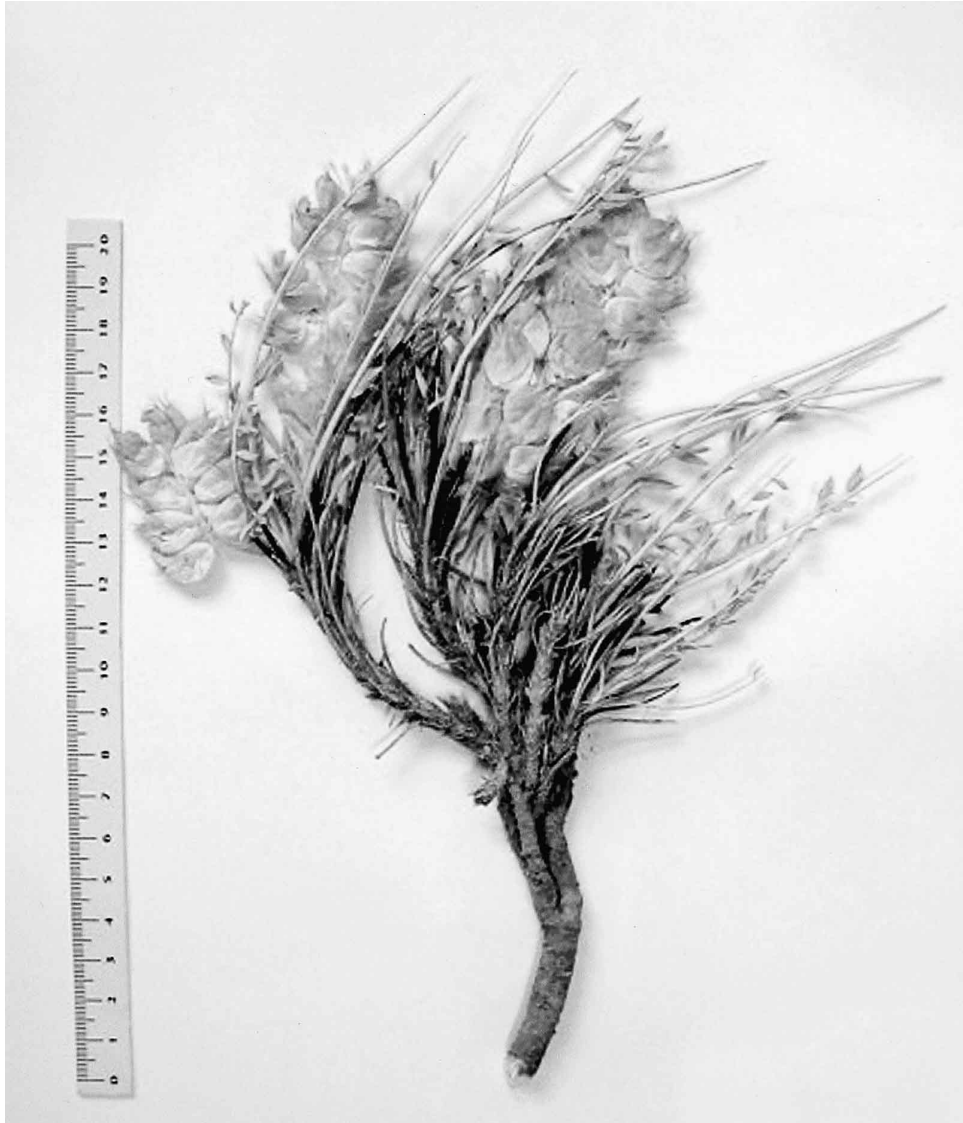


Figure 1. *Astragalus crassispinus* (Photo by M.R. Pakzad).

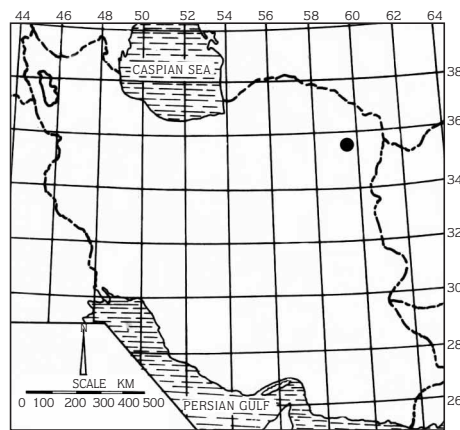


Figure 2. Distribution map of *A. crassispinus* in Iran.

and parts of Azarbaijan and Turkmenistan). The species which penetrate outside the area (i.e. Anatolia and Transcaucasia) number 4. The species of this section are distributed at an altitude between 800 and 4600 m in Iran.

