

## Presence of *Cirsium eriophorum* (L.) Scop. (Asteraceae) in Turkey

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**Abstract:** Specimens of *Cirsium eriophorum* (L.) Scop. were collected from A2 (A) Bursa, Uludağ. This study confirms the presence of this species, which is given as a doubtful record in the flora of Turkey. A description, photographs, an illustration of the median phyllaries and a distribution map of the species are also given.

**Key Words:** *Cirsium*, *Asteraceae*, doubtful record, taxonomy, Turkey

### *Cirsium eriophorum* (L.) Scop. (Asteraceae)'un Türkiye'deki Varlığı

**Özet:** Bu çalışma Türkiye florası'nda şüpheli bir kayıt olarak verilen ancak tarafımızdan A2 (A) Bursa, Uludağ'dan toplanan *Cirsium eriophorum* (L.) Scop. türünün varlığını kanıtlamayı amaçlamaktadır. Türün betimi, fotoğrafları, ortadaki fillarilerinin çizimi ve dağılış haritası da çalışmaya eklenmiştir.

**Anahtar Sözcükler:** *Cirsium*, *Asteraceae*, şüpheli kayıt, taksonomi, Türkiye

### Introduction

The genus *Cirsium* Mill. is one of the most important genera in the family *Asteraceae* (*Compositae*) and is divided into 3 sections (*Epitrachys*, *Cirsium* and *Cephalonoplos*) in the flora of Turkey. Previously, the genus *Cirsium* was represented by 65 taxa, but 7 species of these were given as doubtful records or imperfectly known (Davis & Parris, 1975). Later, 5 species and 1 subspecies were described from Turkey (Davis et al., 1988; Güner et al., 2000). Finally, the total number of taxa reached 71.

Flowering and fruiting *Cirsium* specimens were collected from Bursa province during field studies performed during PhD research by the first author. After checking the Flora of Turkey and Flora Europaea (Davis & Parris, 1975; Werner, 1976; Davis et al., 1988; Güner et al., 2000), we concluded that these specimens were *Cirsium eriophorum*. Furthermore, our herbarium materials were compared with specimens of other similar *Cirsium* species (*C. ligulare* Boiss., *C. boluense* Davis &

Parris, *C. sintenisii* Freyn and *C. bulgaricum* DC.) in the herbaria of Uludağ University Department of Biology (BULU) and Ankara University Department of Biology (ANK). *C. eriophorum*, as a native species, is mainly distributed in West and Central Europe, from North England extending to North Italy and West and South parts of the Balkan peninsula. Some authors also state that the distribution range of *C. eriophorum* extends up to the upper Volga and other parts of Russia (Werner, 1976; Tofts, 1999).

### Materials and Methods

This study is based on herbarium materials collected from Uludağ, Bursa, from July to September 2004. In order to create a description of the species, the specimens collected were examined. In addition, photographs, an illustration of the median phyllaries and a distribution map of the plant are given in Figures 1-4. The specimens of *C. eriophorum* are kept at the Herbarium of the Uludağ University Department of Biology (BULU).

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Figure 1. *Cirsium eriophorum* (L.) Scop., habit (photo: G. Kaynak).

## Results

*Cirsium eriophorum* (L.) Scop., Fl. Carn. ed. 2: 130 (1772)

Syn: *Carduus eriophorus* L. var. *eriophorus*, Sp. Pl. 2: 823 (1753); *Cirsium vandasii* Petrak in Oesterr. Bot. Zeitschr. IX: 352 (1910).

Habitat in Anglia, Gallia, Hispania, Lusitania

Type: not designated

Biennial, 40-250 cm tall. Stem branched, unwinged, striate, sparsely arachnoid. Leaves spinose-strigose above with setae 1-2 mm, otherwise glabrous; arachnoid below. Median cauline leaves amplexicaul, oblong, pinnatisect, lateral lobes bifid, 3-6 paired, lanceolate, lateral and terminal lobes bearing 5-25 mm apical spine. Lateral braches 1-6, 1-3 capitulate; uppermost leaves 3-5, involucrate, equal to slowly longer than involucre. Involucres 25-35 x 25-50 mm. Phyllaries usually densely arachnoid, c. 8-9 seriate; median phyllaries with a rhombic to lanceolate apical appendage, c. 10-35 mm including patent to recurved 2-5 x c. 1 mm apical spine, scabrid margin, sometimes purplish at apex; outer phyllaries patent to recurved. Corolla 25-35 mm, purple. Achenes 4.5-6 mm. Pappus 20-33 mm. Fl. 6-8. Edge of forest, roadsides and open places.  $2n = 34$ .

