

HEDYSARUM PSEUDOMACRANTHUM (FABACEAE), A NEW SPECIES FROM TALESH MOUNTAINS, NORTHWESTERN IRAN

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Hedysarum pseudomacranthum is described here as a new species to science. It is endemic to the Talesh Mountains, northwestern Iran. The species appears to be most closely related to *H. macranthum*, but differs from it in having different leaflet shape and dimensions, different color of the corolla, and longer keel's claw. The distribution map as well as the picture from the holotype habit and the flower parts of the new species are presented here.

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Hedysarum pseudomacranthum (Fabaceae), گونه جدیدی از کوههای تالش، شمال غرب ایران

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Hedysarum pseudomacranthum به عنوان گونه جدید معرفی می‌شود. این گونه انحصاری کوههای تالش، شمال غرب ایران است. نزدیکترین خویشاوند آن، گونه *H. macranthum* است که با داشتن شکل و ابعاد متفاوت برگچه، رنگ متفاوت جام و ناخنک ناو بلندتر از آن متمایز می‌شود. نقشه پراکنش و عکس نمونه تیپ و اجزای گل گونه جدید ارایه می‌گردد.

INTRODUCTION

Hedysarum L. is the largest genus of the tribe Hedysareae, comprising 221 species naturally distributed in livable niches in the Old World (except Australia) and the New World (except South America), (POWO 2021; <https://powo.science.kew.org/>). These perennial herbs grow in diverse environments, for example, alpine and arctic meadows, stony grasslands, deserts, and seashores (Choi & Ohashi 2003).

In the Flora Iranica area, 34 species of the genus were reported (Rechinger 1984). In recent years several taxa were added to the species inventory of this genus for Iran, together with some nomenclatural changes (Ranjbar & al. 2006, 2007, 2008; Ranjbar 2010;

Akrami & al. 2011; Amirabadi-zadeh 2011; Dehshiri & al. 2012; Bidarlord & al. 2015; Dehshiri & Goodarzi 2016; Nafisi & al. 2019; Negaresh 2021). Nafisi & al. (2021) in the recent taxonomic revision of *Hedysarum* enumerated 40 species in Iran, of which more than half are endemics. The great majority of the species belong to the *H.* sect. *Multicaulia* Boiss. and a newly recorded one, *H. armenium*, to *H.* sect. *Hedysarum* (Nafisi & al. 2021). According to the mentioned localities that are recorded in the several works (e.g. Rechinger 1984; Nafisi & al. 2021; Ranjbar & al. 2007) and more than 150 studied plant specimens (by the authors) at TARI herbarium (Assadi & al. 2022), and few specimens in T and FUMH herbaria (herbaria acronyms follow Thiers

2021+), the *Hedysarum* species are distributed in various areas of Iran, but noticeably with a high species richness and concentration in the northwest and west parts of the country. The Iranian *Hedysarum* species grow at a nearly vast range of altitudes approximately between 800 m to 3600 m above sea level (Nafisi & al. 2021; Assadi & al. 2022). In the present paper, a new narrow endemic species of the section *Multicaulia* is described from Talesh Mountains, northwestern Iran.

MATERIALS AND METHOD

During work on herbarium specimens in TARI, we found an interesting unidentified specimen of the genus *Hedysarum*. The specimen was examined in detail and was compared with several *Hedysarum* specimens in the related taxonomic literature (e.g. Boissier 1872; Fedtschenko 1948; Rechinger, 1984; Townsend, 1974). Many specimens in the TARI herbarium and type specimens in important virtual herbaria (K, M, P, W) were examined (acronyms according to Thiers 2021). Further studies revealed that it was not referable to any known taxa of the genus. Lastly, we decided the specimen is a new species to science, which is described here.

RESULTS AND DISCUSSIONS

New species

Hedysarum pseudomacranthum Assadi, Chaghmirzaei & F.Ghahrem., **sp. nov.**, (Figs. 1- 2).
Section *Multicaulia* Boiss.

Diagnosis: *Hedysarum pseudomacranthum* differs from *H. macranthum* (Freyen. & Sint.) B. Fedtsch. in having yellow corolla (not white), linear leaflets (not linear-lanceolate), different leaflets dimensions (15-30 long and 3-5 mm broad not up to 20 mm long and 10 mm broad), the longer claw of keels (7 mm not 3-4 mm long).

Plant perennial, herbaceous, many stemmed, woody at the base, ca. 35 cm high, covered by short appressed hairs. Stems leafy, erect. Leaves imparipinnate, 6-10 cm long; leaflets 5-6 paired, 15-30 mm long and 3-5 mm broad, narrowly linear, truncate to sometimes emarginate at the apex, bicolored, densely hairy below, greyish, less dense above and greenish, with 2 mm long petiolule; stipules 7 mm long, ovate, acuminate, connate up to one third from below, colored-orange. Peduncle including inflorescence up to 30 cm long. Inflorescence raceme, dense in the beginning and then elongated, up to 15 cm long; pedicel 2 mm long, hairy. Bracts 3 mm long, filiform, bright brown, hairy. Calyx

10-12 mm long, villous, shorter than the corolla; tube 3 mm long; teeth 7-9 mm long, subulate, hairy. Corolla yellow, ca. 15 mm long. Standard 13 mm long, obcordate, deeply emarginate at the apex, more or less without claw. Wings 6.5 mm long; blade 3.5 mm long, broadly oblong, rounded at the apex, with 1 mm auricle at the base; claw 2.5 mm long. Keel 15 mm long, obtuse; claw 7 mm long. Stamens diadelphous, staminal tube 10 mm long; filaments 15 mm long, anthers 0.5 mm long, yellow. Ovary 5 mm long, puberulent at the sutures, with 4-ovules. Young legumes with 1-2 segments; segments 6 mm long and 5 mm broad, broadly elliptic, covered with short white hairs and up to 4 mm long brown-yellowish bristles.