Astragalus nigrolineatus Sirj. & Rech.f. (Sect. *Dissitiflora* DC.)

Biol. Skr. Dan. Vid. Selsk. 9, no. 3 (1975).

Type: Afghanistan, Chisht, 1800 m, 20.IV.1949, Koie 3680 (W, C).

Perennial, 20-25 cm tall. Stems erect, 5-10 cm. Stipules 2-3 (4) mm, non-connate, linear-lanceolate. Leaves 4-8 cm; petioles 0.5-2.5 cm; leaflets linear-oblong, 3-5 paired, 10-25 x 0.6-3 mm, acute. Inflorescence lax cylindric, 10-14-flowered, together with the peduncle 10-15 cm. Bract 2-3 mm. Calyx cylindric, 17-20 mm; calyx teeth subulate, 3.5-5 mm. Corolla yellow, glabrous. Standard 22-24 mm. Wings 20 mm, the limb 8 mm. Keel 18 mm, the limb 4 mm. Pod linear-oblong, bilocular, 4-5 cm, densely covered with appressed hairs (Figure 3).



Figure 3. *Astragalus nigrolineatus* (Photo by M.R. Pakzad).

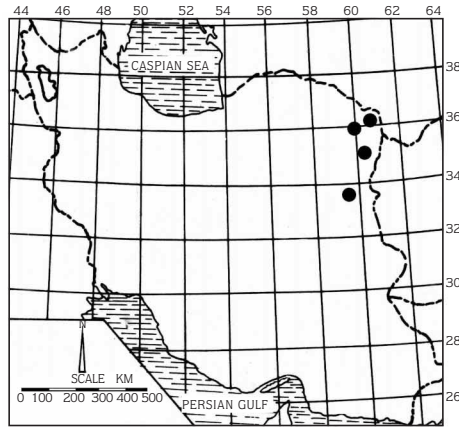


Figure 4. Distribution map of *A. nigrolineatus* in Iran.

Specimen seen (FAR, FUMH).

Iran, Khorassan Prov.: 7 km S of Ghaeen, 1500 m, 31.1.81, Ayatollahi & Zangooe 12048. E Ghaeen, Zirkuh, between Esfeden and Verezg, S Deghbala, 1150 m, 22.1.67, Joharchi & Zangooe 16043. Sarakhs to Mashhad, 15 km W of Sarakhs, 400 m, 3.2.70, Faghihnia & Zangooe 19461. Torbat-e-Jam, between Salehabad and Pol-e-Khatun, 500 m, 24.1.72, Faghihnia & Zangooe 22713. Between Mashhad and Sarakhs, Bazangan lake, 950 m, 20.1.73, Faghihnia & Zangooe

24679. S Sarakhs, Pol-e-Khatun, the beginning of Paskamar road, 900 m, 2.1.88, Hojjat & Zangooe 31854.

This species was distributed exclusively in Afghanistan (Koie & Rechinger, 1975). Therefore our specimens show range extension for this species (Figure 4).

The section *Dissitiflori* has its centre of diversity in the Turkestanian and Armeno-Iranian floristic provinces (Takhtajan, 1986) of the Irano-Turanian region. The section *Dissitiflori* is the biggest bifurcated section after the section *Incani* in Iran. In comparison with the section *Incani*, it is distributed in the drier parts of Iran. This section has 23 species, 15 of which are endemic to Iran. It has a vast continuous area in the Old World. Iran is the lowest latitude for the section. Iranian species probably have come partly from the Caucasus, and partly from Middle Asia, and were partly an ancestral pool. Of the non-endemic species (8 species), only *A. juratzkanus* is related to Middle Asia (Turkmenistan), and the others were recorded from Iraq, Turkey and the Caucasus.

These species are distributed at an altitude between 220 and 4000 m in Iran (Maassoumi et al., 2000). This section was originally established by De Candolle (1825) with few species, and now consists nearly of 170 species based on work by Ghahremaninejad (2003, 2004).

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