**A2 (A) Bursa:** Uludağ; İnegöl, alongside Kıran plateau, 1700 m, 20.07.2004, G.Kaynak, R.Daşkın 20390 & Ö.Yılmaz (BULU); Bursa: Uludağ Natural Park, between Softaboğan stream and Yörükmezarlığı, 1750 m, 05.08.2004, G.Kaynak 23195 (BULU); Bursa: Uludağ; Kestel, above Alaçam village, 1700 m, 01.09.2004, R.Daşkın 23368, E.Erdoğan & R.Çınar (BULU).



Figure 2. Closer view of *C. eriophorum* (L.) Scop., capitula (photo: G. Kaynak).

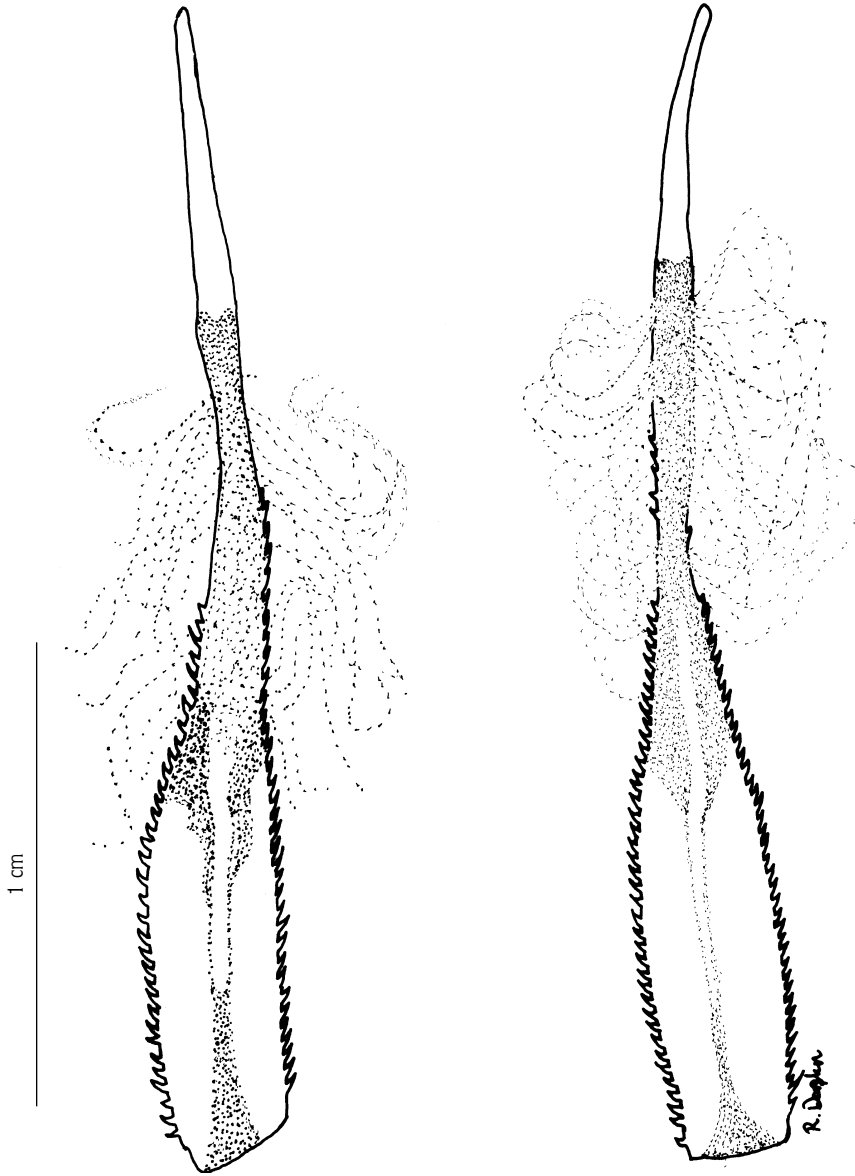


Figure 3. Median phyllaries of *C. eriophorum* (L.) Scop.

