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Astragalus barnassari Grossh. (sect. *Trachycercis* Bunge), a new species for the flora of Turkey

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Abstract

Astragalus barnassari Grossh., a stemless species of section *Trachycercis* Bunge, was discovered for the first time in eastern Turkey, in Ağrı Province, in 2009. This taxon, which occurs nearby in northern Iran and Azerbaijan, had never been reliably recorded from Turkey, despite a vague report by Aucher-Éloy in the early nineteenth century.

Résumé

Astragalus barnassari Grossh., espèce acaule de la section *Trachycercis* Bunge, a été découverte pour la première fois dans l'est de la Turquie, dans la province d'Agri, en 2009. Ce taxon, présent non loin de là dans le nord de l'Iran et en Azerbaïdjan, n'avait jamais été cité avec certitude en Turquie, malgré une mention imprécise d'Aucher-Éloy au début du XIXe siècle.

Astragalus barnassari Grossh., a species of section *Trachycercis* Bunge, had never been recorded from Turkey. Only a very vague report by Aucher had left some doubt as to its presence. We found it in Ağrı Province, a few kilometres from the Iranian border, during our trip in June 2009. This plant thus joins the long list of milk-vetches in the flora of Turkey.

1. Observation of the plant

We observed *A. barnassari* on 24 May 2009 with our friend Henri Michaud, about ten kilometres south of Doğubayazit, in Ağrı Province, beside the E99 road towards Van (Coulot *et al.*, 2013), shortly after visiting the remarkable İshak Pasha Palace. The locality lies less than ten kilometres from the Iranian border as the crow flies.

The plant grew on a basaltic slope at an elevation of 2,100 metres, south of the village of Ortadirek (UTM 38S 0412585 / 4364925; Figure 1). The vegetation was rather sparse, but it included three noteworthy species: *Astragalus alyssoides* Lam. (section *Hololeuce*), *Scrophularia orientalis* L., and the spectacular endemic *Adonis volgensis* Stev. *ex* DC., which was very abundant at this site. Snowbeds were not far away, and very close by we collected noteworthy early-flowering species, the endemic *Pulsatilla violacea* Rupr. subsp. *violacea* and *Gagea bulbifera* (Pallas) Schultes & Schultes fil.

A. barnassari was fairly abundant, although this stemless plant is rather difficult to spot.



Figure 1. Location of *Astragalus barnassari*.

2. Section *Trachycercis* Bunge

Like many others, this section was described in 1868 by the first monographer of the genus *Astragalus*, the Lithuanian botanist Alexander von Bunge, in *Astragali species gerontogeae*, a truly substantial work in which he described 105 sections distributed among eight subgenera.

Section *Trachycercis* belongs to subgenus *Cercidothrix* Bunge. Its species are stemless or nearly stemless and caespitose, with medifixed hairs, stipules adnate to the petiole and free from one another, tubular calyces, and short fruits enclosed within the calyx. The milk-vetches of this section usually grow in steppe habitats, as at our Ortadirek locality.

This section comprises just under eighty species, most of which occur in countries of the former USSR (Kazakhstan, Kyrgyzstan, Armenia, Azerbaijan, Tajikistan, Uzbekistan, Turkmenistan, and Siberian Russia), as well as in Iran

(Ranjbar, 2009), Afghanistan, Mongolia (Kamelin, 1979), and China, which alone has 46 species (Langran *et al.*, 2010; Handel-Mazzetti, 1939). It is therefore one of the most easterly sections of the genus, although a few species occur in Eastern Europe, in Romania, Bulgaria, Greece, Macedonia, and Albania (Podlech, 2008).

In Turkey, this section comprises six species, including three extremely rare plants in the north-east of the country: *A. armeniacus* Boiss., known from Erzurum and Rize; *A. longivexillatus* Podlech & Ekici, identified north of Doğubayazit; and *A. humilis* M. Bieb., the lectotype of the section, recorded in Turkey north-east of Çaldıran, a few kilometres south of the locality where we observed *A. barnassari* (Podlech & Zarre, 2013) (Figure 2).

Remarkably, the region between Doğubayazit and Van, characterised by its extensive high-altitude basalt plateaux, is the principal distribution area of the milk-vetches of this section in Turkey.

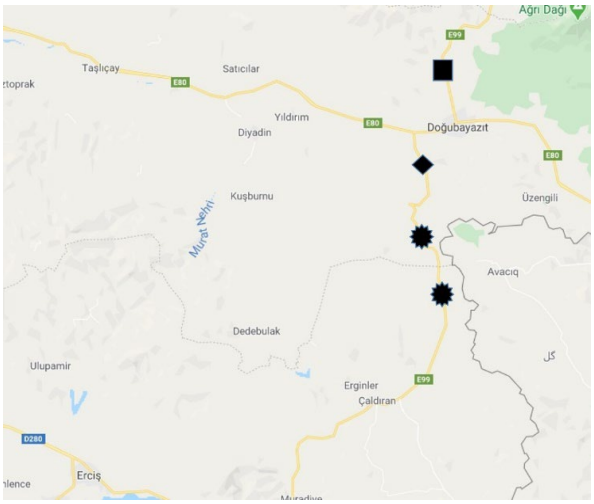


Figure 2. Records of milk-vetches of section *Trachycercis* in the Doğubayazit region (*A. longivexillatus*; *A. humilis*; our record of *A. barnassari*)■✹◆

