

## TWO NEW PLANT RECORDS (*CODONOCEPHALUM INULOIDES* AND *DELPHINIUM MICRANTHUM*) FOR THE FLORA OF IRAN

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Received 2013. 12. 14. Accepted for publication 2014. 05. 27

Maroofi, H. 2014. 06. 31: Two new records (*Codonocephalum inuloides* and *Delphinium micranthum*) for the flora of Iran. *Iran. J. Bot.*: 16-19. Tehran.

During the study of plant specimens in Kurdistan herbarium, two new records for the Flora of Iran including *Codonocephalum inuloides* and *Delphinium micranthum* were identified. They have been collected in Kurdistan province. Taxonomic characters and illustrations for the new records are provided.

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**Key words:** *Codonocephalum inuloides*; *Delphinium micranthum*; new records; Kurdistan Province, Iran

### Delphinium Codonocephalum

گونه‌های *Delphinium micranthum* و *Codonocephalum inuloides* برای اولین بار از ایران گزارش می‌گردند. گونه *Delphinium micranthum* قبلاً از مناطق مرتفع واقع در شمال کشور عراق گزارش و گونه *Codonocephalum inuloides* از کشور عراق و همچنین ترکیه که در فلور این کشور تحت نام *Inula inuloides* آورده شده است. گونه *Codonocephalum inuloides* با گونه مشابه خود یعنی *Codonocephalum stenocalathium* که توسط رشینگر از استان خوزستان گزارش شده است، در داشتن کپه‌های پرگل و گریبانه (Involucre) پهن و استکانی جدا می‌شود. گونه *Delphinium micranthum* با داشتن ریشه‌ای غده‌ای شکل، گل‌های کوچک (کاسه کوچکتر از ۱ سانتیمتر)، گل‌های آبی رنگ، برگ‌های قاعده‌ای به شدت بریده، برگ‌های پایینی گل‌آذین سه بخشی، ساقه پوشیده از کرک و همچنین فولیکول پوشیده از غده و کرک از سایر گونه‌های ایران تفکیک می‌گردد.

### INTRODUCTION

Plant materials collected recently from west of Iran and compiled in the herbarium of the Research Centre of Agriculture and Natural Resources of Kurdistan province were studied. During determination of the specimens two new records from Asteraceae and Ranunculaceae families were identified. *Delphinium micranthum* has only been reported previously from high mountains of Iraq and *Codonocephalum inuloides* has been reported rarely from Iraq and also from Turkey as *Inula inuloides*. Close examination of the specimen revealed that it belongs to the genus *Codonocephalum* and is here reported for the first time from Iran. The materials are preserved in Kurdistan herbarium (HKS), and duplicates in the herbarium of the Research Institute of Forests and rangelands

(TARI). The images of the new records are provided.

*Codonocephalum inuloides* Fenzl, Flora 26, 1: 397 (1843). (Figs. 1, 2 & 3).

Syn.: *Inula inuloides* (Fenzl) Grierson, Notes Roy. Bot. Gard. Edinb. 33: 250 (1974). *Sprunnera inuloides* Schultz-Bip. in Walp., Repert. Bot. Syst. 2: 954 (1843).

Perennial. Stem erect, 55-110 cm, subsimplex or branched above, narrowly ribbed-grooved, covered with brownish sessile viscid glands or long eglandular hair in lower part. Leaves leathery, petiolate; basal leaves elliptic or ovate-lanceolate, blade up to 15×7.5 cm, cuneate at base, petiole up to 11 cm, acute or subacute at the apex, margin entire, ± undulate, venation prominent; densely covered with sessile glands and villous pubescent especially beneath; cauline leaves similar, decreasing in size, attenuate or



Fig 1, 2 & 3: *Codonocephalum inuloides*

shortly petiolate at base. Capitula discoid, 1 or 2 in axils of leaves, sessile or with short, thick peduncle, forming rather distant racemes in  $\frac{1}{3}$  -  $\frac{1}{2}$  upper part of stems. Involucre 15-20×15-20 mm; phyllaries 4-6 seriate,  $\pm$  subequal; the outer elliptic or lanceolate, foliaceous, 15-20×3-5 mm, intermediate phyllaries 15-20×5-6.5 mm; inners oblong to oblong-lanceolate, cartilaginous, apiculate at apex, 13-18×1.5-3 mm, often suffused with purple. Corolla 8-12.5 mm long, yellow, lobes 1.5-2.1 mm long. Achene 4.5-6.5 mm long, 4-angular, finely striate, sparsely hairy above. Pappus white, 8.5-10.5 mm, plumose, connate at base.

