

Araştırma Makalesi/Research Article

***Centaurea sintenisiana* Gand. - A New Record for the Family Asteraceae (Compositae) from Turkey**

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**Abstract:** In this study *Centaurea sintenisiana* Gand. is recorded for the first time in the East Anatolia (Hakkari) from Turkey. Besides to description of the new record, scanning photograph of the herbarium specimen is provided. Geographical distributions of the taxa are also mapped, and IUCN threat categories of the populations are discussed.

**Key words:** *Centaurea*, New record, Taxonomy, Turkey.

**Türkiye'den Asteraceae (Compositae) Familyası İçin Yeni Bir Kayıt-  
*Centaurea sintenisiana* Gand.**

**Özet:** Bu çalışmada *Centaurea sintenisiana* Gand. türü Türkiye'de Doğu Anadolu (Hakkari) bölgesinden ilk kez kaydedilmiştir. Taxonun betiminin yanı sıra herbaryum örneğinin fotoğrafı da verilmiş, ayrıca türün coğrafik dağılımını gösteren bir harita sunulmuş ve türe ait populasyonun IUCN tehlike kategorisi tartışılmıştır.

**Anahtar Kelimeler:** *Centaurea*, Yeni Kayıt, Taksonomi, Türkiye.

**Introduction**

Turkey is one of the main centers of diversity for the genus *Centaurea* s.l., which is the largest genus of Compositae family and the third largest genus in terms of species number in Turkey. Wagenitz (1975) provided the account for the *Flora of Turkey*, according to which the genus was represented with 181 species in the *Flora of Turkey* with supplement I and II (Wagenitz, 1975; Davis et al., 1988; Güner et al., 2000). Since then, 34 new species have been described or newly reported (Duran & Duman, 2002; Greuter, 2003; Türkoğlu et al., 2003; Aytaç & Duman, 2005; Uzunhisarcıklı et al., 2005, 2007; Vural et al., 2006; Wagenitz et al., 2006; Eren, 2007; Kaya & Vural, 2007; Uysal et al., 2007, 2008; Aksoy et al., 2008; Armağan & Ünal,

2009; Daşkın & Yılmaz, 2009; Doğan & Duran, 2009; Hamzaoğlu & Budak, 2009; Tan et al., 2009; Uysal & Köse, 2009; Kültür, 2010; etc.). This number excludes 56 species, which have been transferred and are now treated within the segregate genera *Psephellus* (33 species), *Cyanus* (16 species), and *Rhaponticoides* (7 species) (Wagenitz & Hellwig, 2000; Greuter, 2003; Hellwig, 2004; Güner et al, 2012).

Finally "A Checklist of the Flora of Turkey (Vascular Plants)" named in the study, 159 species, 39 subspecies, and 19 varieties, totally 194 taxon are found in Turkey belonging to the genus (Uysal, 2012). Since then, 8 new species have been described a from Turkey (Köse and Alan, 2013; Bancheva et al, 2014; Bona, 2015a, 2015b; Negaresh et al., 2015; Uysal et al. 2015; Yüzbaşıoğlu et al.,

2015; Kültür et al. 2016). Currently, the total number of *Centaurea* was increased to 167 species and 202 taxa, endemic taxa were increased to 122, and rate of endemism are c. 60% in Turkey.

### Materials and methods

During floristic investigations in East Anatolia, some unusual specimens (Figure 1) of genus *Centaurea* were collected between Yüksekova and Esendere (Hakkari) in 2014. Initially collected specimens were thought as *Centaurea carduiformis* DC. subsp. *orientalis* Wagenitz (Wagenitz, 1975). After then, it has been understood that these specimens have some different characters from *C. carduiformis*. They were checked from *Flora of Turkey* together with Supplements, relevant literature and check-lists III, IV, V, VI

and VII of additional taxa to the Flora of Turkey's supplements (Davis et al., 1988;

Güner et al., 2000; Özhatay and Kültür, 2006; Özhatay et al., 2009; 2011; 2013; 2015). Finally these specimens were determined as *Centaurea sintenisiana*. Collected specimens were compared with the type image of *C. carduiformis* and *C. sintenisiana* of herbarium B, BM, E, G, K, LD, W and also other specimens in herbaria, E, JE, G and K. The description of the species given below was based on collected specimens and varies in some respects from that in *Flora Iranica* (Wagenitz, 1980). The voucher specimens have been deposited at the Herbarium of Yüzüncü Yıl University (VANF), Van, Turkey.



Figure 1. Global distribution of *Centaurea sintenisiana*.

## Results

Sect. *Acrocentron* (Cass.) DC.  
*Centaurea sintenisiana* Gand., Bull. Soc. Bot. France 65: 37 (1918) (Fig. 1-2).

**Syn:** *C. persica* Boiss. var. *pseudodeinacantha* Rech. fil., Ann. Nat. Mus. Wien 55: 286 (1944), *C. esfandiarii* Rech. fil. & Aell., Osterr. Bot. Zeitschr. 97: 253 (1950).

**Type:** Regio Transcaspica (Turkmenistan); Kisil-Arvat, Kara Kala, in monte Sandsodagh, vi.1901, Sintenis 735 (B photo!, G photo!, LD photo!, W photo!).