Typus: Iran. Azerbaijan, Ardabil Province: Talesh Mountains, 22 km to Khalkhal, on the road from Asalem, N 38 07: E 48 34, 1400 m, 01.06.2004, M. Assadi 86523 (holotype TARI!; isotype TARI!, fragment T!).

Notes. The new species is related to *H. macranthum*, occurring in northeastern Iran (Khorasan Province) and Turkmenistan, while the new species occurs in northwestern Iran in Ardabil Province (Fig. 3).

Distribution: *Hedysarum pseudomacranthum* is endemic to northwestern Iran and known only from the type locality. The third author collected the specimen of this species from Talesh Mountains (Ardabil Province), northwestern Iran, in July 2004 and deposited it in TARI. It grows at an altitude of roughly 1400 meters above sea level. The climate of the species habitat is semi-cold temperate and biogeographically like all the *Hedysarum* species in Iran (Takhtajan 1986; Assadi & al., 2022), belonging to the Irano-Turanian floristic region.

Conservation assessment: *Hedysarum pseudomacranthum* has a very limited distribution range in northwestern Iran with insufficient information on its area of occupancy. The conservation status of the new species is provisionally evaluated as vulnerable based on the criterion D2 of the IUCN Red List categories and criteria that deal with very small or restricted populations for some taxa with few numbers of known locations (IUCN, 2019).

Phenology: The flowering and fruiting material was collected on the first day of July. Therefore, the flowering and fruiting period can be considered obviously from May to July.

Etymology: The specific epithet "*pseudomacranthum*" comes from the resemblance of the new species to *H. macranthum*.



Fig. 1. Holotype specimen of *Hedysarum pseudomacranthum*, Assadi 86523 TARI.

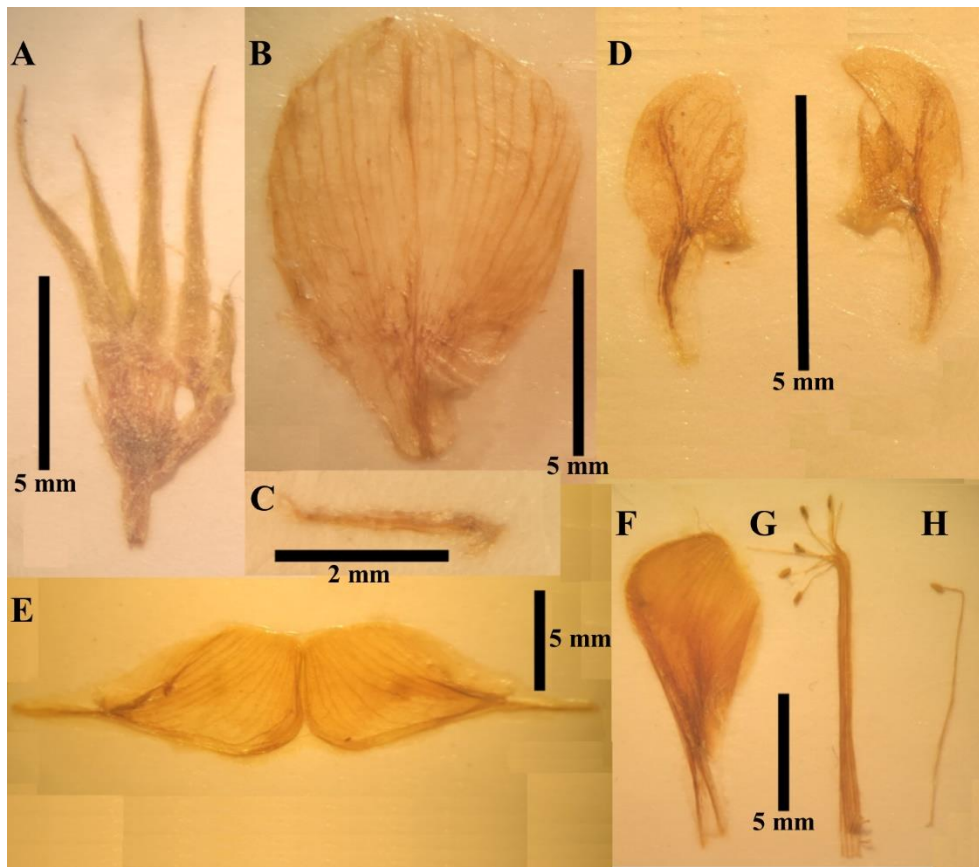


Fig. 2. *Hedysarum pseudomacranthum*, Assadi 86523 TARI. A, calyx; B, standard; C, bract; E, F, keel; G, H, stamens.



Fig. 3. Distribution map of *Hedysarum pseudomacranthum*.

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