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Original Article

Two new records for the flora of Uzbekistan from south-west Tian-Shan

Q10 Tojibaev Komiljon^a, Farkhod Karimov^a, Ibrokhim Azimov^a, Kaesun Chang^b, Chang-gee Jang^{c,*}^a Institute of Botany of Academy of Sciences of the Republic of Uzbekistan, Tashkent 100125, Uzbekistan^b Forest Biodiversity Division, Korea National Arboretum, Pocheon 35208, South Korea^c Department of Biology Education, Kongju University, Gongju 32588, South Korea

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ABSTRACT

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The Republic of Uzbekistan is a Central Asian country with rich native flora. The flora of Uzbekistan accounts more than 4,374 species of vascular plants, but the check-list is still incomplete because the result of field studies is still-found new species for the flora of the country. Several new records for Crassulaceae and Fabaceae families were found in 2015–2016. All cited species were found from boundary area with Kyrgyzstan Republic (south-west Tian Shan). Specimens of new records are stored in Central Herbarium of Uzbekistan (TASH) and Korea National Arboretum.

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Introduction

Q2 The Republic of Uzbekistan is located in the Central Asia. The country has rich native flora. The total land area is 447,000 square kilometers. The territory belongs to the Turanian (or Aralo-Caspian) and Turkestan (or Central Asian mountain) provinces of the Irano-Turanian region in the Tethyan (Ancient Mediterranean) floristic subkingdom of Holarctic (Takhtajan 1986; Tojibaev et al 2017c). The region is one of the world's major centers of plant diversity. Almost 85% of the country is occupied by deserts; about 15% is covered by mountains and foothills. The flora of Uzbekistan accounts more than 4374 species of vascular plants including large numbers of endemic, endangered, and globally important species (Sennikov et al 2016; Tojibaev et al 2014). The check-list of the flora is still incomplete because the result of field studies is still-found new species for the flora of the country. The floristic data are imperfect for several regions of Uzbekistan including boundary area with other Central Asian countries—Kyrgyzstan, Kazakhstan, Tajikistan, and others.

Since 2014, the research team of the Central Herbarium of Uzbekistan (TASH) and Kongju National University (South Korea)

carried a detailed study on the flora of the Western Tian Shan. In 2017, more than 20 species was recorded as new for the flora of Uzbekistan (Tojibaev et al 2017a, 2017b). This work is based on current field surveys and analysis of herbarium materials of TASH and other Central Asian herbarium collections (AA, TAD, LE, MW, and FRU). This article provides information about two new records for Crassulaceae and Fabaceae families found in 2015–2016. These species were not recorded in “Flora of Uzbekistan” (Borissova 1955; Gontscharow 1955). All new records for the flora of the Uzbekistan were found from boundary area with Kyrgyzstan Republic (south-west Tien Shan).

Material and methods

Field researches were conducted in 2015–2016 on Chatkal range (Figure 1). The ridge occupies cross-boundary and is characterized by low floristic studying. Field researches were conducted by traditional methods. The coordinates of plants species location were recorded using GPS device. In TASH, we studied all herbarium specimens of new records. The data of vouchers were entered into the Microsoft Excel table, geo-referenced, and imported into ArcGIS 10.0, transformed to a point map layer. The identification of herbarium specimens belonging to new records was revised by the authors. Accepted names of the species are given according to www.ipni.org.

* Corresponding author.

E-mail address: cjjang@kongju.ac.kr (C.-g. Jang).

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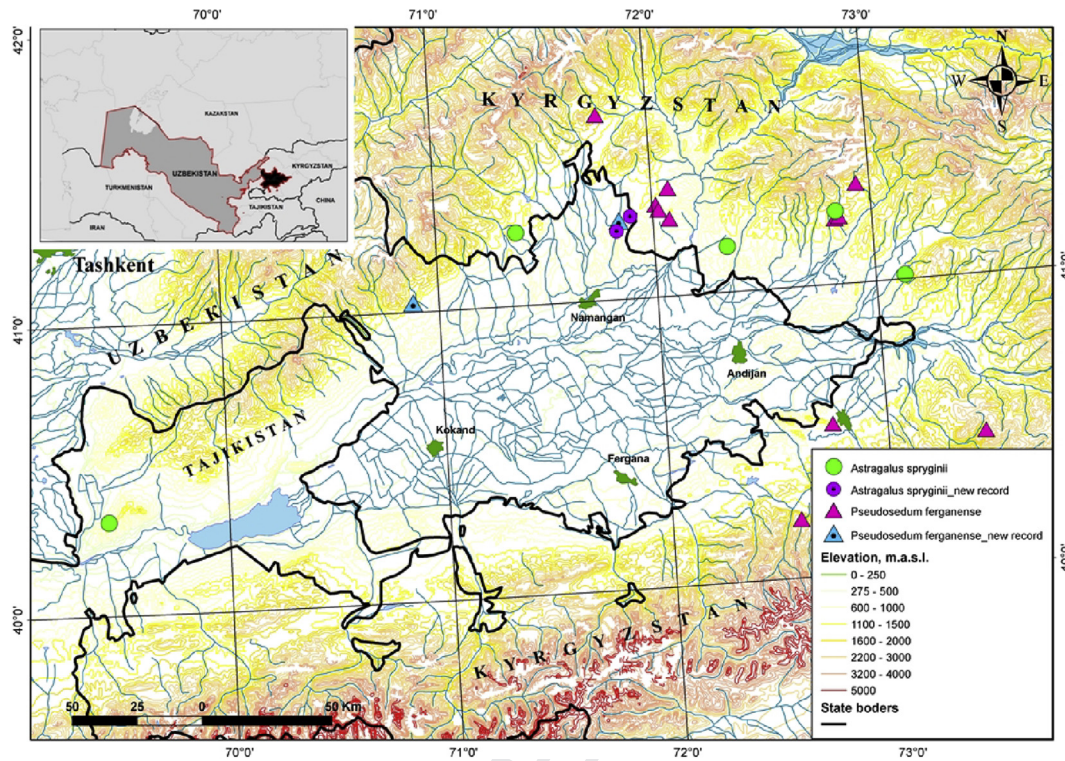