Biennial (sometimes perennial?), almost napiform taproot. Stem thick, tall, 60–100 cm (rarely lower), lower half  $\pm$  hirsute, long hairy, above scabridulous, subglabrous; in the upper branches few, with mono or few heads. Leaves sparsely articulated, especially lower surface hirsute, on the upper surface often subglabrous; the lower petiolate, lyrate or pinnatisect-sublyrate, enough or numerous intermixed a few small segments of the lobes, lanceolate, remote and irregularly dentate, sometimes lyrate (and so the leaves  $\pm$  bipinnatisect); the middle leaves same of the lower parts, but smaller ones, sessile. Involucre subglobose, truncate base, 25–30(–35) x (20–)25–30 mm; phyllaries multiseriate, virescens, basal part of phyllaries not covered by appendages; appendages brown, decurrent, base triangular, gradually tapering into spine, 20–30 mm

(incl. spine) (rarely shorter), base 4–6(–7) mm (excl. cilia), ciliate, cilia 3–5(–6) mm. Flowers purple or rosy-purple. Achenes 5.5–6 mm, immature almost silky-hairy, later glabrescens. Pappus 6–9(–11) mm. The distribution areas of *Centaurea sintenisiana* in Turkey: C10 Hakkari: Yüksekova, 13. km from Yüksekova to Esendere, around of Dereçi village, valley slopes, step, 2200 m, 26.08.2014, *M.Pınar* 5101 (VANF).

**Phenology:** Flowering occurs from June to August.

**Ecology:** It grows in inner of the valley, valley slopes, and step. Some species present in the area along with *C. sintenisiana* are as follows: *Xeranthemum annuum* L., *Aethionema speciosum* Boiss. & A. Huet., *Dianthus libanotis* Lab., *Anchusa azurea* Mill. var. *macrocarpa* (Boiss. & Hohen) D.F. Chamb., *Echinops pungens* Trautv. var. *pungens*, *Tanacetum kotschyi* (Boiss.) Grierson, and *Eryginum billardieri* Delar.

**Distribution:** Iran, Turkmenistan, New to Turkey.

**Conservation Status:** The species is considered in the lower risk (LR) category according to the Red Data Book of Iran (Jalili & Jamzad, 1999). The population area of *C. sintenisiana* was very small and restricted (criterion D), and number of mature individuals less than 1000 (criterion D1) in Turkey. Therefore *C. sintenisiana* is classified as ‘Vulnerable’, VU (D1), based on the IUCN criteria for Turkey (IUCN, 2014).



Figure 2. *Centaurea sintenisiana* Gand. **A**.habitus, **B**.median phyllaries, **C**.flower, **D**.achene, **E**.type specimen in herbarium G.

**Additional examined specimens:**

***Centaurea sintenisiana*:** Iran: Prov. Sharud-Bustam: In jugo Khosh-Jaila, ca. 70 km ab oppido Shahrud orientem versus, ca. 2000 m in decliv. boreal. 17.vi.1948, Aellen, P. & Esfandiari, E. *Iter iranicum II* 5483 Rechinger 5483 (Typus *C. esfandiarii*) (G photo!, LD photo!, W photo!); Prov. Manzanderan, in valle fluvii Talar, Sorkhabad, ca. 1400 m. 20.vi.1948, Rechinger 5574 (W photo!); Prov. Khorasan, in valle fl. Atrak inter Shirvan et Bojnurd, 27.vii.1937, Rechinger 1811 (Typus *C. persica* var. *pseudodeinacanthae*) (isotype BM!, LD

photo!, K photo!, W photo!); Gorgan (Mohammad Reza Shah National Park): Inter Tang-e Rah, 37° 25' N, 55° 45' E, et Tang-e Gol in saxosis fruticosis, 400- 600 m, Rechinger 52593 (E photo!).

***Centaurea carduiiformis* subsp. *orientalis*:** **Type:** Armenia: Distr. Ani, in declivitatibus stepposis lapidosis inter stationes viae ferreae Ani et Bagravan, 5.vii.1960, *Czerepanov & Tzvelev* 4677 (isotypes BM, K photo!, holotype E photo!); Turkey: A7 Gümüşhane: Taltaban, in declivibus, 18.vi.1894 *Sintenis* 5909 (JE photo!); A8 Gümüşhane: Secus agros incultos prope

Bayburt, 1862, *Bourgeau* 176 (JE photo!); A9 Kars: Kars to Selim, 1800 m, 06.vii.1957, *Davis* 30660 (E photo!); Karaurgan, 1850 m, 07.vii.1957, *Davis* 30736 (E photo!); B6/7 Sivas: Dumluca Da. nr. Divriği, 30.v.1968, *T.Baytop* 12801 (E photo!); B7 Erzincan: Egin (Kemaliye) Armenia turcica, Egin, Szanduk, in declivibus 1890.vi.15 *Sintenis* 2598 (JE photo!); B7 Erzurum: Environs d'Erzeroum, *Calvert* 99 (JE photo!); B8 Erzincan: Tercan, 1450 m, 08.vi. 1957, *Davis* 29330 (E photo!).

### Discussion

The area is one of the important floristic regions in Turkey in terms of endemic plants. Recently, some new endemic species have been described and recorded, such as *Dichoropetalum bupleuroides* Pimenov & Kljuykov (Pimenov & Kljuykov, 2011), *Tragopogon anatolicus* A.Duran, B.Doğan & Coşkunçelebi (Doğan et al., 2014), *Artemisia bashkalensis* Kurşat & Civelek (Kurşat et al., 2015), and some new records, namely *Salvia aristata* Aucher ex Benth. (Behçet & Avlamaz, 2009), *Allium giganteum* Regel, *Grammosciadium scabridum* Boiss., and *Ferula angulata* Boiss. subsp. *carduchorum* (Boiss. & Hausskn) D.F.Chamb. (Behçet et al., 2012) and were reported from this region. *Centaurea sintenisiana*, the distribution of which was not recorded so far in Turkey, is distributed in Iran, and in parts of Turkmenistan (Figure 1). It was related to *C. carduiformis*, but it has straw-coloured appendages with more vigorous terminal spine (20–30 mm). As a result of this study, with the addition of a new

record added here, the number of species in the *Centaurea* genus is increased to 168 (totally 203 taxa) in Turkey.

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