

## COUSINIA AZMARENSIS (ASTERACEAE, CARDUEAE), A NEW SPECIES FROM KURDISTAN, IRAQ

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**Abstract.** *Cousinia azmarensis* (Asteraceae, Cardueae), an endemic species from Kurdistan region (Iraq), is described and illustrated, and its distinguishing characters are discussed. It is easily separated from closest relatives *C. cymbolepis* DC. by having 115–125 flowers per head (vs. 80–90), heads 3.5–5.5 cm in diameter (vs. 3–4 cm), purple corolla (vs. pink), and 4–5 spines on each side of median bracts (vs. 2 or 3). It differs from *C. qandilica* by having 115–125 flowers per head (vs. 80–120), heads 3.5–5.5 cm in diameter (vs. 3–4), purple corolla (vs. yellow), and 4–5 spines on each side of median bracts (vs. 2 or 3). *Cousinia calocephala* is recorded herein for the first time in Iraq.

**Keywords:** Asteraceae, *Cousinia*, Azmar-Goizha, QaraDagh, Kurdistan, Iraq

*Cousinia* Cass. was described in 1827 based on *Carduus orientalis* Adams (= *Cousinia carduiformis* Cass.) (Cassini, 1827: 503). It is one of the largest genera in Asteraceae, with 600–700 species distributed in central and western Asia (Susanna and Garcia-Jacas, 2006). Rechinger (1986) and Knapp (1987) recognized eight major centers of species diversity in SW and C Asia: SE Anatolian and N Zagros Mts. (SE Turkey and NW Iran), Zagros Mountains (Iran and N Iraq), Elburz Mountains (Iran), Kopet Dagh Mountain (Turkmenistan), West Hindu Kush (C and W Afghanistan), East Hindu Kush (NE Afghanistan), Pamir-Alay (Tajikistan, Uzbekistan), and Tian-Shan (C Asia). Section *Cynaroideae* Bunge, which includes 89 species (Tscherneva, 1962; Rechinger, 1972, 1979; Huber-Morath, 1975), is the largest in the genus, and all its species are Irano-Turkestanian elements (Rechinger, 1986). Iraq and Turkey have 17 and eight species, respectively. By contrast, Iran has 77 taxa, 66 of which are endemics, and it is the diversity center for the section (Attar and Ghahreman, 2006).

The Azmar-Goizha and QaraDagh Mountains (Kurdistan region, Iraq) are part of Zagros Mountain system. During the years 2014–2016 the Kurdistan Botanical Foundation conducted extensive floristic fieldwork in Azmar-Goizha and QaraDagh Mountains; all herbarium vouchers are deposited at KBFH. Several species were found to be either new to science or new to Iraq, and the following two species of *Cousinia* are reported herein.

***Cousinia azmarensis*** S.A.Ahmad, A.Rastegar, & F.Attar, *sp. nov.* (sect. *Cynaroideae*). TYPE: IRAQ. Kurdistan region, Sulaimani Province: Azmar Mountains, above Welayer village, vineyard beside the road, slope 45–60%, sun exposure SE to NW, 1542 m, 35°31'40"N, 45°31'55"E,

18 June 2014, S.A.Ahmad, A. Hama, and R. Ali 14-2048 (Holotype, KBFH; Isotypes: HKS, KBFH). Fig. 1.

*Cousinia azmarensis* is most closely related to *C. qandilica* Rech.f. and *C. cymbolepis* Boiss. by having 115–125 flowers per head, head diameter 3.5–5.5 cm, 4–6 spines on each side of median bracts, and purple corolla. By contrast, *C. qandilica* has 80–120 flowers per head, head diameter 3–4 cm, 2 or 3 spines on each side of median bracts, and yellow corolla, whereas *C. cymbolepis* has 80–120 flowers per head, head diameter 3–4 cm, 2 or 3 spines on each side of median bracts, and pink corolla (see detailed differences in Table 1).

*Plant* monocarpic, perennial. *Stem* up to 35 cm high, green-grayish, scarcely arachnoid-tomentose, branched from middle. *Leaves* slightly tomentose adaxially, reticulate veined; basal leaves 10–13 × 5–7 cm, pinnatisect-pinnatifid, margins densely spinulose, lateral spines up to 10 mm, midvein prominent; cauline leaves 5–6 × 1.5–2.5 cm, spatulate, base attenuate, densely leafy to beneath capitula. *Capitula* homogamous, discoid, 3.5–5 cm diam., 115–125-flowered; involucre spherical, 3.5–4 cm diam.; phyllaries 95–100, appendiculate; median phyllary appendages 13–15 × 10–11 mm, triangular-acuminate, margins spinulose with 4–6 spines on each side, phyllary appendages not recurved, innermost phyllaries 25–30 mm, attenuate toward apex into a straw-colored spine; receptacle bristles not scabrous, 3–5 mm; corolla pink to purple, up to 2 cm l, corolla lobes 3–5 mm, glabrous, eglandular. *Achenes* 5–6 × 2–2.5 mm, longitudinally ribbed, milky-gray with sparse brown spots, glabrous, slightly attenuate toward base; pappus setae 10–15 mm.

