

ANALYSIS OF HERBARIUM SPECIMENS OF *ASTRAGALUS SIEVERSIANUS* STORED IN THE NATIONAL HERBARIUM (TASH) OF UZBEKISTAN FROM THE FLORA OF THE FERGANA VALLEY

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ANNOTATION: This article presents a morphological analysis of *Astragalus sieversianus* Pall., based on 25 herbarium specimens collected from the Fergana Valley and preserved at the National Herbarium of Uzbekistan (TASH) between 1938 and 2018. Key traits including leaf morphology, floral structures, fruit shape, and seed characteristics were examined. Results show a shift in distribution from lowlands to foothill regions in recent decades, possibly due to anthropogenic impact and environmental changes. Some morphological variability suggests the existence of local ecotypes. The study highlights the importance of herbarium data in species monitoring and indicates the need for further molecular research for conservation planning.

KEYWORDS: *Astragalus sieversianus*, *Fabaceae*, herbarium, Fergana

FARG'ONA VODIYSI FLORASINING O'ZBEKISTON MILLIY GERBARIYSI (TASH) FONDIDA SAQLANAYOTGAN *ASTRAGALUS SIEVERSIANUS* TURIGA OID GERBERIY NAMUNALAR TAHLILI

ANNOTATSIYA: Ushbu maqolada *Astragalus sieversianus* Pall. turining O'zbekiston milliy gerbariysi (TASH) fondida saqlanayotgan 1938–2018 yillar oralig'ida Farg'ona vodiysidan yig'ilgan 25 ta gerbariy namunasi asosida morfologik tahlili o'tkazildi. O'simlikning barg shakli, gul tuzilmasi, meva va urug' xususiyatlari hamda populyatsiyalar o'rtasidagi morfologik tafovutlar o'rganildi. Tadqiqot natijalariga ko'ra, so'nggi yillarda o'simlikning tarqalish areali tog' etaklariga siljiganligi, bu esa antropogen bosim va ekologik o'zgarishlar bilan bog'liq bo'lishi mumkinligi aniqlangan. Shuningdek, ayrim morfologik belgilarning o'zgaruvchanligi lokal ekotiplarga mansublik ehtimolini ko'rsatmoqda. Mazkur tahlil tur darajasidagi saqlanish holatini baholash hamda genetik tadqiqotlar zarurligini asoslaydi.

KALIT SO'ZLAR: *Astragalus sieversianus*, *Fabaceae*, herbarium, Fergana

1. INTRODUCTION

Astragalus sieversianus Pall. is a perennial semi-shrub belonging to the *Fabaceae* family. It is widely distributed across Central Asia, including the stony, arid, and steppe zones of Uzbekistan, and plays a vital geobotanical role in the ecosystem[1,2].

The Fergana Valley is distinguished by its rich floristic diversity, and *A. sieversianus* is one of the ecologically significant species found in the region. The National Herbarium of Uzbekistan (TASH), located at the Institute of Botany under the Academy of Sciences, contains historically and geographically valuable specimens of this species[3]. A modern analysis of these herbarium records provides essential data for flora monitoring, population dynamics assessment, and conservation planning[4].

2. MATERIALS AND METHODS

2.1. Data Sources: The study utilized all available *Astragalus sieversianus* specimens preserved in the TASH herbarium as of 2023–2024. Morphological characteristics, collection locations and dates, and collector information were recorded.

2.2. Morphological Analysis: For each specimen, the following features were analyzed and documented:

Stem habit (erect, spreading), leaf shape and length, flower and fruit morphology, pod shape and seed count, external color and pigmentation.

2.3. Distribution and Taxonomic Variations: The geographic origins of the specimens were mapped, and interregional morphological variants from Namangan, Andijan, and Fergana provinces were compared to assess taxonomic divergence.

3. RESULTS AND DISCUSSION

3.1. Overview of Herbarium Specimens: A total of 25 specimens of *A. sieversianus* were found in the TASH herbarium, of which: 12 originated from Namangan (Chust, Pop, Kosonsoy), 8 from Andijan, 5 from Fergana Province.

The earliest specimen dates back to 1938 (collected by A.A. Yunusov), and the most recent was collected in 2018[5].

3.2. Morphological Differentiation: The analyzed specimens showed stem lengths between 35–70 cm, pods with 3–6 seeds, and compound paripinnate leaves with two pairs of leaflets. Some samples from Fergana and Andijan showed increased pigmentation in sepals and higher stem pubescence, indicating high ecological plasticity[6].

3.3. Distribution Trends: Earlier collections (1930s–1960s) were mostly from central areas of the valley (e.g., Oltinkul, Shahrixon), whereas from the 1980s onward, samples were increasingly collected from higher and drier zones (e.g., Chodak, Pop). This suggests a habitat shift toward foothills due to growing anthropogenic pressures[7].

3.4. Conservation and Taxonomic Insights: Certain morphological distinctions (e.g., calyx length, pod shape, pigmentation) suggest the presence of a local variant

possibly close to *Astragalus sieversianus* var. *minor*. However, molecular and ecotypic studies are necessary for a formal conclusion.

CONCLUSION

The herbarium specimens of *Astragalus sieversianus* preserved in the TASH collection represent a valuable resource for floristic and ecological monitoring in the Fergana Valley. Key conclusions are:

- The species exhibits notable temporal and spatial variation across the valley;
- It shows high morphological plasticity, reflecting adaptive potential;
- Distribution shifts suggest habitat changes under anthropogenic influence.

Further molecular-genetic analysis and the development of both in-situ and ex-situ conservation strategies are recommended. The herbarium data offer a scientific foundation for such initiatives.

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