3. Identification of *Astragalus barnassari*

Davis's *Flora of Turkey* (Chamberlain *et al.*, 1970) clearly does not permit the correct identification of our plant. Indeed, using the identification key in that work, our milk-vetch keys out as *A. humilis* M. Bieb., a species known from this region (cf. *supra*). However, *A. barnassari* is not treated in *Flora of Turkey*, nor is it treated in Townsend's flora of Iraq (1974), although the plant is clearly illustrated there on page 426 (plate 79) under the name *A. humilis*, as noted by Podlech and Zarre (2013). Confusion between these two species, both of which were described before the principal floras of the region were written, is therefore clearly frequent in these publications.

As for *A. longivexillatus*, described more recently by Podlech (1999), it differs considerably from the other two species in having calyces with black hairs and leaflets glabrous on the upper surface.

Using the work of Podlech and Zarre, *A. barnassari* and *A. humilis* can now readily be distinguished using the simple characters presented in Table 1.

	Calyx indumentum	Leaflet indumentum	Calyx teeth
A. barnassari	Spreading hairs	Appressed and spreading hairs	2-4 mm
A. humilis	Appressed hairs	Appressed hairs	1,5-2 mm

Table 1. Differences between *Astragalus barnassari* and *A. humilis*.

Our plant from Ortadirek is unquestionably *A. barnassari*, as the diagnostic characters are typical (Figures 3–6). For completeness, comparison with an isotype of *A. humilis* at BW (BW 14032-01 0) leaves no doubt: the hairs on the leaflets and calyces of that specimen are distinctly appressed.

This raises the question of whether *A. humilis* is genuinely present in Turkey and whether the two species have been systematically confused in that country. Nevertheless, although we found no corresponding specimen, Podlech and Zarre examined two sheets at W collected by Sorger on 14 June 1986 very close to our locality (Figure 2). The identifications made by these two monographers cannot reasonably be questioned, and the two taxa clearly coexist in this border region between Doğubayazit and Lake Van. This is unsurprising in view of the respective distributions of the two plants.

Astragalus barnassari was described in 1880 by the Baltic German botanist Ernst Rudolf von Trautvetter at varietal rank, as *A. dolichophyllus* Pall. var. *brevidentatus* Trautv. (1880, *Trudy Imp. S.-Petersburg Bot. Sada* 7: 439). The holotype is labelled "*propre pagum Lyrik districtus Talysch*" (at LE), i.e. from the Taliş district of Azerbaijan, about one hundred kilometres from our locality as the crow flies.

In 1940, the Soviet botanist Alexander Alfonsovich Grossheim, then director of the Institute of Botany of the Azerbaijan National Academy of Sciences, re-examined these specimens and logically concluded that they represented a species distinct from *A. dolichophyllus*, a more westerly plant occurring in Ukraine and Russia that also has appressed leaflet hairs and pale yellow petals, but above all much longer calyces, 14–17 mm long, with teeth 5–7 mm long. He

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therefore described *A. barnassari* Grossh. (1940, *Izv. Azebajdzah. Fil.* 1: 32), typifying it anew on Azerbaijani specimens from the Zuvand district in the south of the country.

The distribution of this species is now better understood and is confined to a restricted area encompassing western Azerbaijan, the extreme north-east of Iraq (the Rawanduz area), northern Iran (Maassoumi *et al.*, 2015), and the eastern edge of Turkey. Curiously, it has not been reported from Armenia, but is very likely to occur there, since the country lies between its Turkish locality and its Azerbaijani localities.



Figure 3. *Astragalus barnassari* Grossh. Whole plant. Ortadirek (Ağrı), 24 May 2009; © Pierre Coulot



Figure 4. *Astragalus barnassari* Grossh. Calyces. Ortadirek (Ağrı), 24 May 2009; © Pierre Coulot



Figure 5. *Astragalus barnassari* Grossh. Leaflets. Ortadirek (Ağrı), 24 May 2009; © Pierre Coulot

The presence of *A. barnassari* in Turkey had never been reported. Only a specimen collected by the French botanist Rémy Aucher-Éloy and cited by Podlech and Zarre (2013) cast some doubt on this point. The specimen, held at P under the number *Aucher 4462*, is labelled "*Armenia, Turcica*". This statement is very imprecise and, until now, did not justify including this milk-vetch in the flora of Turkey. We can now confirm that this species does indeed belong to the long list of almost five hundred Turkish milk-vetches.



Figure 6. *Astragalus barnassari* Grossh. Ortadirek (Ağrı), 24 May 2009; © Pierre Coulot

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