

## *Centaurea dumanii* comb. & stat. nov. (Asteraceae)

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*Centaurea cassia* Boiss. subsp. *dumanii* M. Dinç, A. Duran & B. Bilgili has been previously described as a new taxon based on the type photograph and description of *C. cassia* subsp. *cassia*. A detailed comparison of the plants from wild populations of the two subspecies revealed that subsp. *dumanii* was sufficiently distinct from subsp. *cassia* to be recognised as a separate species. We thus recognise it as *Centaurea dumanii* (M. Dinç, A. Duran & B. Bilgili) M. Dinç & S. Doğu, comb. & stat. nov. It is close to *C. cassia* from which it differs, in addition to the previously known diagnostic characters, by having an ovate to oblong and cuneate-based involucre, nearly flat appendages, and achenes with a spreading and longer pappus.

*Centaurea* (Asteraceae) is one of the most species-rich genera in the flora of Turkey (cf. Garcia-Jacas *et al.* 2000, 2001, Duran & Duman 2002, Aytaç & Duman 2005, Uzunhisarcıklı *et al.* 2005, Wagenitz *et al.* 2006, Uysal *et al.* 2007, Uzunhisarcıklı *et al.* 2007, Daşkın & Yılmaz 2009, Hamzaoglu & Budak 2009, Kültür 2010). A considerable proportion of the taxa are endemic to the country or localized to a limited area, even to a single mountain. The endemism rate of *Centaurea* in Turkey is about 60% (Wagenitz 1975, Davis *et al.* 1988, Güner 2000).

*Centaurea cassia* subsp. *dumanii* was collected from the Adana province of Turkey in 2007, and described as a new subspecies based on the type photo and the descriptions of *C. cassia* (Dinç *et al.* 2009). In 2010, during field trips to the southern part of Turkey (Hatay-Yayladağ), the authors encountered a wild popu-

lation of *C. cassia* subsp. *cassia*. We also visited the single known population of subsp. *dumanii* again. After careful examination of the plants in the wild and a detailed comparison of the herbarium specimens, we concluded that the specimens assigned to subsp. *dumanii* had sufficient diagnostic characters from subsp. *cassia* to be recognised as separate species. We provide a full description of the taxon.

***Centaurea dumanii*** (M. Dinç, A. Duran & B. Bilgili) M. Dinç & S. Doğu, comb. & stat. nov. (Figs. 1 and 2)

*Centaurea cassia* Boiss. subsp. *dumanii* M. Dinç, A. Duran & B. Bilgili, Biologia Section Botany 64/5: 898–901. 2009.

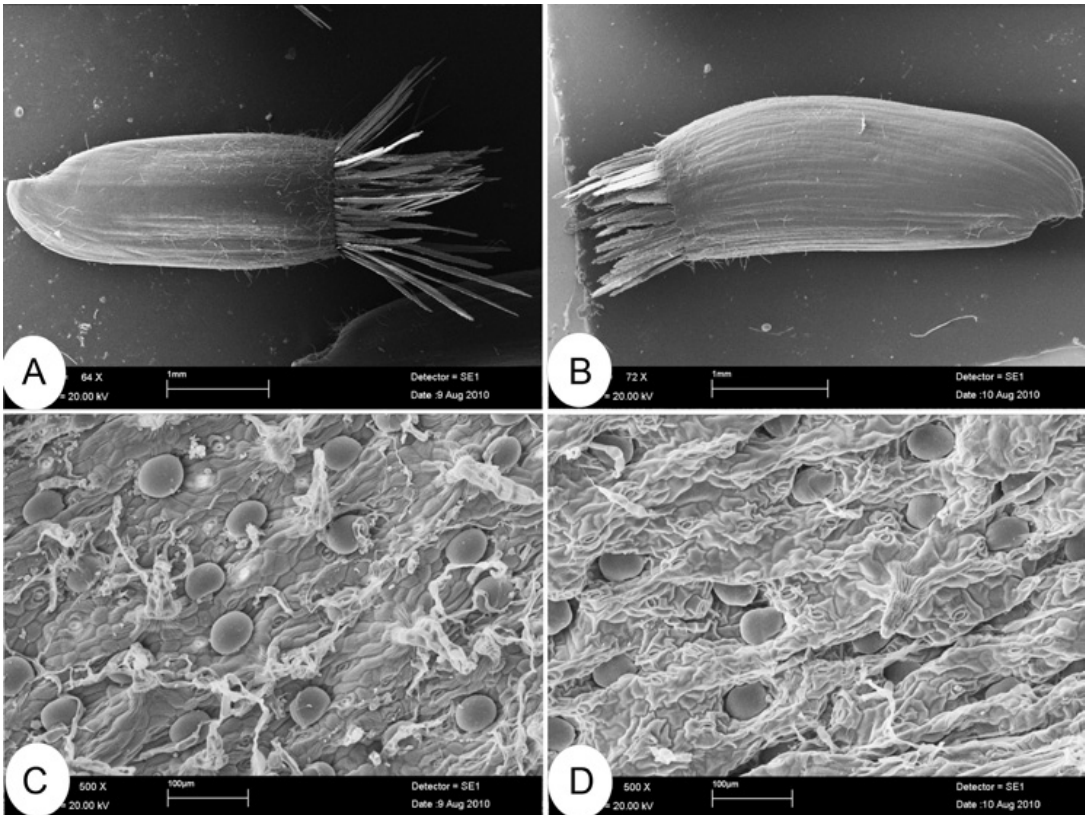
TYPE: Turkey. C6 Adana: Kozan, Göller Yaylası, Abies cilicica subsp. cilicica forest, 1400 m, 16 July 2007 A. Duran 7575, M. Dinç & B. Bilgili (holotype KNYA; isotypes GAZI, HUB, Yıldırımli Herb.).



