MORPHOLOGY AND ECOBIOLOGY OF *PHYSOCHLAINA ALAICA*, THE ONLY RARE SPECIES IN THE FAMILY SOLANACEAE

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Abstract

Among the existing plant families in Uzbekistan, the families with the only rare species do not make up the majority. *Physochlaina alaica* is not only a rare species, but also a plant with some medicinal properties. It is necessary to develop the necessary and appropriate measures to maintain the sustainability of any rare species, and before that it is necessary to have detailed information about the species. The population is well aware of the medicinal properties of *Physochlaina alaica* but does not have sufficient information on the level of rarity. In our study, we applied its eco-biology and morphology.

Keywords: Biodiversity, Flora, rare plants, *Physochlaina alaica*, morphology.

Introduction. Systematics:

- Kingdom: Plantae; Phylum: Tracheophyta; Class: Magnoliopsida; Order: Solanales; Family: Solanaceae; [Genus; *Physochlaina* G.Don](#)

Species: *Physochlaina alaica* Korotkova

Rarest endemic of the Alay and Turkestan ranges. It is spread at the Alay range: the Shakhimardan and Sokh valleys (the Ferghana region). Inhabits rock shades, under shrubs, in the juniper stands on open glades in the middle belt of mountains, at a height of 1800-2000 m.s.l. Single specimens rarely can be found. Total number of plants of different age not exceeds 8000 specimens. Limiting factors: irrational use of these species by local population as medicinal raw material. Measures of protection: not protected. □GBIF taxonKey : [3799874](#); □Plants of the World online ID : urn:lsid:ipni.org:names:817631-1; □IPNI plant ID : [817631-1](#); □Tropicos ID : [29604630](#); □Observation.org ID : [120609](#); □eBiodiversity ID : [416547](#); □World Flora Online ID : [wfo-0001025067](#)

Status. A very rare endemic plant of the Alay and Turkestan mountains. **Brief description.** Perennial herb, up to 50 cm tall. The stems are numerous, erect, sparsely spread, covered with simple and glabrous hairs. The leaves are elongated, broadly ovate, the leaves are 5-10 cm long and 4-8 cm wide, the upper part is almost hairless, the lower part is covered with sparse hairs along the veins. The flowers are short (0.5 cm), elongated as the fruit ripens, and are located in glandular hairs. The tops are spread out and the top is scaly. The calyx is glabrous, 0.5 cm long. Inflorescence bell-shaped, 10-15 mm long, pale pink. The fruit is a corolla, 10-12 mm long. It blooms in May and the fruits ripen in June. **Growth conditions.** It grows at an altitude of 1800-2000 m above sea level in the shade of rocks, under bushes, pine and open ground. Very rare. The total number of plants of different ages does not exceed 8,000. **Increase.** Propagated by seeds. **Reasons for changes in plant numbers and habitat.** It is declining due to its widespread use by the local population as a medicinal plant.

Cultivation. When grown under natural conditions, it does not produce good results. It has been grown in the Botanical Garden of the Russian Academy of Sciences since 1973. **Protective measures.** No special protection measures have been developed.

Main part. Location: Fergana region: Occurs in the Alay ridge, in the basins of the Shohimardon and Sokh rivers. It is also found in Kyrgyzstan and Tajikistan (Turkestan ridge: around the villages of Vorukh and Khujabakirgan). **Fig.1**

Lat and Long:

39 57 50 N, 71 45 56 E

Collection Date: 06/05/1986

Website:

<https://wos.academiascience.org>

Fig.1. The spread of representatives of this genus around the world. (We can see that the main part corresponds to the share of Central Asia).

Fig.2

Distributed throughout the
territory of Uzbekistan by P. Alaica

Conclusion. All morphological and ecological features of this plant can be studied. Exactly on the study of rarity... But the biochemical and molecular characterization was done only on the study of alkaloids. Therefore, it is recommended to study the biochemical composition of this plant in order to combat its rarity. Adaptation to the environment depends not only on its morphology and ecobiology but also on its structural unit.

Information. This article was written for the duration of the study and provided a theoretical analysis. In the current situation, data updates should always be taken into account.

Term	Interpreted	Original	Remarks
Catalogue number	K000658414	K000658414	
Occurrence ID	http://specimens....barium/K000658414 http://specimens....barium/K000658414		
Occurrence status	PRESENT		Inferred
Record number	86131	86131

Term	Interpreted	Original	Remarks
Country or area	Uzbekistan	Uzbekistan	
Country code	UZ	UZ	
Decimal latitude	39.96	39.96	
Decimal longitude	71.77	71.77	
Elevation	1900		Inferred
Geodetic datum	WGS84		Geodetic datum assumed WGS84
Georeference protocol	Gazetteer	Gazetteer	
Higher geography	Fergana	Fergana	
Locality	Uzbekistan, Farg'ona Viloyat, Fergana, Iordan: Aksu valley above Iordan, above Khamzaabad	Uzbekistan, Farg'ona Viloyat, Fergana, Iordan: Aksu valley above Iordan, above Khamzaabad	
Minimum elevation in metres		1900.0	Excluded
Municipality	Fergana	Fergana

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<http://specimens.kew.org/herbarium/K000658414>