#### Related Specimens Examined

##### *Cirsium ligulare* Boiss.;

A3 Bolu: Abant gölü, *Abies* ormanı içleri yamaçlar, 1200 m, 6.9.1957, Davis 32872 & Hedge (ANK).

##### *Cirsium boluense* Davis & Paris;

A3 Bolu: Aladağ; Kartalkaya, 2000 m, 11.8.1960, Khan 459 (ANK); B3 Eskişehir: Türkmen dağları, İkiizoluk, kayalık, 7.10.1976, T. Ekim 2962 (ANK).

##### *Cirsium bulgaricum* DC.;

A2 (A) Bursa: Dobruca çevresi, yamaçlar, 320 m, 25.4.1999, R. Daşkın (Günay) 10947 (BULU); Bursa: Soğanlı Botanik Parkı çevresi, yol kenarı, 150 m, 25.7.1999, R. Daşkın (Günay) 11182 (BULU); Bursa: Uludağ Üniversitesi, Görükle kampüsü, yol kenarı, 1.5.1991, G. Tarımcılar 5487 (BULU); Bursa: Gemlik; Katırlı dağı, Fevziye köyü-Karagöl arası, *Quercus-Fagus* ormanı içi yamaçlar, 1.8.2004, E. Erdoğan 23526 (BULU).

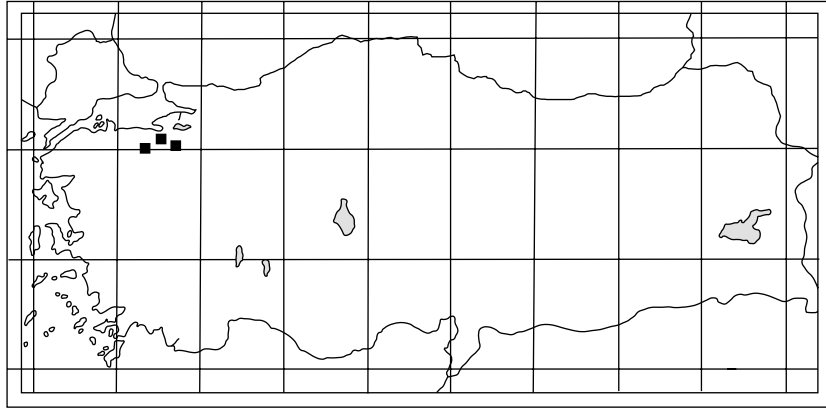


Figure 4. Distribution of *Cirsium eriophorum* (L.) Scop. (■) in Turkey.

***Cirsium sintenisii* Freyn;**

A4 Çankırı: Işık dağı, sarı çam-kara çam ormanı açıklıkları, 1500-1700 m, 24.8.1975, Y. Akman 3059 (ANK); A5 Kastamonu: Tosya; Kilçukuru-Çakırlar arası, 1500-1600 m, 27.9.1972, M. Kılınc 6841 (ANK); B3 Afyon: Bayat; Eğerli dağı, Akçatepeye bakan yamaçları, 1430 m, 20.9.1974, M. Vural 34 (ANK); B3 Isparta: Uluborlu; İleydağ, İleydağ-Çatak arası, 1350-1500 m, orman içi yol kenarları, 26.7.1995, G. Kaynak 10013 (BULU); C2 Muğla: Girdev dağı (Eren dağı); Duğa üstleri, 1600 m, Davis 14009 (ANK).

**Discussion**

The Flora of Turkey mentioned a doubtful specimen collected between İzmir and Bursa by Sibthorb and referred to as *C. eriophorum*. It is stated that this specimen may also be *Cirsium ligulare* Boiss. in the Flora of Turkey (Davis & Parris, 1975). *C. eriophorum* has not been collected and recorded from Turkey by any author before (Yıldırımli, 1999).

