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AUTHORS: Serdar ASLAN, Mecit VURAL, Bilal SAHIN, Sezgin ÇELİK, Faik Ahmet
KARAVELIOGULLARI

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Presence of *Centaurea regia* Boiss. subsp. *regia* (Subgen. *Cynaroides* (Boiss. ex Walp.) Dostál, Compositae) in Turkey

Serdar ASLAN^{*1}, Mecit VURAL², Bilal ŞAHİN³, Sezgin ÇELİK⁴, Faik Ahmet KARAVELİOĞULLARI²

¹ Düzce Üniversitesi, Orman Fakültesi, Orman Botaniği A.B.D., Beçiyörükler, Düzce, Türkiye

² Gazi Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, Teknikokullar, Ankara, Türkiye

³ Muğla Üniversitesi, Fen-Edebiyat Fakültesi, Biyoloji Bölümü, Muğla, Türkiye

⁴ Kırıkkale Üniversitesi, Eğitim Fakültesi, İlköğretim Bölümü, Fen Bilgisi Öğretmenliği Programı, Kırıkkale, Türkiye

Abstract

Centaurea regia subsp. *regia* (Subgen. *Cynaroides* (Heywood, 1975)) was noted but not collected by *Handel-Mazetti* near Diyarbakır and Cizre. Therefore, Wagenitz indicated the taxon under the headline “*Species doubtfully recorded*” in Flora of Turkey. In this paper, presence of *Centaurea regia* in Turkey was shown. Description of the taxon was given together with its habitat, ecology and conservation status. Additionally, it was illustrated, and a distribution map was presented.

Key words: *Cynaroides*, *Centaurea regia*, Turkey

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Centaurea regia Boiss. subsp. *regia* (Subgen. *Cynaroides* (Boiss. ex Walp.) Dostál, Compositae)’nın Türkiye’deki varlığı

Özet

Centaurea regia subsp. *regia* (Subgen. *Cynaroides*) taksonu Handel-Mazetti tarafından, Diyarbakır - Cizre arasından not edilmiş, fakat toplanmamıştır. Bu nedenle Wagenitz, bu taksonu Türkiye florasında şüpheli kayıt başlığı altında belirtmiştir. Bu çalışmada, bu taksonun ülkemizdeki varlığı kanıtlanmıştır. Taksonun tanıttıcı özellikleri, yetiştirme ortamı ve koruma durumu belirtilmiştir. Ayrıca bu makalede taksonun, fotoğrafları ve yayılış haritası da verilmiştir.

Anahtar kelimeler: *Cynaroides*, *Centaurea regia*, Türkiye

1. Introduction

1. Introduction

Centaurea L. is largest genus of Compositae family in Turkey. This genus are represented with 151 species, 6 imperfectly and 6 doubtfully known species in the Flora of Turkey with supplement I and II (excluding Sections *Aetheopappus*, *Amblyopogon*, *Centaurea*, *Hyalinella*, *Odontolophoideae*, *Psephelloideae*, *Psephellus*, *Sosnovskya* and *Xanthopsis*) (Wagenitz, 1975; Davis et al., 1988; Güner et al., 2000; Wagenitz & Hellwig, 2000; Greuter, 2003). Since then 16 new species and 2 new records were discovered from Turkey (Özhatay and Kültür, 2006; Aksoy et al., 2008; Uysal, 2008; Uysal et al., 2008; Armağan and Ünal, 2009; Daşkın and Yılmaz, 2009; Doğan and Duran, 2009; Hamzaoglu and Budak, 2009; Kaya, 2009; Özhatay et al., 2009; Uysal and Köse, 2009). *C. amplifolia* Boiss. & Heldr. (Sect. *Centaurea*) in Flora of Turkey (supplement 1) was described a new species as *C. wagenitziana* Bancheva & Kit Tan (Sect. *Centaurea*) by Tan et al. (2009). Finally, the total number of *Centaurea* was increased to 169 species and

* Corresponding author / Haberleşmeden sorumlu yazar: serdaraslan@duzce.edu.tr

199 taxa (excluding above mentioned sections). Finally, endemic taxa were increased to 129, and rate of endemism are 65%.

