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TWO NEW RECORDS OF COUSINIA (SECT. ACANTHOTOMA JUZ.) FOR THE FLORA OF UZBEKISTAN

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Complex processing of *Cousinia* section *Acanthotoma* mainly on the basis of studying herbarium specimens stored in Central Herbarium Institute of the Gene Pool of Plants and Animals of Academy of Sciences of the Republic of Uzbekistan (TASH) has led to increase the number of taxa. *Cousinia eriotricha* Juz. and *Cousinia sarawshanica* C. Winkl., which are reported as new records for the flora of Uzbekistan. New location was found for *C. eriotricha* from Hissar, Alay and Nurata ranges of the Uzbek part of these territories. Their maps, descriptions and distributions are given.

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Key words: *Cousinia* sect. *Acanthotoma*; endemics; flora; Uzbekistan; Tajikistan

دو گزارش جدید از جنس Cousinia بخش Acanthotoma برای فلور ازبکستان

منصور اسمونو: هرباریوم مرکزی، مؤسسه ذخایر ژنتیکی گیاهان و جانوران، جمهوری ازبکستان

بررسی نمونه‌های هرباریومی جنس Cousinia از بخش Acanthotoma در هرباریوم مؤسسه ذخایر ژنتیکی گیاهان و جانوران، آکادمی علوم جمهوری ازبکستان (TASH) منجر به افزایش گونه‌های جنس Cousinia در فلور ازبکستان گردید. همچنین رویشگاه‌های جدید برای این گونه از هیسار، آلای و و سلسله جبال نوراتا در بخش مربوط به کشور ازبکستان شناسایی گردید و نقشه‌های پراکندگی و شرح گونه‌ه از مناطق فوق ارایه می گردد.

INTRODUCTION

Genus *Cousinia* Cass. (tribe *Cardueae* Cass.) with approximately 600-700 species (Attar & Ghahreman, 2001, 2002, Susanna & Garcia-Jacas 2006, Mehregan 2008, Assadi 2010,) distributed in Central and Western Asia. According to O. V. Tscherneva (1974) the areal of genus is clearly divided into two groups: Western and Eastern. About 251 species in the western half of the area were listed and covers the territory of «Flora Iranica». The eastern part of the area falls on the mountain and desert expanses of Central Asia and includes more than 340 species. This indicates that Central Asia, including Central Asia Mountains are one of the origin centers of genus. According to published fascicles of Flora Iranica the total number of *Cousinia* species are about 335 belonging to 57 sections, many of them are endemics (Rechinger 1972). In Central Asia the genus is divided into 48 sections and consists of no less than 260 species (Tscherneva, 1993). According to our data, nearly 150 taxon belonging to 34 sections occur in the flora of Uzbekistan.

As part of the "Flora of Uzbekistan" Project taxonomic revision of the genus *Cousinia* was done and all herbarium materials stored in TASH were revised. More than 8,000 specimens belonging to 216 species were stored in Central Asia and the adjacent territories. About 3,000 specimens were collected from the territory of Uzbekistan. 200 specimens of them relates to *Cousinia* sect. *Acanthotoma* Juz. . Data of all herbarium specimens have been entered to database, defined the geographical coordinates and

mapping scheme of species distribution.

The former *Cousinia* section *Alpinae sensu* Tscherneva (1961, 1962b, 1988) and Rechinger (1972) is renamed as section *Acanthotoma* Juz (Sennikov 2010). According to our data 11 species of *C.* sect. *Acanthotoma* occur in our area. *C. eriotricha* and *C. sarawschanica* are considered as new records to the flora of Uzbekistan. Based on these new data the number of *Cousinia* species in Uzbekistan increases to 145 and the number of taxa increases to 150. Full taxonomic descriptions of these new records are presented here.