Leaf lobes, leaf indumentum and median phyllaries of *Cirsium eriophorum* were compared with those of other similar *Cirsium* species (Table 1). Our specimens are clearly different from these specimens in having median phyllaries with a rhombic to lanceolate apical appendage and a patent to recurved 2-5 x c. 1 mm apical spine, and scabrid margin (those of *C. ligulare* have a narrowly obovate apical appendage and stramineous scarios-fimbriate margin, narrowing to an apical spine). The median phyllaries of *C. eriophorum* are shown in Figure 3.

The species differs from *C. ligulare* in its more deeply divided leaves and spinose-strigose above, arachnoid below (those of *C. ligulare* pinnatisect, spinose-setose above, arachnoid-tomentose below) although it is reported that *C. eriophorum* is related to *C. ligulare* in previous literature (Davis & Parris, 1975; Werner, 1976; Tofts, 1999). However, the specimens of *C. eriophorum* are closer to *C. boluense* than other *Cirsium* specimens in having leaf lobes and leaf indumentum (Table 1).

The following key was prepared for *C. eriophorum* and other similar *Cirsium* species:

1. Median phyllaries with apical appendage more than 1 mm wide
  2. Appendage of median phyllaries 2 mm or more wide (incl. margin), with well-developed scarios-fimbriate margin . . . . .1. *C. ligulare*
  2. Appendage of median phyllaries less than 2 mm wide (incl. margin), with fimbriate-spinulose or scabrid margin
    3. Apical appendage with fimbriate-spinulose margin . . . . .2. *C. sintenisii*
    3. Apical appendage with scabrid margin . . . . .
      - . . . . .3. *C. eriophorum*
1. Median phyllaries with apical appendage less than 1 mm wide
  4. Apical appendage stramineous-lanceolate and with 0.3-0.5 mm marginal spinule . . . . .4. *C. boluense*
  4. Apical appendage with spinulose margin and 0.2 mm or less marginal spinules . . . . .5. *C. bulgaricum*

Table 1. A morphological comparison among *C. eriophorum* and other *Cirsium* species.

Species	Leaf lobes	Leaf indumentum	Median phyllaries
<i>C. eriophorum</i>	Lateral lobes 3-6 paired, lanceolate, lateral and terminal lobes with 5-25 mm apical spine	Spinose-strigose above with setae 1-2 mm, otherwise glabrous; arachnoid below	With rhombic to lanceolate apical appendage, tapered gradually patent to recurved 2-5 mm apical spine and scabrid margin
<i>C. ligulare</i>	Lateral lobes 6-15 paired, lanceolate, lateral and terminal lobes with stout 5-15 mm apical spine	Spinose-setose above with setae 0.4-1.7 mm, otherwise glabrous; arachnoid-tomentose below	With narrowly obovate apical appendage and stramineous scarious-fimbriate margin, abruptly narrowed to apical spine
<i>C. boluense</i>	Lateral lobes 10-11 paired, lanceolate, lateral and terminal lobes with 4-9 mm apical spine	Spinose-strigose above with setae 0.5-1 mm, otherwise glabrous; sparsely arachnoid below	With narrowed to above and stramineous lanceolate apical appendage, bearing 0.3-0.5 mm marginal spinules
<i>C. bulgaricum</i>	Lateral lobes 5-10 paired, lanceolate, lateral and terminal lobes bearing stout 5-17 mm spines	Spinose-setose above with setae 0.3-2.2 mm, otherwise glabrous; arachnoid to tomentose below	With narrowed to above and fimbriate-spinulose to spinulose margin apical appendage, bearing 0.2 mm or less marginal spinules
<i>C. sintenisii</i>	Lateral lobes 4-8 paired, lanceolate, lateral and terminal lobes with stout 5-18 mm apical spine	Spinose-strigose above with setae 0.7-1.5 mm, otherwise glabrous; sparsely arachnoid below	With narrowed to above and scarious-fimbriate narrowly obovate apical appendage, tapered abruptly to apical spine

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