



УДК 582.739:581.96(575.2)

Astragalus neoalaicus (Fabaceae), a new species from Kyrgyzstan

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Keywords: Alay Valley, *Astragalus xanthomeloides*, Pamir-Alay, section *Macrocystis*, Western Tian Shan.

Summary. A new species, *Astragalus neoalaicus*, from the section *Macrocystis* is described and illustrated. The species grows in the Alay Valley in rocky-gravelly and pebble habitats. Morphologically, it is similar to *A. xanthomeloides*, from which it differs in having white (vs. yellow) flowers and leaflets closely arranged on the rachis. Section *Macrocystis* in Kyrgyzstan includes 3 species instead of 4 previously noted: one species is described and two are excluded as erroneously listed.

Astragalus neoalaicus (Fabaceae) – новый вид из Кыргызстана

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Ключевые слова: Алайская долина, Западный Тянь-Шань, Памиро-Алай, секция *Macrocystis*, *Astragalus xanthomeloides*.

Аннотация. Новый вид, *Astragalus neoalaicus*, из секции *Macrocystis* описан и проиллюстрирован. Вид произрастает в Алайской долине на каменисто-щебнистых и галечниковых местообитаниях. Морфологически вид сходен с *A. xanthomeloides*, от которого отличается белыми (а не жёлтыми) цветками и сближенными на рахисе листочками. Установлено, что секция *Macrocystis* в Кыргызстане включает три вида, а не четыре, как указывалось ранее, а именно: два вида должны быть исключены как ошибочно приводившиеся для территории Кыргызстана; с другой стороны, секция дополнена описываемым здесь *A. neoalaicus*.

Introduction

Section *Macrocystis* Popov is a relatively small but taxonomically complicated group of the genus *Astragalus* L., distributed in the mountains of Middle Asia. The characteristic features of this section are an inflorescence with spaced flowers and a calyx that usually strongly inflated after flowering, including a

pod inside. This section contains 11–12 species, and most of them occur in Tajikistan and Uzbekistan. In the Checklist of vascular plants of Kyrgyzstan (Lazkov, Sultanova, 2011), 2 species of this section – *Astragalus krauseanus* Regel and *A. xanthomeloides* Korovin et Popov – are listed. Later, D. Podlech et al. (2013) added *A. baranovii* Popov and *A. megalomerus* Bunge but without specifying their locations. The

occurrence of these species is not supported by herbarium material or any literary sources, and in our opinion, their presence in Kyrgyzstan is unlikely.

During a survey of the Alay Valley flora, a species of *Astragalus* from the section *Macrocystis* was collected, the identity of which did not match any known species. After examination of its morphology, consultation of relevant literature and herbarium materials for the genus, including type specimens stored in the herbaria FRU, LE, and TASH, we concluded that it is necessary to describe a new taxon. This species had long been collected but was erroneously identified as *Astragalus xanthomeloides*. *Astragalus neoalaicus*, sp. nov., is indeed related to *A. xanthomeloides*, but differs in flower color and leaflet arrangement on the rachis. Our plants also resemble *A. namanganicus* Popov from the section *Macrocystodes* Popov in the color of the corolla. All specimens of the new species in Herbarium LE have been identified by D. Podlech as *A. xanthomeloides*; however, he did not see living plants in bloom. This is obviously the reason why he included the Alay Valley in the distribution area of *A. xanthomeloides*. True *A. xanthomeloides* is widespread in the Western Tian Shan and Pamir-Alay, but in the Alay Valley it is replaced by our new species.

Materials and Methods

Herbarium materials of the genus *Astragalus*, including type specimens stored in the herbaria FRU, LE, and TASH, as well as observation in nature, were used. When identifying the new species, the classical morphological-geographical method was used, based on the study of morphology superimposed on the distribution of taxa.

