

Ecological features and new location of the rare relict species *Craniospermum pseudotuvanicum* (Boraginaceae)

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Abstract. Information on the new location of the high-mountainous species *Craniospermum pseudotuvanicum* (endemic to Mongolia) is given. The morphological and ecological-cenotic features of the species, as well as known locations within the Central Mongolian-Altai province are considered.

When performing a critical revision of taxa of the family Boraginaceae Juss. on the territory of Outer Mongolia and the study of the extensive herbarium collections of the Central Asia Department of the Herbarium of the Botanical Institute V. L. Komarova of the Russian Academy of Sciences (LE), we found a specimen (not previously defined), which we assigned to the recently described species *Craniospermum pseudotuvanicum* Ovchinnikova et A. Korolyuk: “Outer Mongolia, the Great Lakes Basin, m. Batar Khairkhan (eastern part), alt. 2500 m above sea level, southern exposition, on scree, sedge-petrophyte-forb community, 26 VII 1983, N 255, E.A. Volkova, I.Yu. Sumerina, U. Beckett, H. Buyan-Orshy”(LE).

The found plants are perennial stem-root with many-headed caudex loose frutescent monopodially growing polycarpic with a main vegetative rosette shoot and elongated axillary generative shoots. Rosette leaves are back-lanceolate, rounded at the top, 8–12 cm long., 1.0–2.0 cm wide, densely pubescent with thin long, 2–2.5 mm, half-adherent gray hairs and short soft hairs. Flowering stems are 10 cm tall, simple, distant hairy, leafy to the inflorescence. Inflorescence is a double coil, almost capitate, 3.3 cm long. Calyx is mildly tangled-white-haired with back-lanceolate lobes, 7.0–8.5 mm long. Corolla is lilac, saffron when dry, 9.0–10.0 mm long, dolichomorphic. Corolla teeth are 1.3 mm long. Anthers are 1.1–1.2 mm long., slightly exposed from the corolla. The stigma is hidden inside the corolla. The plant is flowering, the fruits are not known.

The analysis showed that the characteristics of the life form, the pubescence of the leaves and calyx, the signs of the inflorescence and the flower, the size of the anthers, and the ecological features of the plants correspond to the characteristics of *C. pseudotuvanicum*.

Species of the genus *Craniospermum* Lehm. are perennial dense-custy grasses, common in semi-desert-steppe belt of Central Kazakhstan, southern Siberia, Mongolia, and Northern China, from 42° to 55° N. As shown by palynomorphological studies, the genus

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Craniospermum can be attributed to the earliest representatives of the ancient Mediterranean flora [1]. Currently, the genus includes 8 species that are part of 3 sections: *C. subvillosum* Lehm. (section *Craniospermum*) is an endemic of the littoral of Lake Baikal within the Irkutsk Region and the Republic of Buryatia; *C. canescens* DC. and *C. desertorum* Ovczinnikova et A. Korolyuk (section *Leucolachnos* Ovczinnikova) are endemics of the Russian and Mongolian Altai; *C. subfloccosum* Krylov (subsection *Floccosa* Ovczinnikova of the section *Diploloma* (Schrenk) Popov) is a narrow endemic of the Russian (Katunsky Ridge) and the Kazakhstan Altai (Narymsky Ridge); *C. echioides* (Schrenk) Bunge (section *Diploloma*) is an endemic of Dzungaria within the three states of Kazakhstan, Mongolia and China; *C. mongolicum* I.M. Johnston (section *Diploloma*) is endemic to Mongolia and China within northern Xinjiang and Inner Mongolia; *C. tuvinicum* Ovczinnikova (section *Diploloma*) is endemic to Tyva and Mongolian Altai; *C. pseudotuvanicum* Ovczinnikova et A. Korolyuk (section *Diploloma*) is a narrow endemic of the Mongolian Altai. All species of the genus *Craniospermum* are found on dry gravelly slopes and scree, in the crevices of rocks in the belt of high-altitude and upland-xerophyte steppes, in their ecological confinement cryoxerophytes [2-5].

The species *C. pseudotuvanicum* was described from the eastern foothills of the Zhargalant-Khairkhan-Ula massif within the Chandman somon of the Khobdos aimag (holotype - NSK0000710). The classical location and newly discovered one are located in the Great Lakes Basin region (Fig. 1). Locations are indicated on a map made with SimpleMappr (<http://www.simplemappr.net>).

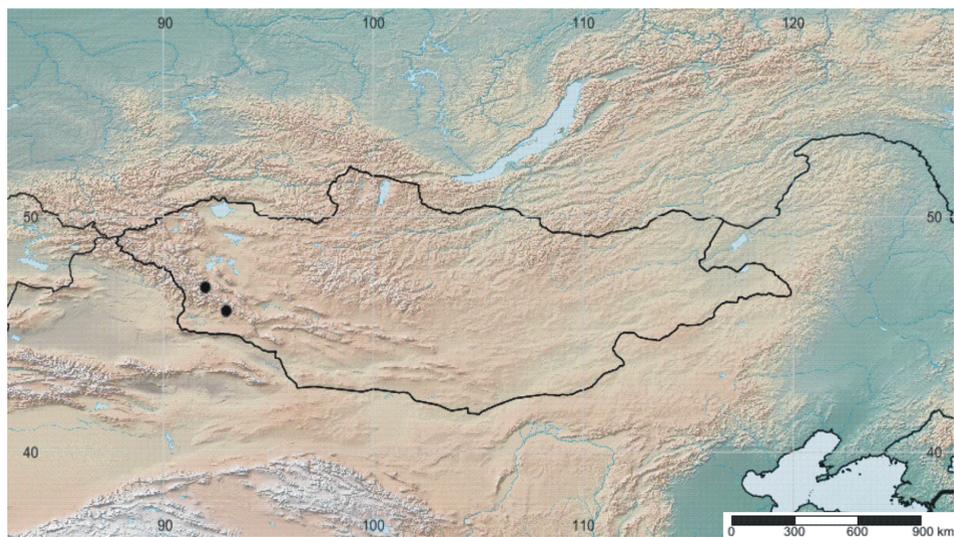


Fig. 1. Map of the areal of *Craniospermum pseudotuvanicum*.

The eastern part of the Batar-Khairkhan Ridge and the eastern foot of the town of Zhargalant-Khairkhan-Ula are located at an altitude of 2400–2550 m above sea level within the Central Mongolian-Altai province in the region dominated by dry sod-grassland steppes, the usual dominants of which are widespread steppe species: *Poa attenuata* Trin., *Koeleria cristata* (L.) Pers, *Stipa krylovii* Roshev. Habitats are mainly sloping with poorly developed stony soils with high activity of petrophytic species: *Festuca lenensis* Drobov, *Eremogone meyerii* (Fenzl) Ikonn., *Amblynotus rupestris* (Pall. Ex Georgi) Popov ex Seg., *Orostachys spinosa* (L.) C.A. Mey. At heights of 2600 m and more the grass-sedge cryophytic steppes begin to play an important role in vegetation cover. These communities are characterized by high abundance of *Festuca kryloviana* Reverd., *Poa attenuata* Trin., *Carex rupestris* All., *Oxytropis oligantha* Bunge, *Potentilla nivea* L. and *Eremogone*

meyerii (Fenzl) Ikonn. Due to the considerable dissection of the relief, unclosed groups of petrophytic plants are widespread at all heights, among which *Craniospermum pseudotuvinicum*.

The main types of communities of the Central Mongolian-Altai province are characteristic of Mongolia or Central Asia as a whole, but a rather large number of communities are endemic Mongol-Altai or even Central-Mongol-Altai types [5, 6].

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