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***HELIOTROPIMUM ESFANDIARII* (BORAGINACEAE), A NEW SPECIES**

FROM NORTH-CENTRAL IRAN

H. AKHANI, Tehran & H. RIEDL, Wien

A b s t r a c t : *Heliotropium esfandiariei* AKHANI & RIEDL is described as a new species from north-central Iran. The new species is related to *H. szovitsii*. Its illustration and distribution map is provided. Recently the first author who is revising the genus *Heliotropium* in Iran and adjacent parts came across some specimens from north-central Iran (northwestern border of Dashte-Kavir), which seem to be different from the other species. Hitherto two specimens of the relevant plants have been seen by the second author. These were identified as *H. szovitsii* (STEV.) BUNGE (RIEDL 1967). Further experiences in field and study of type and several specimens of *H. szovitsii* revealed that the material in question is not only different by taxonomic characters from *H. szovitsii*, but also in geographical distribution. After a joint discussion in Wien we decided to describe these specimens as a new species *H. esfandiariei*, in honour of the Iranian botanist Dr. E. Esfandiari.

***Heliotropium esfandiariei* AKHANI & H. RIEDL spec.nov. (Fig.1)**

Planta annua, usque ad 40 cm alta, divaricato-ramosa, ascendens vel erecta. Caulis albo-villosus, pili patentes, c. 0.5-0.75 mm longi, plerumque ad bas in tuberculati. Folia lata elliptica vel ovata vel elliptico-ovata vel suborbicularia, 1.5-4.7 cm longa, 1-3 cm lata, apice obtusa, ad basin subtruncata, distince ad 2 m petiolata; pili supra appressi, vix tuberculati,

subtus patentes, semper tuberculati, nervis supra paulo impressis, subglabris, subtus paulo prominentibus, margine crassiuscule vel inconspicue revoluta. Inflorescentiae laterales vel terminales; cincinni singuli, unilaterales et uniseriati, laxiusculi, usque ad 17 cm longi, c. 10-25-flori. Calyces sessiles vel usque ad 2.5 mm pedicellati, laciniis linearo-lanceolatis, fere liberis, 2.5-4 mm longis, 0.5-1 mm latis, subacutis, extus dense subpatentivillosis, intus ad 2/3 superiora pilosis, 1/3 inferum subglabris. Corolla hypocrateriformis, 8-12 mm longa; tubus 5-7 mm, intus glaber, rarissimus pilosus, extus patenti-villosus; lobi explanati, rotundati, 1.5-2.5 mm lati, margine undulato-crenulati, in sinibus inter lobos semper dentati, aestivatione imbricati. Antherae (1.5) 1.8-2.2 mm longae, ad 1-1.5 mm supra corollae basin insertae, apice subito acutatae, paulo incurvatae. Stigma conico-elongatum, 1.2-1.7 mm longum, ad medium articulum, apice bilobum, pilosum, in parte infera subglabrum. Stylus 0-0.5 mm, glaber. Nuculae ellipsoideae, 0.9-1.3 x 1.8-2 mm, glabrae, laeviusculae vel paulo lineolatae.

H. esfandiarii differt ab *H. szovitsii* (STEV.) BUNGE pilis patentibus (nec appressis), inflorescentii singulis (nec $\pm$ ramosis), corolla hypocrateriformi (nec infundibuliformi), corollae lobis semper undulato-crenulatis (nec integris vel raro crenulatis); antheris longioribus (1.5) 1.8-2.2 mm longis (nec. 1-1.7 (1.8) longis).

Typus: Iran; Semnan Province: 15 km northeast of Garmsar, gravelly soils, 1000 m, 11.6.1990, H. AKHANI, 6359 (holo: MMIT, Natural History Museum of Iran; iso: W).

***Heliotropium Esfandiarii* AKHANI & H. RIEDL spec.nov. (Fig.1)**

Annual plant, up to 40 cm high, divaricately branched, ascending or erect. Stem whitish villose, hairs patent, c. 0.5-0.75 mm, at the base mostly tuberculate. Leaves elliptic or ovate or elliptic-ovate or suborbicular, 1.5-4.7 cm long and 1-3 cm broad, apex obtuse, at the base subtruncate, with a long petiole up to 2 cm; upper surface with subappressed hairs, $\pm$ tuberculate at base; lower surface with dense tuberculate patent hairs; nerves in lower surface $\pm$ prominent, in upper surface slightly impressed, subglabrous; margin slightly thickened, sometimes obscurely revolute. Inflorescence lateral and terminal; cymes single, up to 17 cm, rather lax with c. 10-25 unilateral, uniseriate, flowers. Calyx sessile or up to 2.5 mm pedicellate; calyx lobes linear-lanceolate, nearly free; 2.5-4 x 0.8-1 mm, subacute, outside with dense spreading hairs, inside in the upper 2/3 hairy, in the lower 1/3 subglabrous. Corolla hypocrateriform, 8-12 mm