Figure 1. Study area.

Results

Family Crassulaceae

Pseudosedum ferganense Boriss. Trudy Bot. Inst. Acad. Nauk S.S.S.R., ser. 1, Fl. Sist. Vyssh. Rast. 1:112 (1933), sect. *Tuberaria* Boriss. (Figure 1)

Genus *Pseudosedum* (Boiss.) A. Berger falls into categories of middle size genus within Crassulaceae DC. family. According to www.theplantlist.org, it is registered 14 taxa. The genus is mainly distributed in Central Asia. Ten species grow in this area (Palanov 1988; Prato 1974). Two species—*Pseudosedum affine* (Schrenk ex Fisch. C.A. Mey.) A. Berger and *Pseudosedum lievenii* (Ledeb.) A. Berger are noted for northern China (Kanjun 2001). On “Flora Iranica” area grows tree isolated species—*Pseudosedum acutisepalum* C.-A. Jansson, *Pseudosedum koelzii* C.-A. Jansson, *Pseudosedum multicaule* (Boiss. & Buhse) Boriss. (Jansson and Rechinger 1970).

In the territory of Central Asia, the basic diversity of species belongs to the territory of Tajikistan—seven species (Borissova-Bekryasheva 1975) and Uzbekistan—four species (Borissova 1955). During the study of herbarium specimens of the Central Herbarium of Uzbekistan (TASH) and flora inventories of Uzbek parts of a southern Chatkal ridge, a new species of genus *Pseudosedum* earlier unknown for flora of Uzbekistan has been found.

Hatkal ridge: “Ferghana valley, Chartak district, Arbagish village, and hills around of village. n02305201513. 23 v 2015. Tojibaev, Karimov” (Figures 1 and 2).

Specimens studied—Uzbekistan. Pamir-Alai: Alai range, Ferghana, Chil-Mayram foothills. 251. 8 vi 1916. Rosanov, Uzbekistan. South-west Tien-Shan: Namangan province, Pap district. 1 km to W from Charkesar village. 139. 1 v. 1959. Bondarenko, Maylun.

P. ferganense occupies an isolated position. It belongs to the monotype section *Tuberaria* Boriss. (Borissova 1939), with the tuberiform roots. Occurs on cracks of the rocks.

Family Fabaceae

Astragalus spryginii Popov 1915, in Dimo, Soil Invest. Exped. Rivers Syr-daria & Amu-daria, Pt. 1: 51, sect. *Xiphidium* Bunge (Figure 3).

Astragalus is with about 2,500–3,000 species in 250 sections, the largest genus of flowering plants (Podlech and Zarre 2013), also is the largest genus in the flora of Uzbekistan (Sennikov et al 2016; Tojibaev et al 2015) and Central Asia (Abdullaeva et al 1981). In TASH, there are more than 12,000 herbarium specimens of *Astragalus*, collected from all regions of the Central Asia. More than 7,000 of them were collected from Uzbekistan. Following the results of examining of assemblies from the territory of Uzbekistan, earlier six new species of *Astragalus* for flora of Uzbekistan were found (Tojibaev et al 2014). As a result of field researches on southern slopes of the Chatkal ridge, one more species of genus from section *Xiphidium*—*Astragalus spryginii* Popov has been found. The details of the new find are given below.

Among the shrubs and subshrubs of section *Xiphidium*, *A. spryginii* is well-distinguished by nudes, legumes (Figure 3) and ovary. According to Vinogradova (1981), species grows on the south-western slopes of Tian-Shan: Mogoltau, the Chatkal ridge (Kasansay), and the Fergana ridge and is indicated for the flora of Tajikistan (Rasulova 1981) and Kyrgyzstan (Nikitina 1957). Mention in the Flora of Uzbekistan (Gontscharow 1955) should not be considered valid, because in the third edition of Flora of Uzbekistan, *A. spryginii* is cited as likely growing in Uzbekistan, but before it was known to grow in the southern slopes of Mogoltau, falling into Tajikistan.

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