**Etymology:** The specific epithet refers to the Azmar Mountain in Kurdistan region of Iraq.

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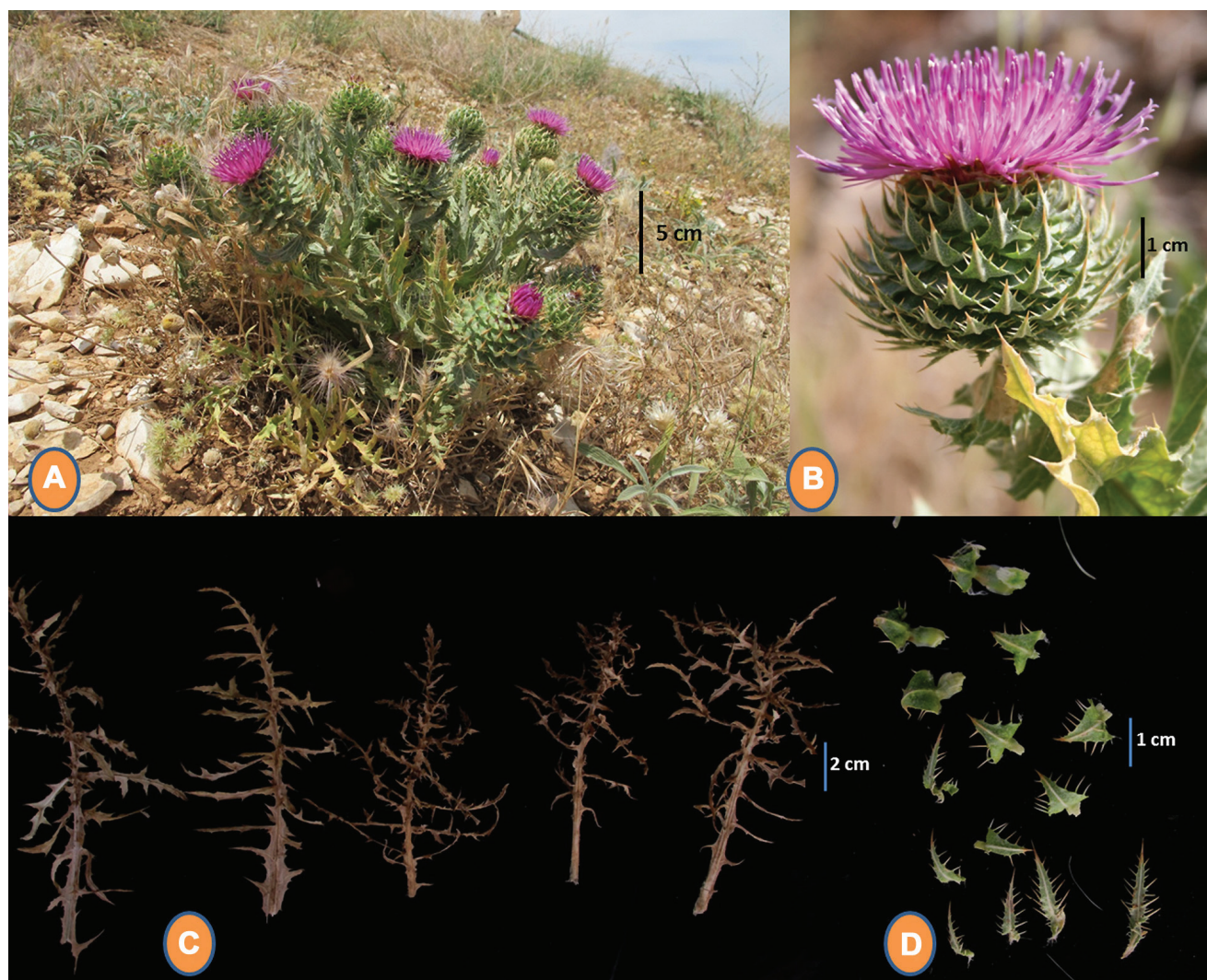


FIGURE 1: *Cousinia azmarensis* S A. Ahmad, Rastegar, & Attar. **A**, Habit; **B**, Basal leaves; **C**, Capitulum; **D**, Phyllaries.