*Specimen seen:* Kurdistan Province, Marivan, between Voicheh to Sianav villages, 1380 m, 14. 08. 2005, Maroofi 7337.

***Delphinium micranthum*** Boiss. & Hohen. in Boiss. Diagn. Pl. Or. Nov. Ser. 1, 1: 68 (1843). (Fig. 4).

Perennial. Stem 30-93 cm long, erect, strongly angular, covered with crisped hairs or glabrous below. Rootstock tuberiform. Basal leaves long-petiolate (petiol up to 10.5 cm); lamina suborbicular,  $\pm$  12 cm in diameter with a wide basal sinus, 3-5 palmatipartite almost to the petiole, the primary lobes further deeply divided into 2-3 broadly linear to lanceolate, entire

segments, glabrous. Lowest stem leaves similar. Median leaves short-petiolate, the uppermost mainly sessile and narrowly trisect. Inflorescence a lax panicle, racemes with up to 22 flowers, which are mainly dark or purplish blue. Bracts linear, lowers trifid, 5-23 mm long. Pedicels 5-20 mm long, they and the inflorescence axis shortly appressed or more longly viscid- hairy. Bracteoles similar, 3.5-5.5 mm long, positioned from about halfway along the pedicel to close beneath the flower. Sepals 7-9×4-6.5 mm, deep blue, obtuse to subacute or sometimes round, crisped-pubescent at least centrally; spur 9.5-14.5 mm long, straight, gradually tapering to a  $\pm$  acute tip. Upper petals 14-24 mm long, the lamina short, narrowly triangular, 4.5-6 long mm, shallowly auriculate below. Lower petals about 7 mm long, ovate, deeply bifid, the lobes glabrous but the undivided basal portion with a dense central "brush" of hair. Stamens 6 mm long; anther c. 1 mm. Follicles 3, 6-10 mm long, viscidly glandular-pilose, yellowish; style 2-3 mm; seeds angled, 3 mm long, squamous, grayish.

*Specimens seen:* Kurdistan Province, C. 30 km. from Saqqez to Baneh, Piromaran village, Nacarouz



Fig 4. : *Delphinium micranthum*

mountain, 2520 m, 22. 07. 2003, Maroofi & Mohammadi 6590; Marivan to Paveh, Ta-Ta pass, 2500 m, 21. 10. 2003 Maroofi & Mohammadi 6493; Marivan to Paveh, Sline village, 2400 m, 28. 06. 2012 Mahfoz Advay 11340; Marivan, Bendol village, 2350 m, 23. 09. 2012 Hiva Ghaderi 11442.

## DISCUSSION

*Codonocephalum inuloides* is different from its relative *Codonocephalum stenocalathium* which has been recognized by Rechinger (1980) from Khuzestan province by the following characters: capitula numerous, broadly campanulate, turbinate at the base; flowers more than 25mm; achenes hairy at the apex. In *Codonocephalum stenocalathium* capitula few, cylindrical, narrow at the base; flowers 10-20; achenes glabrous.

Mobayen, S. (1985) doubtfully reported the existence of *Delphinium micranthum* in Iran, but without indicating the voucher specimen and specific locality. *Delphinium micranthum* with the following characters: tuberiform root, deeply divided basal leaves, small, blue or blue-purple flowers (sepal not more than 1 cm long), trifold bracts below flowers, hairy stems and follicles covered by viscidly glandular-pilose indumentums, can be recognized from the other

Iranian *Delphinium* species.

## ACKNOWLEDGEMENT

The author thanks Prof. Assadi (Research Institute of Forests and Rangelands) for his advice, critical reading of the manuscript and valuable suggestions for manuscript improvement.

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