In addition, chemical analysis of this taxon have been studied by Ulubelen et al. (Ulubelen et al., 1988).

2. Material and Methods

During floristic investigations, the authors collected some *Centaurea* L. specimens between Midyat and Dargeçit (Mardin) in 2009. At the beginning, collected specimens were thought as *Centaurea cynarocephala* Wagenitz (Wagenitz, 1975). But after, it has been understood that these specimens have some different characters from *C. cynarocephala*. They were checked from Flora of Turkey together with Supplements and Check-list III and IV of Additional Taxa to the Supplements Flora of Turkey (Davis et al., 1988; Güner et al., 2000; Özhatay and Kültür, 2006; Özhatay et al., 2009).

These specimens were determined as *Centaurea regia* subsp. *regia*. It was related to *C. cynarocephala*, but it has straw-coloured appendages with more vigorous terminal spine (8-14 mm). Collected specimens were compared with the type specimens of *C. cynarocephala* and *C. regia* of herbarium G and also other specimens in herbaria B and ISTE. For acronyms of herbaria see (Holmgren et al., 1990).

The description of the species given below was based on collected specimens and other references (Boissier, 1875, Wagenitz, 1980).

3. Results

3.1. Description of species

Centaurea regia Boiss. Diagn. Pl. Orient. ser. 1, 6: 135. 1846. (Figure 1)

Syn.: *Cynaroides regia* (Boiss.) Dostál, Acta Bot. Acad. Sci. Hung. 19: 77 (1973).

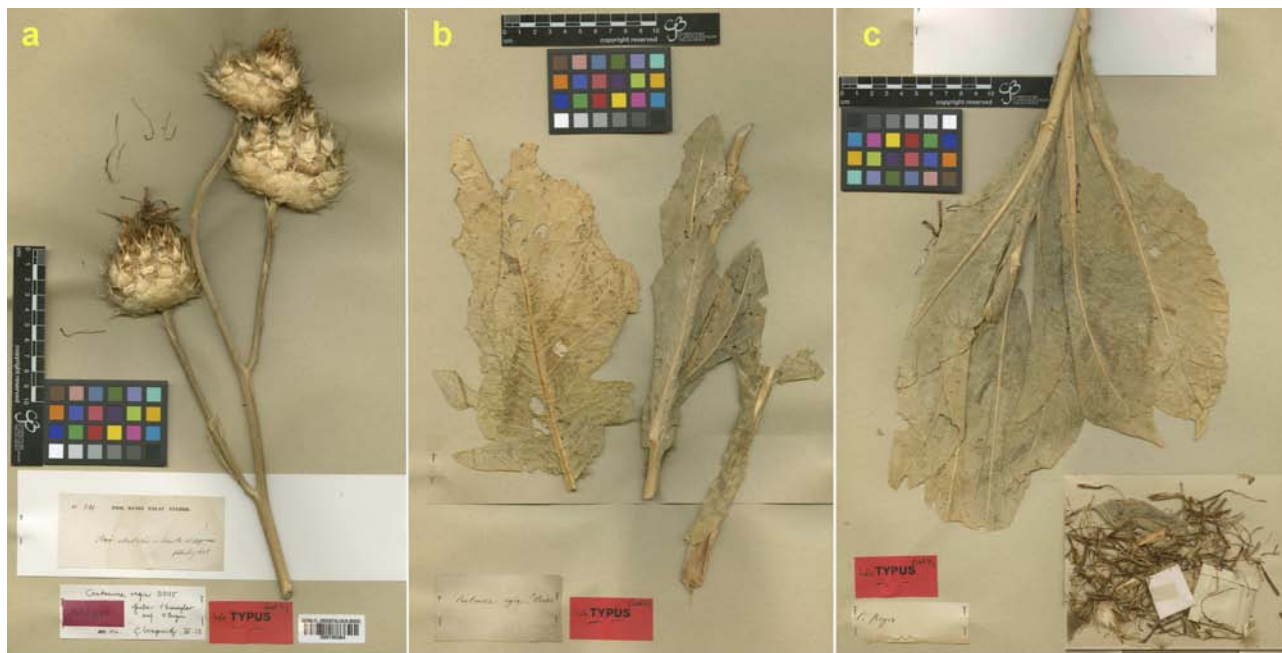


Figure 1. Type specimen of *Centaurea regia* subsp. *regia* (Barcode No: G00150364)