Taxonomical results

***Astragalus neoalaicus* Lazkov, sp. nov.** (*Macrocystis* Popov) (Figs. 1–3).

Description. Subshrub with a weakly lignified stem. The bark of old branches grayish. Annual branches 3–8 cm long, more or less densely covered with white and (closer to nodes) single black appressed symmetrically bifurcate hairs. Stipules 1–2 mm long, triangular, blunted up to base, not fused along the entire length, with single hairs on the inside and ± densely covered with black and white hairs outside. Leaves 2–4 cm long; petiole 0.3–0.5 cm long, with rachis sparsely white-hairy. Leaflets in 2–4 pairs, linear-lanceolate, 8–20 × 0.8–1.5 mm, densely located on the rachis, obtuse or acute,

sparsely covered at both sides with white medifixed hairs. Peduncles in the axils of upper leaves, 5–20 cm long, hairy. Racemes rather lax 5–9-flowered. Bracts 1–1.5 mm long, triangular, membranous, black and white hairy. Pedicels 1.0–1.5 mm, hairy. Calyx 15–16 mm long, 5–6 mm wide, ovate or oblong ovate, more or less asymmetrical (obliquely inflated) at the base, slightly increased with fruits, obliquely cut at the mouth, densely covered with shorter, symmetrically to asymmetrically bifurcate, appressed black hairs and with admixture of white ones; teeth linear from narrowly triangular base, 3.0–3.5 mm long. Petals white inside and pinkish or greenish outside. Standard 20–23 mm long; blade on the top slightly curved upward, 8–10 mm long, 8–9 mm wide, late-ovate, emarginate, constricted in the place of transition to claw. Claw 10–12 mm long, cuneate, gradually narrowed at the base. Wings 19–21 mm long; blades oblong, obtuse, 6–8 × 2–2.5 mm; auricle 1 mm. Keel 17–18 mm long; blades 6–7 mm long, 2.0–2.5 mm wide, subobtusate; auricle short, triangular, claw 11–12 mm long. Stamen-tube obliquely cut at the mouth. Ovary short, white hairy; style glabrous, 13–15 mm long. Legumes unknown.

Type: “Kyrgyzstan, Alay Valley, flood plain of Kyzyl-Suu River, near Jar-Bashi vill., gravel, N39°30′8.82″, E72°05′14.32″. 10 VII 2024. G. A. Lazkov / Кыргызстан, Алайская долина, пойма р. Кызыл-Суу, окр. с. Джар-Баши, галечник, N39°30′8.82″, E72°05′14.32″. 10 VII 2024. Лазьков Г. А.” (LE 01311665, iso – FRU).

Affinities. *Astragalus neoalaicus* differs from *A. xanthomeloides* by leaflets densely (vs. sparsely) located and white (vs. yellow) flowers.

Paratypes (LE): “Mouth of Kok-su R., tract. Chak. 01 VII 1878. Skornyakov / Г. уст. Кок-Су, уроч. Чак. 01 VII 1878. Скорняков”; “Turkestan, along the Tarasha River, clayey stony slope, 9-10000′, No. 1238. 25 VII 1895. S. Korshinsky / Turkestan. По р. Тараша, глин. каменист. скл. 9-10000′, No. 1238. 25 VII 1895. S. Korshinsky”; “Fergana Region, Alay, Chak, No. 170. 02 VIII 1897. V. Lipskiy / Ферганская обл., Алай, Чак. № 170. 02 VIII 1897. В. Липский”; “Ferg. Region, Margel. Distr., Katta-Karamyk river valley, lower part, rocky scree, No. 1262. 19 VI 1913. N. A. Desyatova / Ферг. обл., Маргел. у., дол. р. Катта-Карамык, нижняя часть, каменистая осыпь, No. 1262. 19 VI 1913. Н. А. Десятова”; “Ferg. Reg., Margel. Distr., left side of the Katta-Karamyk River, near the mouth, heavily gravelly. 3rd terrace of the river, No. 2040. 20 VI 1913. N. A. Desyatova / Ферг. обл., Маргел. у., лев. бер. р. Катта-Карамык, близ устья, сильно щебенчат. 3-я



Fig. 1. General view of *Astragalus neoalaicus* from the type location.



Fig. 2. Part of the inflorescence with flowers of *Astragalus neoalaicus* from the type location.

Fig. 3. Type specimen of *Astragalus neoalaicus*.

