

FIRST DATA ON THE TAXONOMIC COMPOSITION OF LEECHES FROM THE KHOJAPOK RIVER, SURKHANDARYA BASIN, UZBEKISTAN

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Abstract

This study presents the first data on the leech fauna of the Khojaipok river (Southern Uzbekistan) based on field surveys conducted in 2024–2025. Sampling was performed across different aquatic biotopes using standard hydrobiological methods. Four leech species belonging to three families and four suborders of the order Hirudinida were identified.

Keywords: Species, Hirudinida, hydrobiont, Southern Uzbekistan.

Introduction

The hydrological resources of Southern Uzbekistan, including its springs, rivers, and foothill zones, create favorable ecosystems for the survival and development of diverse biological species. The region is also characterized by high biodiversity, encompassing numerous rare and endemic plant and animal species, which significantly enhances its ecological value. However, ongoing global environmental processes increasingly affect this region as well [1]. Anthropogenic pollution of water bodies leads to profound changes in hydroecosystems, resulting in alterations to the structure of aquatic biocenoses and the gradual disappearance of oxyphilic hydrobiont species. A decline in species diversity within aquatic ecosystems, along with noticeable shifts in population characteristics, has become increasingly evident. These processes pose a serious threat to the stability of natural ecological balance.

Within this context, the Khojaipok river represents one of the most important hydrological features of the Surxondaryo basin. It is the second largest right-bank tributary of the Surkhandarya river. The river originates from the Khojabozbarak Mountains at an elevation of approximately 3,500 m above sea level. Its total length is 97 km, and the catchment area covers about 765 km². The main tributaries of the Khojaipok river are the Shotru t and Choldara streams. The river's hydrological regime is mainly determined by snowmelt (66%), while rainfall contributes 15% and groundwater sources account for 19% of its total water supply. Additionally, the river receives mineral-rich sulfurous water emerging from the Khojaipok cave, which further influences its hydro chemical characteristics. Between the Khojaipok cave and the village of Qorliq, the river valley widens considerably, ranging from 150 m to nearly 1,000 m. From the territory of Qorliq



village onward, irrigation canals such as Yangiariq and Ovchi branch off from the river. After passing through this settlement, the river becomes known as Tentaksoy (currently referred to as Altinsoy). The discharge of the Khojaipok river varies significantly throughout the year, ranging from 1.82 m³/s to 22.7 m³/s [2]. Considering these characteristics, study of leech species composition as representative hydrobiont organisms in Southern Uzbekistan, particularly within river systems such as the Khojaipok, is of special importance. Investigating their population structure and ecological traits provides reliable information for assessing the ecological condition of regional water bodies, as leeches function as effective bioindicator organisms [3, 5].

Materials and Methods

Research materials were collected during 2024-2025 from various biotopes of the Khojaipok river. Sampling was carried out using the “Kick Net” method [4], manual collection, and specialized grasping tools. In addition to leeches, associated aquatic organisms including gastropods, fish, amphibians, and insect larvae were simultaneously collected from the same habitats. The locations of the study sites and the collected specimens were photographed by the author (S. Usmonov). For microscopic examination, several leech specimens were first anesthetized in a 10% ethanol solution and subsequently preserved in 70% ethanol [6]. Body size measurements of leeches were performed using a Vernier caliper. Morphological and physiological characteristics were examined under a biological research microscope (model: XPS-500Ye) using a glycerin solution. Microphotographs of laboratory specimens were taken with a Bresser Science ETD-201 stereomicroscope equipped with a Bresser MicroCam SP 5.0 digital camera. Water quality parameters were assessed using a pH meter (model: MARK 901) and an oximeter (model: MARK 301) to measure hydrogen ion concentration and dissolved oxygen levels, respectively.



Figure 1. Research on the Khojaipok river

Results and discussion

As a result of the study, leech species belonging to the order *Hirudinida* were recorded for the first time from the Khojaipok river. In total, 3 families, 4 suborders, and 4 species were



identified. Their systematic composition is presented below:

Phylum: *Annelida* Lamarck, 1809

Class: *Clitellata* Michaelsen, 1919

Subclass: *Hirudinea* Lamarck, 1818

Order: *Hirudinida* Siddall et al., 2001

Suborder: *Glossiphoniiformes* Tessler and de Carle, 2018

Family: *Glossiphoniidae* Vaillant, 1890

Genus: *Alboglossiphonia* Lukin, 1976

1. *Alboglossiphonia weberi* (Müller, 1774)

Genus: *Helobdella* Blanchard, 1896

2. *Helobdella stagnalis* (Linnaeus, 1758)

Suborder: *Hirudiniformes* Caballero, 1952

Family: *Praobdellidae* Sawyer, 1986

Genus: *Limnatis* Moquin-Tandon, 1826

3. *Limnatis paluda* (Tennent, 1859)

Suborder: *Erpobdelliformes* Sawyer, 1986

Family: *Erpobdellidae* Blanchard, 1894

Genus: *Erpobdella* Blainville, 1818

4. *Erpobdella octoculata* (Linnaeus, 1758)

The internal and external morphology, ecological characteristics, biodiversity indices, and ecological groupings of the identified leech species were analyzed in relation to their distribution along the river.

Conclusion

This study presents the first data on the leech fauna of the Khojaipok river. Four species belonging to three families and four suborders of the order *Hirudinida* were identified. The results indicate that the river provides suitable ecological conditions for diverse leech assemblages. The observed morphological and ecological characteristics confirm the sensitivity of leeches to environmental changes, supporting their value as effective bioindicator organisms. These findings provide a baseline for future ecological monitoring and biodiversity conservation in the Khojaipok river basin.

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