Biennial with thick fleshy taproot and erect stem, 40 – 110 cm, arachnoid-tomentose, at last glabrescent. Leaves rigid papyraceus (on drying), hirsute with articulate hairs, densely on veins. Basal leaves long petiolate, ovate-subcordate or rarely lyrate, up to 40 × 20 cm (included petiole). Lower cauline leaves broadly lanceolate, entire or lower part pinnatilobate; median leaves broadly lanceolate or oblong, sessile and decurrent, 20 × 10 cm; upper leaves lanceolate, narrowly decurrent; Inflorescence raceme; capitula with involucre, 40 – 55 × 40 – 60 mm diam., subglobose; phyllaries multiseriate, coriaceous-scarious, median phyllaries ca. 20 - 25 × 20 - 25 mm (included cilia and spine); appendages large, ovate or broadly triangular, concealing basal part of phyllaries, white or straw-coloured to brownish purple with 10 – 17 cilia; cilia (3-) 4 – 7 mm long, ending in a (3-) 4 - 14 mm spine. Flowers purple, ca. 45 mm. Achenes 6 – 9 × 3 – 4 mm, shiny. Pappus double (inner row shorter), barbellate, straw-coloured to brownish, 10 – 13 (-15) mm, inner 2 – 5 mm (Figure 2).

Distribution of species: SE Anatolia, Syria, Iran, Iraq.

3.2. Identification key of subspecies of *C. regia*:

- 1- Terminal spine of median phyllaries 8 – 14 mm long; appendages white or straw-coloured, rarely brownish.....subsp. *regia*
- 1- Terminal spine of median phyllaries (3-) 4 - 8 mm long; appendages brownish or brownish-purple.....subsp. *cynarocephala*

3.3. Examined specimens

Centaurea regia Boiss. subsp. *regia*

Type: Assyria, in deserto ad Tigridem (Kotschy 371), (holo. G-image!; iso. BM, K, W)

Turkey. SE Anatolia. C8 Mardin: between Midyat and Dargeçit, around İzbirak village, roadsides and vineyard clearings, 950 m, 37° 30' 34" N, 41° 32' 53" E, 10.06.2009, S. Aslan 3869 & B. Şahin; ibid., 37° 30' 29" N, 41° 32' 45" E, 20.07.2009, S. Aslan 3969; between Midyat and Dargeçit, roadside, 37° 28' 23" N, 41° 27' 09" E, 20.07.2009, S. Aslan 3968 (GAZI!); Şırnak: Erüh – Şırnak yolu, 15. km, roadside, 18.06.2008, 1175 m, degraded *Quercus* woodland, F.A.Karavelioğulları 3657 & S. Çelik!; Siirt: Uludere – Şırnak, 15. km, on calcareous rocky places, 18.06.2008, 1163 m, F.A.Karavelioğulları 3658 & S. Çelik!; Midyat - Cizre arası, Midyat'tan 55 km, 05.07.1980, T. Baytop (ISTE 45500 - image!)

Ir.-Tur. element. Syria, Iraq and Persia occidentalis (Wagenitz, 1980)