long, tube 5-7 mm, inside glabrous, very rarely hairy, outside with patent hairs, lobes broad, rotundate, 1.5-2.5 mm broad, at the margin undulate-crenulate, with intercalary teeth. Anthers inserted 1-1.5 mm above corolla base, (1.5) 1.8-2.2 mm long; apex suddenly acute, rather curved inside. Stigma $\pm$ elongate-conical, 1.2-1.7 mm, articulate at the middle, apex bilobed, pilose, lower part subglabrous. Style 0-0.5 mm, glabrous. Nutlets ellipsoid, 0.9-1.3 x 1.8-2 mm, glabrous, surface smooth to obscurely lineolate.

D i a g n o s e : *H. Esfandiarii* differs from *H. Szovitsii* (STEV.) BUNGE, by patent hairs (not appressed), single inflorescence (not $\pm$ branched), hypocrateriform (not infundibular) corolla, always undulate-crenulate (not entire and sometimes crenulate) corolla lobes, (1.5) 1.8-2.2 mm $\sqrt{\text{not } 1-1.7 \text{ (1.8)}}$ long anthers.

M a t e r i a l s e e n : Semnan: 15 km northeast of Garmsar, gravelly soils, 1000 m, 11.6.1990, H. AKHANI, 6359 (MMTT, type); road from Semnan to Firuzkuh, 15-25 km from Semnan, 1400 m, 27.9.1974, HEDGE, WENDELBO, ASSADI & ALA, 14731 (TARI); c. 10 km NW of Semnan, 26.7.1982, ASSADI & MOZAFFARIAN, 40359 (TARI); road of Garmsar towards Semnan, 11 km west of Deh-Namak, 800 m, 12.6.1990, H. AKHANI, 6366 (MMTT); 67 km from Semnan, 7.6.1972, AMIN & MOUSSAVI, 1278 (TARI); 8 km N Garmsar, Booneh-kuh, 19.6.1974, AMIN & BAZARGAN, 19050 (TARI); c. 15 km E of Garmsar, 1000 m, 27.9.1974, HEDGE, WENDELBO, ASSADI & ALA, 14765 (TARI); 50 km after Garmsar towards Semnan, 900 m, 7.7.1972, IRANSHAHR, 16265 (HMIA); Simindasht towards Kabutar-darreh, Hable-rud, 3.-4.9.1948, AELLEN & MANUCHEHRI, 5356 (W, HMIA); 13 km east of Eivanakey, gypsum and salted hills, 1000 m, 8.7.1974, RENZ & IRANSHAHR, 16575 (HMIA); along the river Hableh-rud, between Mahmoudabad and Kabutar-darreh, 1500 m, 5.9.1988, ASSADI & ABOUHAMZEH, 66337 (TARI); between Simindasht and Kabutardarreh, 1150 m, AELLEN, 1181 (W); Tehran: Varamin, Sharifabad, 1050 m, 12.10.1972, F. ROWSHAN, 6375 (TARI).

Among the examined plants there is one specimen (HEDGE, WENDELBO; ASSADI & ALA, 14765) the corolla of which is pilose inside. This shows that presence of hairs inside of corolla isn't a constant character in some species of the genus *Heliotropium*-contrary to earlier papers e.g. BUNGE 1869, POPOV 1953 & RIEDL 1967. According to recent investigations of AKHANI in some other species with their corolla usually glabrous inside,

there is a chance to find plants with pilose corolla inside. Such cases were found in *H. dissitiflorum*, *H. aucheri* and *H. dasycarpum*.

