

## A new species of *Cirsium* section *Epitrachys* (Asteraceae: Cardueae) from Turkey

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*Cirsium ekimianum* Yıldız & Dirmenci is described from Erzurum province, east Anatolia, Turkey. The diagnostic and morphological characteristics that distinguish it from the allied species *C. ellenbergii* Bornm. and *C. tomentosum* C.A.Mey. are presented. A description, distribution map and taxonomic comments on the new species are provided. © 2008 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2008, 158, 669–673.

ADDITIONAL KEYWORDS: Anatolia – *Cirsium* – Compositae – endemic – taxonomy – Turkey.

### INTRODUCTION

The genus *Cirsium* Mill. is one of the largest genera in Asteraceae, consisting of over 200 species, distributed in Europe, North Africa, Asia, and North and Central America (Charadze, 1963; Davis & Parris, 1975; Petrak, 1979). In Turkey, 58 species (72 taxa) occur, mainly distributed in east and north-east Anatolia, with the main centre of diversity between Trabzon and Artvin provinces. This area is one of the main endemic centres of Turkey (Davis, 1971). Of the 58 species, 18 (31%) are endemic to Turkey. Seven species doubtfully recorded or imperfectly known were included in the *Flora of Turkey* by Davis & Parris (1975). Recently, one of the doubtfully recorded species, *Cirsium eriophorum* (L.) Scop., was recorded from Uludağ, Bursa province (Daşkin *et al.*, 2006). *Cirsium* species found in Turkey are classified into three sections: *Epitrachys* DC. (41 species), *Cirsium* (16 species) and *Cephalonoplos* (Neck.) DC. (one species) (Davis & Parris, 1975; Davis, Tan & Mill, 1988; Güner *et al.*, 2000).

### MATERIAL AND METHODS

*Cirsium* species are represented by poor and inadequate specimens in herbaria for two reasons. Firstly, because of the spiny nature of the species and robust plants, it is difficult to collect sufficient herbarium

material. Secondly, the species usually bloom during August and September, and botanists do not undertake adequate field trips during these months.

During revisionary studies of Turkish *Cirsium*, material was collected from east and north-east Anatolia in August and September 2006 by the authors (Fig. 1). These specimens were determined using pertinent literature (Boissier, 1875; Davis & Parris, 1975; Huber-Morath, 1980, 1982; Sorger & Buchner, 1983a, b; Davis *et al.*, 1988; Güner *et al.*, 2000) and compared with material found in the following herbaria: ANK, BM, E, EGE, GAZI, HUB, K, ISTE and ISTF.

Some specimens belonging to section *Epitrachys*, collected from Erzurum province, were different from the others. After a thorough study, it was concluded that the specimens represented a previously undescribed species with affinities to *C. ellenbergii* Bornm. and *C. tomentosum* C.A.Mey.

The differences between the new and allied species (*C. ellenbergii* Bornm. and *C. tomentosum* C.A.Mey.) are presented in detail in Table 1. The authors of the plant names were written according to *Authors of Plant Names* (Brummit & Powell, 1992).

### RESULTS

#### *CIRSIUM EKIMIANUM* YILDIZ & DIRMENCI SP. NOV. SECTION *EPITRACHYS* DC. (FIGS 2, 3)

*Diagnosis:* Species nova *Cirsio ellenbergii* similis, sed foliis supra sparse spinosostrigosis (non dense arachnoideis), involucris 20–25 mm (non 25–40 mm)