MATERIALS AND METHODS

All herbarium specimens of *Cousinia* sect. *Acanthotoma* species collected from Uzbekistan were studied in TASH, LE and MW, 200 specimens in total. A few of the most representative herbarium specimens of each species were scanned with the HerbScan device. Data of herbarium vouchers were entered into Excel, geo-referenced, imported into ArcGIS 10. 0 and transformed to a point map layer. We used the Google Earth software for geo-referencing of collection sites of historical herbarium specimens. The WGS84 Geographic coordinate system was used as a reference datum. The database comprised about 3000 entries including both historical herbarium specimens and newly collected material from our expeditions. All entries in the database were tabulated against floristic provinces and districts. Several references were used, but «Conspectus Florae Asia Media» (Tscherneva 1993) as one of the last revisions of the genus in Central Asia was used as a base of studies.

RESULTS AND DISCUSSION

According to the results sectional composition of the genus Cousinia including *Cousinia* sect. *Acanthotoma* Juz. were determined. This section is one of the largest in the *Cousinia* genus with 45 species (http://cousinia. com/species/species-world/). According to ordinary volume 10th «Conspectus Florae Asiae Mediae» 25 species are occur in Central Asian territory (Tscherneva 1993). Rechinger (1972) described 23 species relating to the *C.* sect. *Acanthotoma* in Flora Iranica. Tscherneva (1962) included 9 species for the territory of Uzbekistan. But our results have shown that 11 species distributed in our territory. It is predominantly a rare and localized or endemic species, distribution of which is limited one or several mountain ridges.

Taxonomic treatment

New records

Cousinia eriotricha Juz. (1937)

Description: Perennial. Stem erect, 25-40 cm high, striate-sulcate, finely white-tomentose, with long entangled hairs, leafy, usually weakly branched above; with shortened branchets, one-headed. Leaves typical of section, green above, white-tomentose below, densely covered on both sides with fine, long, silky, entangled, divergent hairs, especially on petiole; petiole almost entirely wingless with linear, acuminatespinescent, revolute, lateral segments; basal leaves short-petiolate; cauline leaves sessile, short-decurrent. Inflorescence less-branched, corymbosepaniculate; Capitula oblong-ovoid, 12-14 mm wide (excluding cusps), arachnoid-hairy or more or less finely white-tomentose. Phyllaries 80-90, linear-subulate, erect-spreading; outer bracts 10-12 mm, middle up to 18 mm long; inner bracts flat, membranous, linear-lanceolate, 20-22 mm long, acuminate, scabrous dorsally and along margin. Corolla pink, about 20 mm long, anther tube whitish, glabrous; receptacular bristles somewhat broadened above, scabrous. Achenes obovoid, 7 mm long, glabrous, smooth.

Flowering and fruiting period: July - August.

General distribution and habitat: Pamir-Alay (Turkestan, Nuratau, Hissar and Alay ranges). On the rubbly and stony slopes, screes in the upper mountains region.

Country: Uzbekistan, Tajikistan.

Specimens examined: **UZBEKISTAN.** Nurata reserve. Nuratau range. Mount Hayat-Bashi. 2000 m. 18 July 1992, *Beshko*; Nuratau. pass Hayat, 3 Aug. 1940, *Gomolitsky 304*; Turkestan range. In 3-4 km to the West of the tract Nauka. 16 Sept. 1940, *Gomolitsky* & *Dolgikh 319*; Turkestan range. Galla-Aral district. Mount Chimkartau. Upper river Terekli. 2500 m, 1 Aug 1932, *Titov* & *Eliseeva 29*; Turkestan range. Galla-Aral district. Mount Chimkartau. Upper river Karabulak. 2400 m, 7 Aug 1932, *Titov* & *Eliseeva 97*; Turkestan range. In 1 km from pass Koktyupe. 17 Aug 1937, *Demurina* & *Makarchuk 1371*; Pamir-Alay. Baysuntau. 1,5-2 km from pass Sary-Shato in Charbak. 29 Jun 1934, *Butkov 4*; Hissar Mts. Foothills between with Sari-Assia and Gazarak. 30 May 1947, *Korotkova 629*; Speckled low mountain between the towns Baysun and Denov. Neighborhood of wintering Tash-kak. 7 May 1930, *Bochantsev* & *Vvedensky 135*; Speckled low mountain Baysun district. Khoja-Kochkar. 24 May 1930. *Lepeshkin*; Alay range. N slope river basin Shakhimardan, Neighborhood of the village Jordan. 28 May 1954, *Pyataeva 474, 480*; N slope Turkestan range. Forestry Sanzar. Upper Ak-Chapkansay. 30 July 1955, *Demurina* & *Bulgakova*.