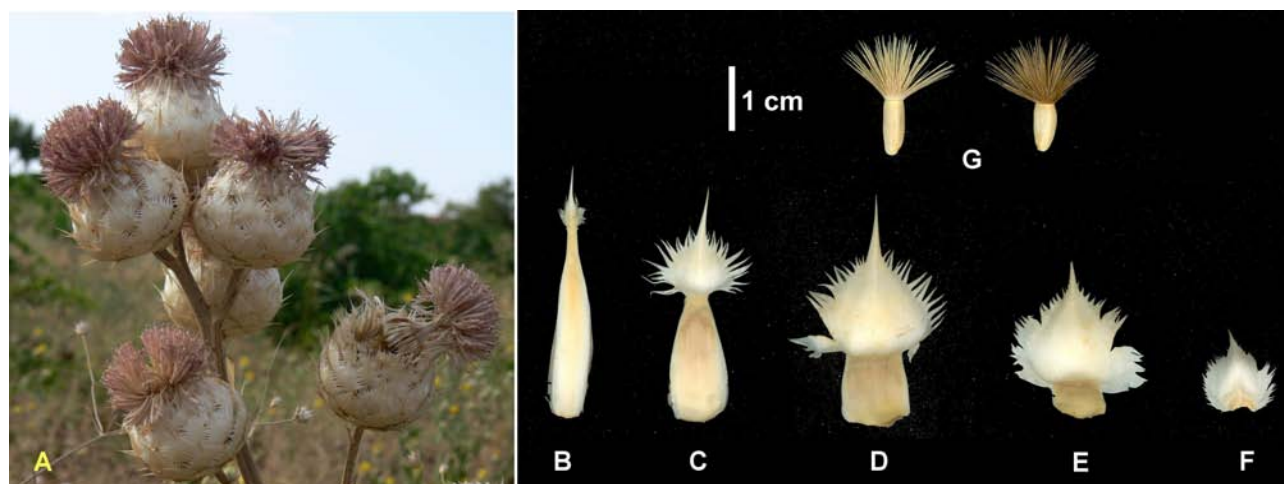


Figure 2. *Centaurea regia* subsp. *regia*. (A) capitulum, (B) inner phyllary, (C-D) median phyllaries, (E-F) outer phyllaries, (G) achenes with pappus

subsp. *cynarocephala* (Wagenitz) Wagenitz in Fl. Iranica, 139b: 365. 1980 (Wagenitz, 1980).

Syn.: *C. cardunculus* Boiss., Diagn. Pl. Or. Nov. Ser. 1, 6: 135 (1845) *non* Pallas (1771); *C. cynarocephala* Wagenitz in Willdenowia 2: 477 (1960).

Lectotype: Turkey C8: in Assyria inter Merdin (Mardin) et Assuaner, 12 vi 1841, Kotschy 349 (G-image!, iso. K, W).

SE Anatolia C8 Mardin: Mardin, Sint. 1888: 941; 5 km E. of Mardin, D. 28430.

Ir.-Tur. element. SE Anatolia, N Iraq.

4. Conclusions and Discussion

At first, *Centaurea cardunculus* was published in 1771 by Pallas. Later, Boissier published a species under the same name in 1845, too (Boissier, 1875, Wagenitz, 1975). According to the Code (Principle III, Art. 6) (McNeill et al., 2006), Pallas's name has been accepted as valid. *C. cardunculus* named by Boiss. was published as an invalid name and renamed as *C. cynarocephala* by Wagenitz in 1960 (Wagenitz, 1975). Then, Wagenitz published *C. regia* subsp. *cynarocephala* comb. et stat. nova in Flora Iranica (Wagenitz, 1980, Greuter and Raab-Straube, 2008).

As stated by Wagenitz (1975), this species was noted but not collected by Handel-Mazetti near Diyarbakir and Cizre. We collected subsp. *regia* from the same area where was noted by Handel-Mazetti.

In addition, this species was collected between Mardin and Midyat in 1980 by Turhan Baytop, and kept in the herbarium ISTE with correct determination. But it has not been published as a new record, yet. Some other species within Subgen. *Cynaroides* (e.i. *C. sclerolepis* Boiss., *C. kurdica* Reichardt, *C. gigantea* Schultz Bip. ex Boiss., *C. haradjianii* Wagenitz, *C. haussknechtii* Boiss.) localized in SE Anatolia, too (Özulu and Tel, 2008). They spread on similar habitats which usually are calcareous grassland and vineyards. They are superficially similar to each other. Their populations are usually weak and fragmented. Their habitats must stricly be protected from intensive agricultural activities and housing developments. People should be responsive to keep alive the rare plants like these.