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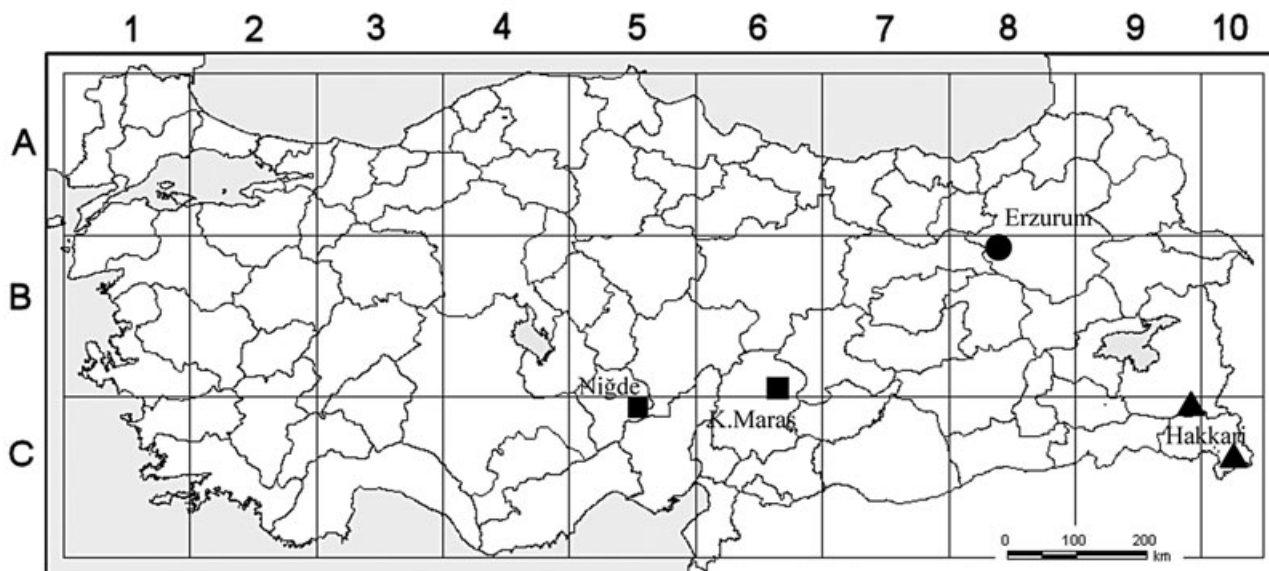


Figure 1. Distribution map of *Cirsium ekimianum* (●), *C. ellenbergii* (■) and *C. tomentosum* (▲).

Table 1. Comparison of characters used to distinguish between *Cirsium ekimianum*, *C. ellenbergii* and *C. tomentosum*

Character	<i>C. ekimianum</i>	<i>C. ellenbergii</i>	<i>C. tomentosum</i>
Indumentum	White pannose	Densely arachnoid	Floccose-arachnoid
Median cauline leaves	Oblong-lanceolate in outline, pinnatifid	Oblong, pinnatisect	Oblong, pinnatifid to pinnatisect
Setae upper surface of leaves	Less than five per 2 mm <sup>2</sup>	Five or more per 2 mm <sup>2</sup>	Five or more per 2 mm <sup>2</sup>
Bracts			
Number	2–5	10–20	3–7
Shape	Filiform to linear	Linear–lanceolate	Lanceolate
Size (mm)	8–30	To 50	To 50
Inflorescence	Spicate, rarely raceme	Dense terminal raceme	Loose raceme
Involucre			
Number	Numerous	Numerous	Numerous (1–2 on lateral branches)
Size (mm)	20–25 mm	25–40 mm	10–20 mm
Shape	Ovoid to globose	Globose to obovoid	Globose–ovoid to broadly obovoid
Phyllaries			
Number of series	10–12-seriate	c. 8-seriate	6–8-seriate
Size of median phyllaries (mm)	12–17	21–27	10–12
Apical spine length (mm)	1–3	c. 8	1–3
Corolla length (mm)	25–30	28–31	17–20
Achenes (mm)	5–6	7.5–8	Unknown
Pappus (mm)	15–18	20–22	15–18

longis, phyllariis medianis 12–17 mm (non 21–27 mm) in spinulam apicalem infirmem 1–3 mm (non circa 8 mm) gradatim decrescentibus, acheniis maturis 5–6 mm (non 7.5–8 mm), pappis 15–18 mm (non 20–22 mm).

*Type:* Turkey B8 Erzurum: 10 km from Aşkale to Bayburt, east foot of Kop Da., steppe, 1800–2000 m,

10.viii.2006. B. Yıldız (16270) & T. Dirmenci (holotype: ISTE; isotype: GAZI, ANK).

