COUSINIA (SECT. HAUSSKNECHTIANAE) KARKASENSIS, A NEW SPECIES FROM KARKAS MTS. IN CENTRAL IRAN

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Cousinia karkasensis a narrow endemic from central Iran is described as a new species to science. The new species belongs to *Cousinia* sect. *Haussknechtianae*. Relatioships between the new species and other species is discussed. The new species is however more resembles to *C. gatchsaranica* based on the morphological characters, it is found to be more related to *C. raphiocephala* another member of the section *Haussknechtianae*, based on the molecular results.

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Key words. Cousinia, Asteaceae, Sect. *Haussknechtianae*, new species, Iran.

گونه جدید Cousinia (sect. Haussknechtianae) karkasensis از کوه‌های کرکس در مرکز ایران

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گونه انحصاری *Cousinia karkasensis* به عنوان گونه‌ای جدید از مرکز ایران به دنیای علم معرفی می‌گردد. این گونه متعلق به بخش *Haussknechtianae* می‌باشد. در این مقاله ارتباط گونه جدید با دیگر گونه های بخش *Haussknechtianae* مورد بررسی قرار گرفته است. مطالعات مولکولی نشان داده که گونه جدید به *C. raphiocephala* نزدیک می‌باشد.

Introduction

The genus *Cousinia* Cass. (*Asteraceae, Cardueae*), with 600-700 mostly endemic species (Sussana & Garcia-Jacas 2006) is one of the larger genera of the family *Asteraceae* and the one of the 50 larger genera of flowering plants (Frodin 2004). *Cousinia* is represented by more than 200 species mainly in mountainous areas of Iran (Rechinger 1986; Knapp 1987; Attar & Ghahreman 2006). Since publishing of the number 90 of Flora Iranica in 1972 (Rechinger 1972) and its supplement in 1979 (Rechinger 1979), many new species have been described, and some synonymies have been made, so that the exact number of species in Iran is still unknown (Mehregan & Kadereit 2008, Assadi 2009, Attar & Mirtadzadini 2009, Djavadi & Attar 2009, Mehregan & Assadi 2009, Attar & Djavadi 2010).

Mountains of Karkas in central Iran is among of the areas less investigated by botanists. Examination of some *Cousinia* material collected in recent years from the eastern slopes of Karkas Mts. revealed that those material match to description of none of yet known species of *Cousinia* and represent a new species, which is described in this paper.

Cousinia karkasensis Mehregan & Djavadi, **sp. nov.**

Holotypus. Iran, Esfahan, Natanz, Tameh village, Mt. Karkas, 2300 m, 10.08.2003, Mehregan 96022 (TARI; isotypus IRAN) = Mehregan 240 (MJG; isotype). Fig. 1.

Perennis, collo residuis petiolorum comoso. Caulis 50-80 (-100) cm altus, erectus, tenuiter sulcato-striatus, in dimidio inferiore foliatus, foliis superioribus diminutis; synflorescentia subcorymbosa, ramis lateralibus

Fig. 1. Holotype of *Cousinia karkasensis* (photograph by I. Mehregan).

Map. 1. Type localities of species belonging to *Cousinia* sect. *Haussknechtianae* (data from Rechinger 1972 & Mehregan et al. 2003).

capitulum centralium superantibus. Folia omnia rigida, coriacea sed fragilia, utrinque lucida, glandulosa, costa mediana utrinque albida valde prominens; folia basalia petiolis ad sumum 7 cm longis suffultis; lamina spinis inclusis usque ad 25 × 5 cm, lanceolata vel oblanceolata, regulariter sinuato-lobata, lobis trianularibus; folia caulina inferiora et intermedia basalibus similia sed breviora, sessilia, non decurrentia; folia superiora decrescentia, basi semiamplexicaulia; folia summa triangularia valde reducta. Capitula singular, terminalia, 40-60-flora, spinis inclusis 25-35 mm diametro. Involucrum globosum vel ovatum, e phyllis 130-160 compositum; phylla crassa rigide coriacea; exteriora et intermedia lineari-subulata longam patentia-reflecta; phylla interna lineari-lanceolata, recta, acuta vel acuminata, margine minutissime ciliato-serrulata. Receptaculi setae leaves. Corolla rosea, 14-16 mm longa, tubo limbum subaequante vel breviore. Antherarum tubus purpureus, glaber. Achaenia ca. 5 × 2 mm, compressa, griseo-brunnea, basi attenuata, apice rotundata vel ± truncata, obsoletissime longitudinaliter striata.