Other seen specimens: **TAJIKISTAN.** In river

valley Khoja-Bakirgan from village Auchi-kalachi. 25 Jun 1948, *Arifkhanova 181*; Fergana region. Kokan uyezd. neighborhood Santo, red sandstone. 02 Jul 1923, *Vvedensky*; N slope of Turkestan range. Upper Palakhman-say. 2300 m, 3 Jul 1956. *Demurina* & *Bulgakova*; Turkestan range. Watershed lateral a comb spur of between Kara-Tashsay and its tributaries. 1900 m, 17 Aug 1937, *Demurina 1054*; Hissar range. River valley Khanaka-su, massif Darvaza-kan. 3200 m, 3 Aug 1936, *Lepeshkin* & *Mukhamedzhanov 865*. – All specimens kept in (TASH!).

Note. According to Tscherneva (1993) in Central Asia *C. eriotricha* distributed only in Turkestan range within Tajikistan (1991) and Kyrgyzstan (1965). During our revision, we found some specimens from Hissar (Baysuntau), Alay (Shakhimardan) and Nurata (Hayat-Bashi) ranges in the part of Uzbekistan.

Cousinia sarawschanica C.Winkl. (1886).

Description: Perennial. Stem erect, 15-40 cm high, shallow striate-sulcate, glandular above, gray-pubescent below, sometimes white-tomentose, leafy. Leaves usually green and sparsely glandular above, less often finely gray-pubescent, gray-tomentose beneath, especially along midrib, pinnatisect in narrow-lanceolate, revolute, acuminate-spinescent, almost linear segments on very narrow-winged rachis, not in one plane, but as if in whorl; basal and lower cauline leaves on short, weakly sulcate, ciliolate, usually gray-pubescent petioles; other leaves gradually reduced toward apex, semiamplexicaul, uppermost leaves decurrent. Capitula numerous, on glandular-hairy peduncles, oblong-cylindrical, 8-12(15) mm wide (excluding cusps). Phyllaries glandular, pubescent; outer bracts carinate, 10-30 mm long, horizontal, gradually acuminate from closely appressed base to grooved cusp, terminating in short yellowish spine; middle bracts like outer but slightly shorter and usually somewhat erect, sometimes only slightly divergent; inner bracts somewhat flat, 11-16 mm long, broadly lanceolate, acuminate-spinescent. Corolla yellow, 12-15 mm long; anther tube pale-purple; receptacular bristles scabrous. Achenes obovoid, glabrous, smooth, 6-7 mm long.