*Description:* Biennial or perennial herb. STEMS stout, woody, 100–250 cm, unbranched, unwinged, striate, always simple at base, rarely with short branches at stem apices, whole plant densely white pannose. BASAL LEAVES (15–)20–25 × 8–12(–14) cm (including



**Figure 2.** *Cirsium ekimianum*: habit and habitat photographs taken from the type locality by the authors.

winged petiole), oblong in outline, pinnatisect, white pannose on both surfaces, spinose-strigose above, setae *c.* 1 mm, less than five per 2 mm<sup>2</sup>, lateral lobes to 7.5 × 2.5 cm, oblong-elliptical, acute to acuminate, with weak *c.* 0.5–1(–1.5) cm apical spine, and weakly spined between lobes; margins spinulose-ciliate. STEM LEAVES diminishing from base to inflorescence, sessile, four- to five-lobed, oblong to lanceolate in outline, spinose-strigose above, setae *c.* 1 mm, less than five per 2 mm<sup>2</sup>, lateral and terminal lobes acute to acuminate, with weak *c.* 0.5–1 cm apical spine and rarely spined between lobes; margins spinulose-ciliate; lower cauline leaves 10–18 × 3–8 cm, pinnatifid, asymmetrically decurrent to 1 cm, median and upper cauline leaves entire to lobed, auriculate; upper leaves entire, spined, spinulose-ciliate between spines, equal to capitula or longer, 4–7 × 0.5–1.5 cm. BRACTS 2–5, variable in size, filiform to linear, mostly shorter than capitula, 5–30 mm. CAPITULA 20–30 mm, ovoid to globose, sessile to 1–2 cm pedunculate, spicate, rarely short branched raceme; phyllaries linear, densely arachnoid, imbricate, 10–12-seriate, median 12–17 mm, gradually narrowed to weak, 1–3 mm apical spine, recurved, margins scabrid, inner surface glabrous to lower half, outer

surface scabridulous. FLORETS 50–70, hermaphrodite and a few female flowers present, all same shaped, tubular; corollas pink (22–)25–30 mm, lobed to one-third; style exerted to 3 mm from the corolla; stamens 5; filaments 4–5 mm, long hairy, except at the base; anther 7–8 mm. MATURE ACHENES 5–6 × *c.* 3 mm, smooth, slightly compressed, variegated, glabrous, umbo *c.* 0.5 mm; pappus 15–18 mm, plumose, scabrid only at apices, three-seriate, connate at base into a ring, dirty white.

*Phenology:* Flowers and fruits from August to September.

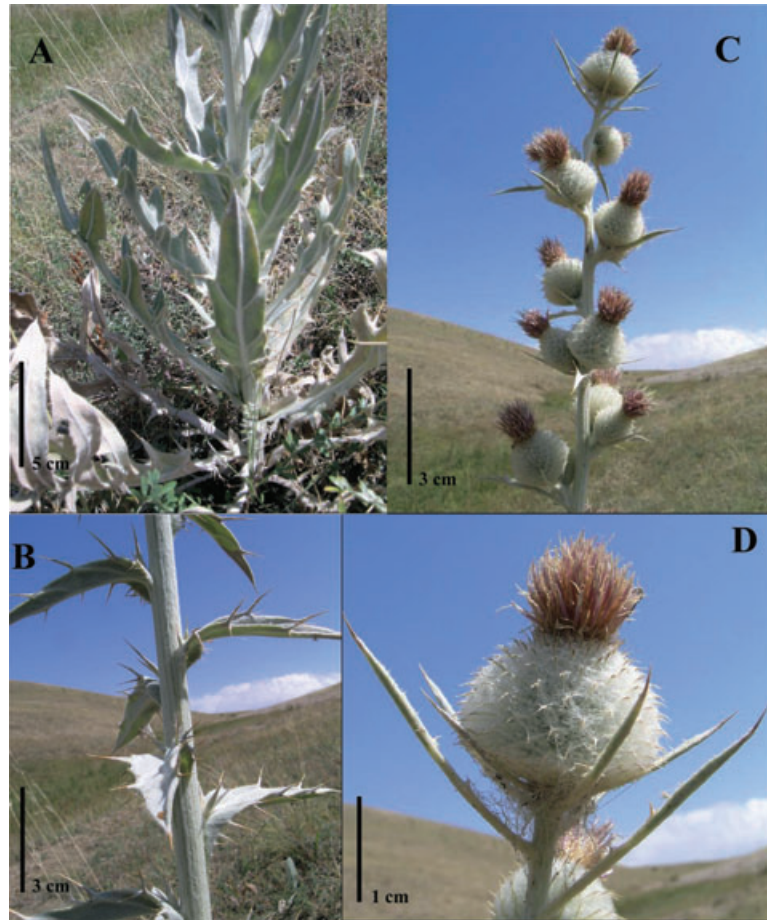
*Habitat and ecology:* *Cirsium ekimianum* grows in deep-soiled steppe in which grasses are dominant, 1800–2000 m (Fig. 2).