Fig. 1. Habits (A and B) and capitula (C and D). — A and C: *Centaurea dumanii*. — B and D: *C. cassia*.

Perennial herb with woody rootstock and sometimes sterile leaf-rosettes. Stems decumbent, 10–25 cm tall, densely glandular-punctate, arachnoid, rigid, branched from near base or in upper part, distinctly angled, up to 3 mm diam. at base. Leaves densely glandular-punctate, slightly grey-arachnoid; basal ones including petiole 2.8–7.0 × 0.8–2.2 cm with petiole up to 3.0 cm long, simple or sometimes lyrate with 2–3 pairs of small segments at base, terminal segments largest, about 1/2–2/3 of the total leaf length, very shallowly and irregularly dentate, lanceolate to oblanceolate, attenuate at base, widely acute, with a brownish 0.2–0.4 mm long mucro at apex; cauline leaves simple, lanceolate to oblanceolate, or rarely 1–2 pairs of small segments at base, 4.0–9.0 mm broad, decreasing in size to capitula. Capitula 1–6 on 1–8 cm peduncles, solitary at end of braches; involucre ovate to oblong, 13–20 × 12–14 mm. Phyllaries imbricate, outer oblong-ovate, 1.8–4.4

× 2.0–2.8 mm, median lanceolate to oblong-lanceolate, 5.0–8.2 × 2.5–3.1 mm, inner linear-lanceolate, 7.0–12.0 × 1.4–1.7 mm. Appendages large, totally or sometimes partly concealing basal part of phyllaries, nearly flat, minutely scabrous, very shortly decurrent, in outer bracts 10.0–12.0 × 5.0–8.0 mm, ovate, totally ciliate or ciliate above lacerate below, in median ones 8.0–11.0 × 7.0–9.0 mm, widely ovate to orbicular, ciliate above lacerate below, inner ovate to obovate, lacerate, 3.0–5.0 × 1.5–3.5 mm, median and outer with broad hyaline margin and firmer brown central part, 1.0–2.5 mm lateral cilia and 1.5–2.5 mm stronger terminal spinule, innermost completely brown with 0.2–0.5 mm terminal mucro. Flowers rose-purple, marginal distinctly radiant, corolla tube glabrous, 5–7 mm, lobes linear, 4.0–5.0 mm. Achenes oblong, 3.0–3.5 × 1.6–1.7 mm, sparsely hairy, compressed, brownish-grey. Pappus 1.0–2.5 mm, brownish below, white above, inner row not distinct, scabrous.



**Fig. 2.** Micrographs of achenes (A and B) and upper leaf surfaces (C and D). — A and C: *Centaurea dumanii*. — B and D: *C. cassia*.

In the light of the data obtained from the present study, an identification key of *C. dumanii* and the morphologically similar species in the sect. *Jacea* in Turkey is modified.

1. Stem decumbent, 10–25 cm, pappus always present ..... *C. dumanii*
1. Stem erect, 20–90 cm, pappus absent or sometimes present ..... 2
2. Pappus absent, marginal flowers distinctly radiant ..... *C. jacea*
2. Pappus present or absent, marginal flowers scarcely radiant ..... *C. cassia*

*Centaurea cassia* subsp. *dumanii* was reported (Dinç *et al.* 2009) to differ from subsp. *cassia* by its slightly grey-tomentose indumentum (vs. slightly scabrous and arachnoid to glabrate), 10–20 cm long and decumbent stem (vs. 20–50 cm long and erect), firm appendages with a broad hyaline margin, mostly well dif-

ferentiated cilia and 1.5–2.5 mm long terminal spinule (vs. brown and scarious with very short 0.5–0.8 mm mucro and basally confluent cilia or lacerate margin). In addition to those diagnostic features, *C. dumanii* differs from *C. cassia* by its ovate to oblong and cuneate-based involucre (vs. suborbicular and truncate to subcordate-based), nearly flat appendages (vs. convex), and achenes with a diffuse and longer pappus (vs. pappus absent or erect and shorter). According to the *Flora of Turkey*, a pappus is always present and 1.0–1.5 mm long on the achenes of *C. cassia*. However, we observed that the achenes sometimes lack a pappus.

The indumentum of *C. dumanii* was recorded as tomentose by Dinç *et al.* (2009). Our SEM studies of the leaf surface showed that it is in fact arachnoid. According to the micromorphological observations on the leaves, although glandular-punctate hairs are present on leaves of both spe-

cies, they are sunken into the leaf surface in *C. cassia* but not in *C. dumanii* (Fig. 2).

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