

**BOTANICAL-BIOLOGICAL, ECOLOGICAL AND PHYTOCENOTIC FEATURES OF
THE SPECIES ASTRAGALUS NAMANGANICUS POPOV.**

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<https://doi.org/10.5281/zenodo.17984784>

Abstract. This article presents a comprehensive analysis of *Astragalus namanganicus* Popov, a narrow endemic species of Central Asian flora. The study covers botanical and morphological characteristics, ontogenesis, flowering biology, seed productivity, ecological preferences, phytocenotic relationships, and cenopopulation structure. The results indicate that *A. namanganicus* is a significant component of foothill xerophytic plant communities, while its natural regeneration capacity remains limited.

Keywords: *Astragalus namanganicus*, Fabaceae, xerophyte, phytocenosis, senopopulation, Fergana Valley.

Introduction

Astragalus L. (Fabaceae L.) the order is one of the largest and most complex taxonomic units in the World Flora, containing over 3,000 species. Representatives of the category are widespread mainly in temperate and arid climatic regions of the northern hemisphere, in particular in the Floristic Region of Central Asia, Iran-Turon and the Mediterranean regions. *Astragalus* L.) the order is one of the largest and most complex taxonomic units in the World Flora, containing over 3,000 species. Representatives of the category are widespread mainly in temperate and arid climatic regions of the northern hemisphere, in particular in the Floristic Region of Central Asia, Iran-Turon and the Mediterranean regions. In the flora of Uzbekistan, the genus *Astragalus* is distinguished by the number of species, the level of endemism, and ecological diversity. One of the representatives of the same species, *Astragalus namanganicus* Popov, belongs to the flora of Central Asia, the areali is considered to be of limited and insufficiently studied species. In this article, a. the Botanical-morphological characteristics, ontogenesis, ecology, flowering biology, seed and seed productivity, senopopulatory status and practical significance of *namanganicus* are highlighted.

1. Systematic position (taxonomy)

Division: *Magnoliophyta*

Class: *Magnoliopsida*

Order: *Fabales*

Family: *Fabaceae* Lindl.

Category: *Astragalus* L.

Species: *Astragalus namanganicus* Popov

The tour marked the first time Described by Popov in 1926, it is a local taxon of the Central Asian montane flora 2. Botanical and morphological description. *Astragalus namanganicus* is a perennial herbaceous plant with a strongly developed root system. The main stem is of the axial root type and penetrates deep layers of soil.

The root collar is partially Woody, ensuring the formation of several ground overhanging stems during the growing season. The STEM is erect or semi-erect, sparsely branched, the superficial part is covered with short hairs. Vegetative and generative branches are clearly distinguished. The leaves are complex, patchy (pinnate), arranged alternately. The Leaf band is well developed, the leaf plate consists of 5-12 pairs of small petals.

The petals are ellipsoid or oblong-ovoid, the edges are smooth, the upper side is almost naked, the lower side is sparsely hairy.

3. Flowers and flowering biology. The flowers are dioecious, zygomorph, papilionate type, clustered in a shingle (racemosus) or short spike inflorescence. The petal is tubular or bell-shaped, the teeth are uneven. The inflorescence consists of 5 leaves: a flag, two wings and two stem petals.

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Flowering biology

Flowering mainly occurs in may-June. Pollination is entomophilous, primarily through bees and other nectar-collecting insects. The flowers are characterized by Nectar separation, which enhances their entomophilous adaptation. Fruits mainly occurs in may-June. Pollination is entomophilous, primarily through bees and other nectar-collecting insects. The flowers are characterized by Nectar separation, which enhances their entomophilous adaptation. The fruit is a legume pod (pod), straight or slightly bent, dry, often 1-3 seeds. The fruit wall is thickened and is relatively resistant to mechanical influences. The seeds are small, kidney-shaped or ellipsoid, the peel is hard and waterproof. In seeds, a state of physiological tin (dormancy) is observed. Seed yield at the expense of one individ is variable depending on environmental conditions. In dry years, the seed yield decreaseshe seeds are small, kidney-shaped or ellipsoid, the peel is hard and waterproof. In seeds, a state of physiological tin (dormancy) is observed. Seed yield at the expense of one individ is variable depending on environmental conditions. In dry years, the seed yield decreases. The natural germination of seeds is low, and the percentage of germination increases significantly when treated with mechanical scarification or hot water.