*Etymology:* *Cirsium ekimianum* is dedicated to Prof. Dr. Tuna Ekim, a well-known Turkish taxonomist who retired from Istanbul University in October 2006.

*Specimens examined:* *Cirsium ekimianum*: B8 Erzurum: 10 km from Aşkale to Bayburt, east foot of Kop Da., steppe, 1800–2000 m, 21.ix.2007, *B. Yıldız* 16745. *Cirsium ellenbergii*: C5 Niğde: Aladağ, 3000 m, 25.viii.1938, *Ellenberg* (1066) (type photo, B); B6 Kahramanmaraş: Göksun, 3 km west of Çardak, steppe, 1250 m, 11.ix.1981, *B. Yıldız* 3329 (HUB); *obcit.* 2.ix.2006 *B. Yıldız* (16431) & *T. Dirmenci*; Göksun, 1–2 km east of Fındık village, steppe, 1300 m, 2.ix.2006, *B. Yıldız* (16430) & *T. Dirmenci*; C6 Kahramanmaraş: Göksun, west of Yeşil village, 1400 m, 2.ix.2006, *B. Yıldız* 16437 & *T. Dirmenci*. *Cirsium tomentosum*: B9 Van: Başkale, Ispiriz Dag. 3000 m, edge of flush, 31.vii.1954, *Davis* (23682) & *Polunin* (E, K, BM), 20 km NNW of Başkale, Güzeldere Tepe and associated ridges and valley, between Alanduran and Kegird, 2800–2900 m, 18.viii.1967, *Matchell, Cheese & Watson* 3667A (E, K); Hoşap, Kepirdağ, 2900 m, 30.vii.1954, *Davis* (23332) & *Polunin* (E, K, BM); between Başkale and Van, 25 km from Başkale, Halanduran Da., 3000 m, 30.viii.1956, *McNeill* 714 (E, K); C10 Hakkari: Yüksekova, Satdağ, 2700 m, 26.viii.1967, *Duncan & Tait* 16 (E).

*Distribution and proposed conservation status:* *Cirsium ekimianum* is endemic to Kop Mountain, between Erzurum and Bayburt provinces, east Anatolia and is an Irano-Turanian element. The new species is known only from the eastern foot of Kop Mountain between 1800 and 2000 m altitude, where its distribution area is less than 10 km<sup>2</sup> and the total number of individuals is approximately 500–1000 (B2abii). Therefore, it should be regarded as belong-





**Figure 3.** *Cirsium ekimianum*: parts of the holotype: A, basal and lower cauline leaves; B, median cauline leaves; C, part of the inflorescence; D, terminal capitulum.

#### KEY TO RELATED *CIRSIUM* SPECIES

1. Perennial; stems several to many, branched; involucre 10–20 mm; median phyllaries 10–12 mm; corolla 17–20 mm.  
.....*C. tomentosum*
1. Biennial or perennial; stem solitary, unbranched; involucre 20–40 mm; median phyllaries usually longer than 12 mm; corolla 25–31 mm
2. Whole plant white pannose: involucre 20–25 mm, median phyllaries 12–17 mm, with 1–3 mm apical spine; achenes 5–6 mm.....*C. ekimianum*
2. Stems densely arachnoid; involucre 25–40 mm; median phyllaries 21–27 mm, with c. 8 mm apical spine; achenes 7–8 mm.....*C. ellenbergii*

ing to the World Conservation Union (IUCN) Critically Endangered (CR) threat category (IUCN, 2001).

#### DISCUSSION

The new species belongs to section *Epitrachys* and is a showy plant and one of the most beautiful of the Turkish *Cirsium*. The new species is isolated and clearly different from other species in section *Epitrachys*, but is similar to *C. ellenbergii* and *C. tomento-*

*sum* in some respects. Differences between the new and allied species are given in Table 1. As can be seen from Table 1 and the key, *C. ekimianum* is closer to *C. ellenbergii* than to *C. tomentosum*.

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