Yellowish green perennial plant. Root collars with remains of petioles of fallen leaves. Stem 50-80 (-100) cm high, upright, white-pale brownish, slightly sulcate, apparently glabrous, deprived of arachnoids hairs and glands, towards the apex becomes slightly arachnoid and covered with scattered yellow brownish sessile glands, in uppermost parts especially below the heads the number of glands is much more, leafy in lower half, diminished in upper half, branched from the middle, with lateral branches apparently longer than central capitulum, divaricately branched making nearly a corymb. Leaves rigid, leathery, fragile, shinning on both sides, with scattered yellowish glands on upper surface, and brownish ones at lower surface; venation pinnate-reticulate, obviously prominent on both sides; basal leaves rosulate, attenuated into petiole up to 7 cm long, with lanceolate or oblanceolate lamina up to 25 × 5 cm, sinuate-lobate at margin, with triangular lobes equipped with up to 8 mm long rigid spine; midrib thick, whitish, prominent on both sides; main lateral veins obviously perpendicular to midrib; lower and middle stem leaves similar to basal leaves but smaller, sessile, not decurrent; upper leaves much reduced, ovate or hastate-triangle in outline, semiamplexicaule at base, with apical spine much longer than the lateral spines; uppermost leaves much more diminished, distant from the heads. Heads solitary, 40-60-flowered, 25-35 mm in diam. including spines. Involucre globose or ovate, densely arachnoide, with 130-160 involucral bracts, densely glandulose, 8-seriate; outer and middle bracts linear-subulate, patent or slightly reflexed, wider at base, attenuated toward the apex, terminating into a ca. 5 mm long rigid spine; inner bracts linear-lanceolate, leathery-membranous, erect, wider towards the apex, minutely serrate along the margins, acute or acuminate. Receptacular bristles smooth. Corolla pink, 14-16 mm long; limb as long as tube or slightly shorter. Anther tube glabrous, purple. Achenes ca. 5 × 2 mm, compressed, grey-brown, attenuated at base, truncate or round at apex, irregularly dark spotted, longitudinally obscurely striated.

Further specimens studied. Esfahan, Natanz, Targh, Keshe village, Karkas Mt., 33° 26’ N, 51° 47’ E, Pahlevani & Bahramishad 54856 (IRAN); same locality, 2900-3500 m, 26.07.2009, Pahlevani & Bahramishad 54750 (IRAN).

*Etymology***.** The specific epithet refers to the Mont Karkas where the new species was found.
Distribution and ecology. *Cousinia karkasensis* is an endemic species to central Iran, known only from Karkas Mountain (province Esfahan), where it was found on northern and eastern stony slopes.

Relationship and delimitation. *Cousinia karkasenss* is a distinct species characterized by having following characters: stems with long subcorymbose branches, lateral branches longer than central capitula; leaves sessile and semiamplexicaule, shinning on both sides, diminishing upward; heads solitary, 40-60-flowered, with densely arachnoid, exappendiculate, patent-reflexed bracts; corolla pink and anther tube purple. It is morphologically related to other species of *Cousinia* sect. *Haussknechtianae* Rech. f. This section comprises few species in C & W Iran and N Iraq (Map 1.) (Rechinger 1972; Mehregan et al. 2003). Long subcorymbose branches could be found in *C. haussknechtii* C. Winkl. and *C. gatchsaranica* Mehregan, Assadi & Attar. Regarding to habit and shinny leaves, it is morphologically more resembles to *C. gatchsaranica*, a narrow endemic to SW Iran. Molecular studies however showed that the new species is more related to *C. raphiocephala* another member of the section described from mountainous regions of Muteh, W of Karkas Mts. (Mehregan & Kadereit 2009: pp. 41 & 43, sub "*Cousinia* sp. (240)") The section *Haussknechtianae* has previously studied by Mehregan et al. (2003).

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