Ontogenesis and life cycle

Ontogenesis involves the following stages:

Seed (latent state)

Germination (juvenile stage)

Vegetative maturity

Generative stage

Aging and degradation

As a perennial plant, a. namanganicus may enter a generative State for several years.

7. Ecology and distribution

Astragalus namanganicus mainly refers to: Highland and low mountain regions, Rocky and gravel slopes, It is found on dry, low-fertile soils. Areali is limited to the regions of Uzbekistan (Fergana Valley, Namangan surroundings) and partly Kyrgyzstan.

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8. Senopopulation

In senopopulations, plants usually settle in small groups. The age spectrum is often uneven and generative individs predominate. This condition indicates limited natural recovery.

General phytocenotic description

Astragalus namanganicus is found in natural conditions in dry xerophyte and petrof it phytocenoses, which are characteristic of mountain and low mountain regions. This species often grows on steep and gravelly slopes, in areas with open, poorly compacted vegetation cover. In phytocenoses, it is not dominant, but participates as a subdominant or component species.

1. The main phytocenosis types. *Astragalus namanganicus* is recorded as part of the following phytocenoses: mountain ephemeral-ephemeroid steppes Wormwood (*Artemisia*) dominated semi-desert phytocenoses Rocky-xerophytic shrublands gravelly and rocky slopes of low mountains

2. Co-growing plants (companion species). The main phytocenosis types. *Astragalus namanganicus* is recorded as part of the following phytocenoses: mountain ephemeral-ephemeroid steppes Wormwood (*Artemisia*) dominated semi-desert phytocenoses Rocky-xerophytic shrublands gravelly and rocky slopes of low mountains

2.1. Legumes (*Fabaceae*)

A. namanganicus is often found in the same biocenosis as other legume species: *Astragalus sieversianus*, *Astragalus macronyx*, *Astragalus turbinatus*, *Oxytropis glabra*, *Medicago falcata*

These species play an important role in enriching the soil with nitrogen.

2.2. Complexity (*Asteraceae*)

Common components in phytocenoses: *Artemisia tenuisecta*, *Artemisia diffusa*, *Centaurea squarrosa*, *Cousinia spp.*, *Scorzonera spp.* The species is adapted to dry and brackish conditions with a range of. it has similar ecological needs with namanganicus.ese species play an important role in enriching the soil with nitrogen.

2.3. Wheatgrass (*Poaceae*)

The open steppe grows in plots along with the following species: *Stipa capillata*., *Stipa orientalis*, *Festuca valesiaca*, *Poa bulbosa*. Wheat is one of the main structure-creating components of phytocenosis.

2.4. Tulip and ephemeroid species. During the spring growing season: *Tulipa kaufmanniana*, *Tulipa greigii*, *Gagea spp.*, *Allium spp.* These ephemeroids A. it is in time compatible with the early growing stage of *namanganicus*.

2.4. Ephemeroïd species. During the spring growing season: *Tulipa kaufmanniana*, *Tulipa greigii*, *Gagea spp.*, *Allium spp.* These ephemeroïds A. it is in time compatible with the early growing stage of *namanganicus*.

2.5. Representatives of other families *Eremurus spp.* (Asphodelaceae), *Ferula spp.* (Apiaceae), *Zygophyllum fabago* (Zygophyllaceae), *Acantholimon spp.* (Plumbaginaceae)

The ecological importance of phytocenotic connections is low in competition: *A. namanganicus* prefers open areas and is rare in areas with dense grass cover. Symbiotic nitrogen fixation: as a legume, it increases soil fertility and creates favorable microcharoitis for other xerophytic species. Common environment for pollinators: species that Bloom together ensure insect stability in phytocenosis.

Importance:

Ecological significance-prevention of more erosion

Nectar source for pollinators

An important component of mountain biocenoses

Scientific and practical significance

While some *Astragalus* species are important as medicinal and forage, a. the exact pharmacological use for *namanganicus* has not yet been scientifically proven. *Astragalus namanganicus* Popov is a perennial plant native to the flora of Central Asia, with limited areal and insufficiently studied. An in-depth study of its biological and environmental characteristics, population monitoring and the development of conservation measures is one of the urgent scientific tasks.

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