Acknowledgments

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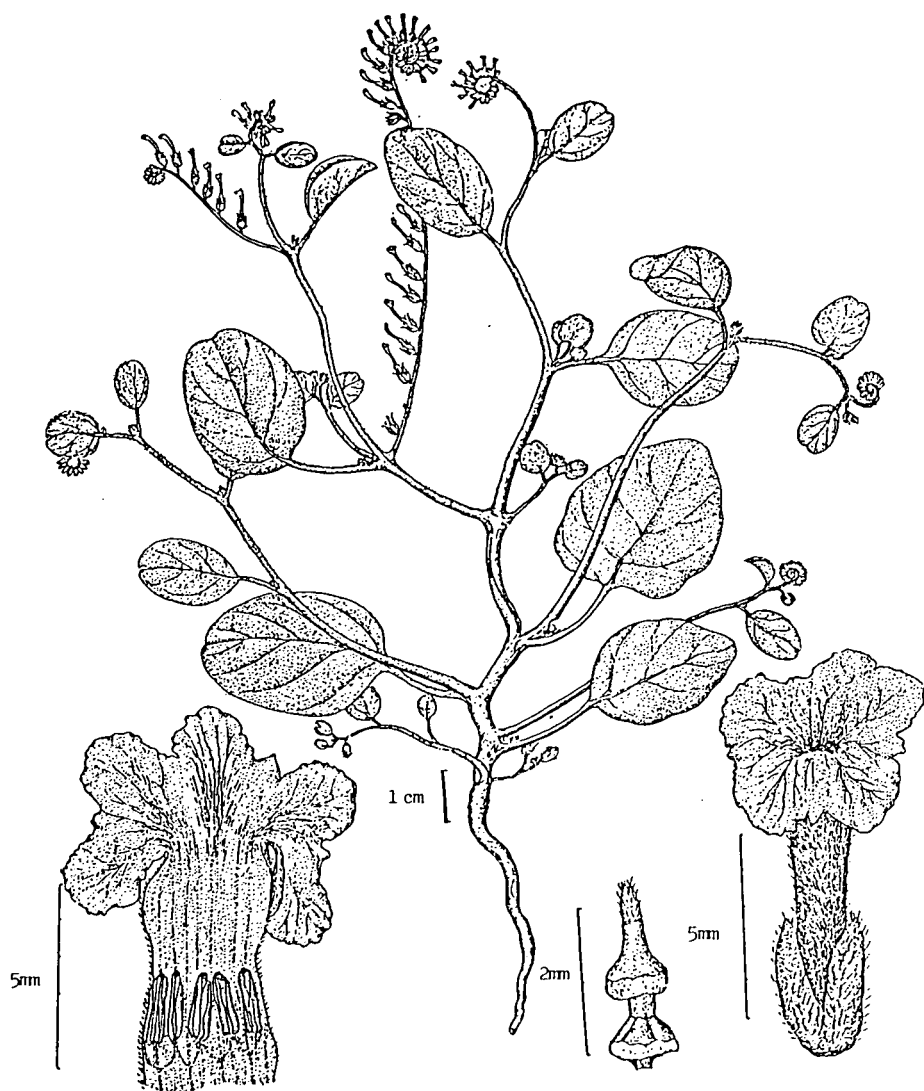
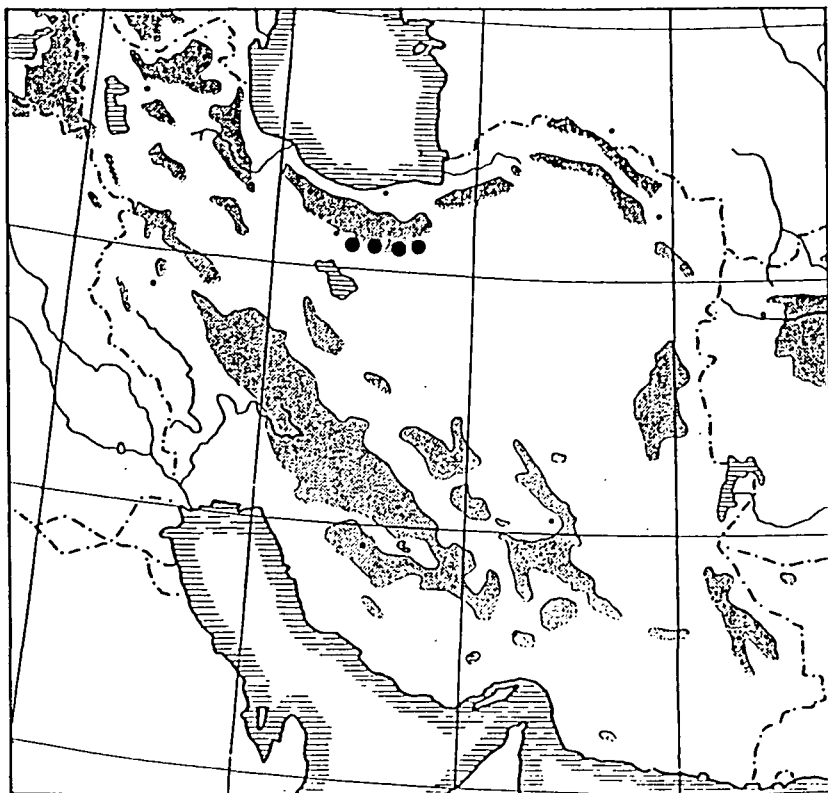


Fig.1: *Heliotropium esfandiarii* AKHANI & H. RIEDL



Map 1: Distribution map of *Heliotropium esfandiarii* AKHANI & H. RIEDL

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