4.1. Habitat and Ecology

It grows in roadsides, vineyards and fallow fields, disturbed field on calcareous stony areas (Figure 3). Some species present in the area along with *C. regia* subsp. *regia* are as follows: *Allium myrianthum* Boiss., *Avena barbata* Pott ex Link. subsp. *barbata*, *Centaurea balsamita* Lam., *Imperata cylindrica* (L.) Raeuschel, *Scabiosa rotata* Bieb., *Zoegea lepturea* L.

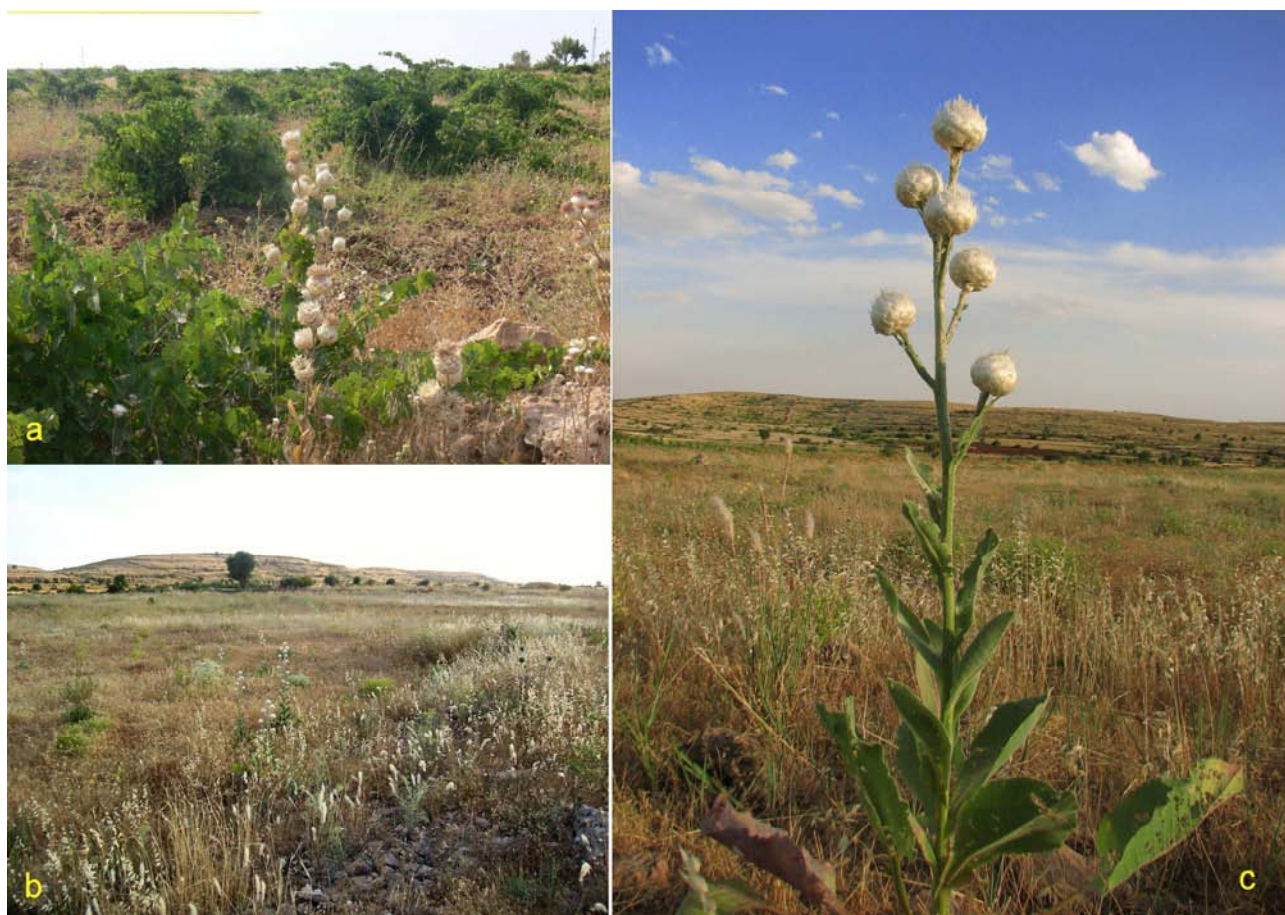


Figure 3. Habitat of *Centaurea regia* subsp. *regia*. (a) in vineyards (b, c) in fallow fields