**Distribution:** Endemic to Azmar-Goizha Mountain, Kurdistan, Iraq.

**Habitat:** Rocky places, grassland, and among vineyards beside the roads.

**Phenology:** Flowering period, May to June; fruiting, July to August.

Mehregan and Kadereit (2008) divided *Cousinia odontolepis* into two subspecies and reduced seven species to their synonymy. *Cousinia cymbolepis* has globular capitulae and recurved phyllaries densely spiny on their margins. It is quite distinct from *C. odontolepis* which has smaller capitulae, not recurved phyllaries, and less number of phyllary rows. Finally, *C. qandilica* has broad and elongated phyllaries with more than three spines on each side.

**Additional material examined:** IRAQ. Kurdistan region, Sulaimani Province: Goizha mountain, 1528 m, 35°34'27"N, 45°29'22"E, 21 May 2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-1151 (KBFH); same general locality, 1499 m, 35°35'24"N, 45°29'03"E, 21 May

2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-1243 (KBFH). 1468 m, 35°35'21"N, 45°28'40"E, 21 June 2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-1728 (KBFH); 1517 m, 35°34'31"N, 45°29'18"E, 23 June 2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-2255 (KBFH). Azmar Mountain, 1652 m, 35°34'55"N, 45°29'43"E, 1 June 2015, S. A. Ahmad, A. Hama, S. Babarasil, R. Ali, & S. R. Fayaq 15-1147 (KBFH); Azmar Mountain, 1601 m, 35°34'45"N, 45°29'38"E, 7 June 2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-1728 (KBFH); same general locality, 1642 m, 35°35'16"N, 45°29'36"E, 7 June 2014, S. A. Ahmad, A. Hama, S. Babarasil, & R. Ali 14-1773 (KBFH); 1343 m, 35°39'56"N, 45°27'16"E, 1 June 2015, S. A. Ahmad, A. Hama, S. Babarasil, R. Ali, & S. R. Fayaq 15-1227 (KBFH). Welayar Mountain 1609 m, 35°31'33"N, 45°31'52"E, 18 June 2014, S. A. Ahmad, A. Hama, & R. Ali 14-2029 (KBFH). Azmar Mountain, Khamza Village, 1490 m., 35°39'41"N, 45°27'18"E, 9 June 2015, S. A. Ahmad 15-1325, R. Ali., K. M. Ahmad, & S. R. Fayaq.

TABLE 1. Differences between *Cousinia azmarensis*, *C. cybolepis*, and *C. qandilica*.

CHARACTERS	<i>C. AZMARENSIS</i>	<i>C. CYBOLEPIS</i>	<i>C. QANDILICA</i>
Number of flowers per capitulum	115–125	80–90	80–120
Head diameter (cm)	3.5–5.5	3–4	3–4
Corolla color	Purple	Pink	Yellow
Achene size (mm)	5–6 × 2–2.5	4 × 2	5 × 2
Basal leaf size (cm)	10–13 × 5–7	Unknown	20 × 10
Plant height (cm)	up to 35	30–50	20–30
Number of bracts	95–100	100–120	ca. 120
Size of medianphyllaries appendage (mm)	13–15 × 10–11	10–15 × 4	12 × 6
Number of lateral spine pairs of median phyllaries	4–6	2 or 3	2 or 3

**IUCN Red List Category:** *Cousinia azmarensis* is extremely rare and occupies a very restricted area. Based on GeoCAT (Bachman et al. 2011), the extent of occurrence for *C. azmarensis* is ca. 1 km<sup>2</sup>, and its area of occupancy is ca. 4 km<sup>2</sup>. Based on these data, the species may be assessed as Critically Endangered (CR).

***Cousinia calocephala*** Jaub. & Spach., Ill. Pl. Orient. 2(17–18): 96, t. 178. 1846. TYPE: IRAN. Ghilan [“Hyrcania”]: *P. M. R. Aucher-Éloy 4817* (P 00757441).

**Habitat:** Limestone mountain slope, eroded places, near the road.

**Record voucher:** QaraDagh Mountain 1170 m, 35°15'58"N, 45°21'07"E, 15 June 2015, S. A. Ahmad, S. Babarasul, K. M. Ahmad, & S. R. Fayaq 15-1 (KBFH).

**Distribution:** This species was previously known to be endemic to C, NW, and W Iran (Rechinger, 1972; Mehregan and Kadereit, 2008). The above Collection from Kurdistan region of Iraq represents a range extension. Because a detailed description of the species is given in Flora Iranica (Rechinger, 1972), it felt unnecessary to repeat it herein. *Cousinia calocephala* is closely related to *C. behboudiana*, from which it differs from it by much taller habit (60 cm vs. 30 cm), involucre diam. (1.5–2 cm vs. up to 1.5 cm), corolla color (purple vs. yellow), and number of flowers and phyllaries (50–100, 90–125 vs. 45–125, 80–100, respectively).

**IUCN Red List Category:** This species is extremely rare; its IUCN Red List category (IUCN, 2001) remains uncertain and it is currently assessed as Data Deficient (DD).

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