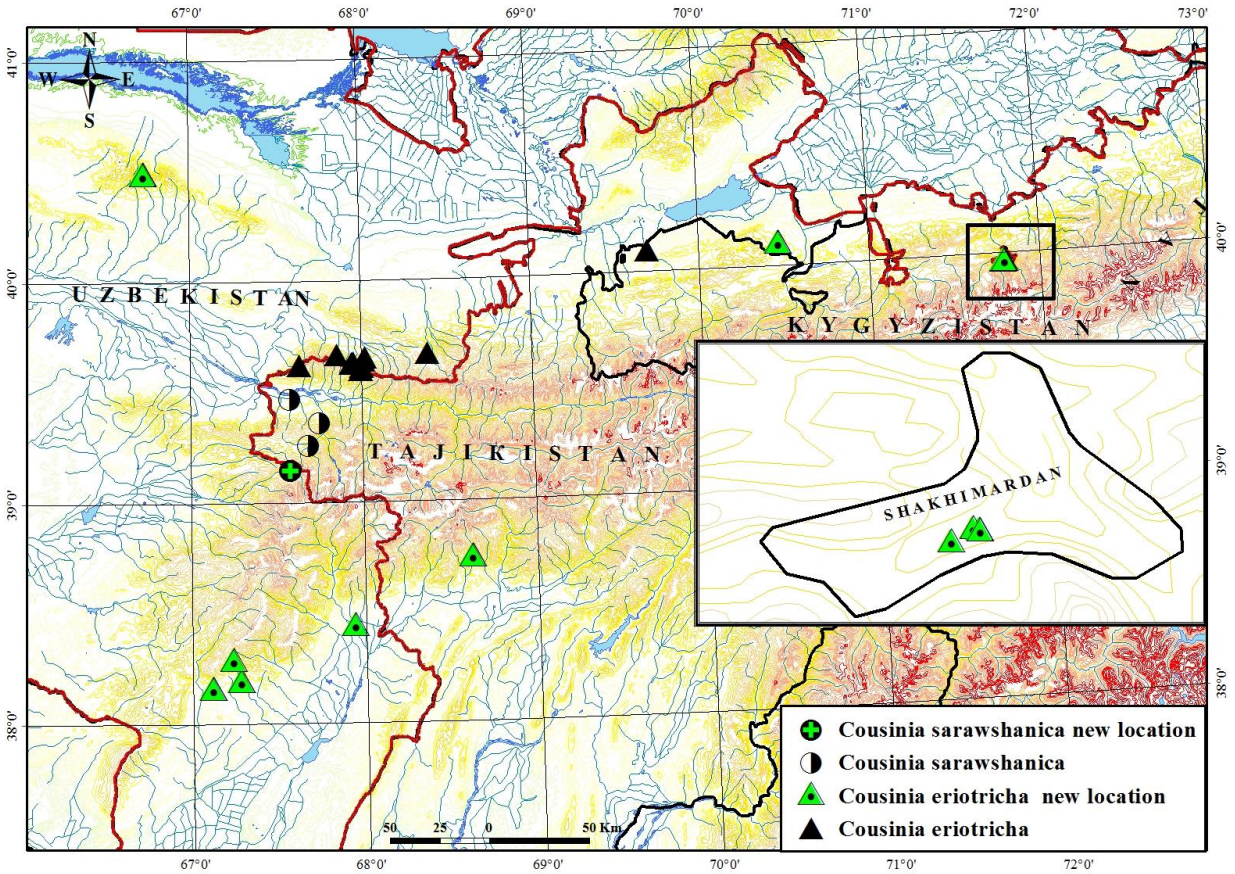

Fig. 1. Distribution map and new location of *C. sarawschanica* and *C. erioticha* (according to the specimens examined).

Flowering and fruiting period: July-August.
General distribution and habitat: Subendem. Pamir-Alay (Zaravshan range.). On the stony and pit-run fines slopes. 2000-3500 м.
Country: Uzbekistan, Tajikistan.

Specimens examined: **UZBEKISTAN**. River basin Kashka-Darya. Upper reaches of the river Ak-su. Shourty Mts. Subalpine zone. Dry stony slopes W and SW exposition. 13 Aug 1949, *Gomolitsky* & *Holmatov 101, 113* (TASH!).

Other seen specimens: TAJIKISTAN. Zeravshan, Kulikalon, Western slope, 8 Aug 1937, *Chugaeva & Akhmedov*; Zeravshan range, Mogian, mount Belcha, 1800-2000 m. 19 Aug 1942, *Zakirov*; Hissar range, N slope, river valley Mogian, 3 July 1929, *Drobov 256*.

Very close to this species *C. hanthula* Rech. f. described from Afghanistan. From *C. sarawschanica* he distinguished by the absence of glandular omission on the Involucre. In the first description of *C. sarawschanica* indicated pink flowers, but numerous materials from the region, where come from the type, confirm the presence of *C. sarawschanica* not pink, a yellow corolla. (Tscherneva, 1991).

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The most complete source of *Cousinia* http://cousinia.com/species/species-world/