тер. реки, No. 2040. 20 VI 1913. Н. А. Десятова”; “Fergana Reg., Skobelevskiy Distr., 3rd terrace of the Karamyk River (flat pebble), No. 960. 20 VI 1913. G. I. Dolenko / Ферганская обл., Скобелевский у., 3-я терраса р. Карамык (ровная галечниковая), No. 960. 20 VI 1913. Г. И. Доленко”; “Ferg. Reg., Kokand Distr., Rabat tract, heavily rocky slope of a hill, along the right side of the Kara-Muynak River, where it enters the valley, No. 605. 29 V 1913. Z. A. Minkvits / Ферг. обл., Коканд. у., сильно каменистый скл. холма по правому берегу р. Кара-Муйнак, при выходе её в долину, No. 605. 29 V 1913. З. А. Минквиц”; “Ferg. Reg., Margel. Distr., Alay Valley, Aigy-jal tract, rubble hills, No. 2120. 26 VI 1913. N. A. Desyatova / Ферг. обл., Маргел. у., Алайская дол., уроч. Айгыр-Джал, щебнистые холмы, No. 2120. 26 VI 1913. Н. А. Десятова”; “Fergana Reg., Skobelev Distr., rocky mountain slopes in the Karamyk valley, No. 9301. 19 VII 1913. G. I. Dolenko / Ферганская обл., Скобелевский у., каменистые горные склоны в долине Карамык, No. 9301. 19 VII 1913. Г. И. Доленко”; “Fergana Reg., Skobelev Distr., rocky mountain slopes in the Karamuk valley, No. 933. 19 VII 1913. G. I. Dolenko / Ферганская обл., Скобелевский у., Карамык, No. 933. 19 VII 1913. Г. И. Доленко”; “Alay Valley, Tarasha Mount, red clay outcrop, No. 192. 25 VI 1931. S. Lipshits / Алайская долина, гора Тараша, обнажение красной глины, No. 192. 25 VI 1931. С. Ю. Липшиц”; “Osh Reg., Alay Valley, lower reaches of the Kyzyl-Suu River., left side behind of Jar-bashi village, river bed. 09 VII 1968. Ubukeeva, Arbaeva, Mursaliev, B. Sultanova / Ошская область, Алайская долина, нижнее течение р. Кызыл-суу, левая сторона за с. Жар-Баши, пойма. 09 VII 1968. Убукеева, Арбаева, Мурсалиев, Б. Султанова”; “Kirghiz SSR, Osh region, Alay Valley, 5–6 km from Daraut-Kurgan to the east. 10 VII 1968. Ubukeeva, Arbaeva, Mursaliev, B. Sultanova / Киргизская ССР, Алайская долина,

5–6 км к востоку от Дараут-Кургана. 10 VII 1968. Убукеева, Арбаева, Мурсалиев, Б. Султанова”; “Kirghiz SSR, northern macroslope of Alay Range, Kyzylsu River valley, right side, rubble terrace near Djekendy village, ephemeral-acantholimon-wormwood association, No. 1980, altitude 2400 m. 02 VIII 1976. G. M. Ladygina, S. S. Ikonnikov / Киргизская ССР, северный макросклон Заалайского хр., долина р. Кызылсу, прав. берег, щебнистая терраса у с. Джекенды, асс. эфемеро-во-акантолимоно-полынная, No. 1980, высота 2400 м. 02 VIII 1976. Г. М. Ладыгина, С. С. Иконников”; “Kirghiz SSR, northern macrosl. of Trans-Alay Range, Kyzylsu river valley, left side, 20 km west of the Daraut-Kurgan village, fine-earth-rocky alluvial fan of northern exposure, shrub-ephedra-wormwood association, No. 1993, elevation 2450 m. 02 VIII 1976. G. M. Ladygina, S. S. Ikonnikov / Киргизская ССР, северный макросклон Заалайского хр., долина р. Кызылсу, лев. берег в 20 км к западу от с. Дараут-Курган, мелкозем.-камен. конус выноса сев. экс., асс. кустарниково-эфемеро-во-полынная, No. 1993, высота 2450 м. 02 VIII 1976. Г. М. Ладыгина, С. С. Иконников”.

Distribution. The species is distributed on stony habitat of the Alay Valley. It is likely to grow in the adjacent region of Tajikistan.

Ecology. According to the data from the labels provided and own observations, the species grows in river floodplain in clay-rocky and pebble habitats among wormwood-shrub vegetation.

Etymology. The species was named after its place of growth – the Alay Valley.

Acknowledgements

This research was supported by a project of the Korea National Arboretum: “Central Asia Green Road Project III. Investigations on plant resources in unsurveyed areas of Central Asia” (No. KNA1-2-38, 20-5).

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