4.2. Other localities in Flora Iranica

Iraq: Arbil.: in montibus inter Harir et Rawandiz, Bornm. 1488 (B-image!), Mosul: 86 km N Mosul versus Zakho, Rech. 10632 (B-image!), 5 km S Zakho, 700 m, Rawi & Rech. 16690; Olaka, 700 m, Rawi 8769; Kirkuk: Prope Kirkuk, Haines s.n.; Hausskn. 582; Persia: W. Kermanshah: M. Shahu, Str. (Figure 4).

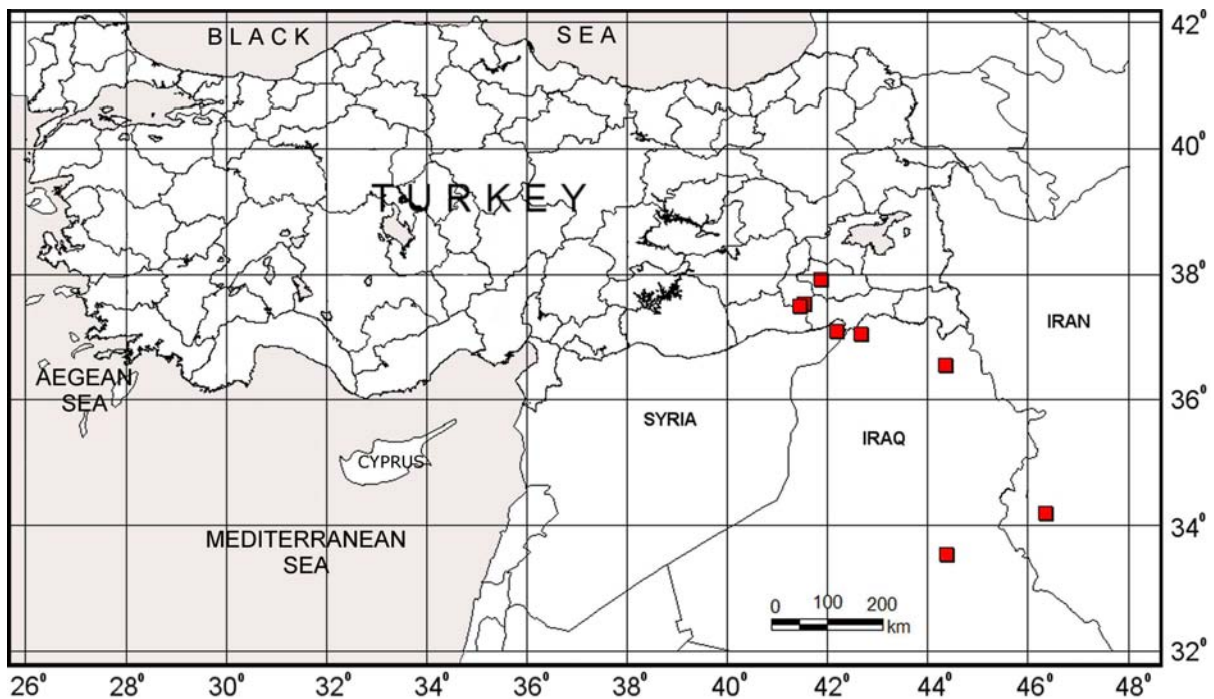


Figure 4.  Distribution map of *Centaurea regia* Boiss. subsp. *regia*

4.3. Threats and conservation status

The species is under the threat due to cultivated activities on vineyards by local people. Also, we observed an insect (*Larinus latus* Herbst, 1784 – capitulum weevil) feeding with achenes on the capitula (Figure 5). It was possible be under severely threat in Iraq and Iran. We suppose that it should be recommended as globally Vulnerable (VU). According to our observations, it was regionally assessed as Critically Endangered (CR; B1a) in Turkey (IUCN, 2001).



Figure 5. *Larinus latus* on the capitulum

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