BIOECOLOGICAL CHARACTERISTICS OF LEECHES

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Abstract. *Leeches, parasitic on fish, are mainly organisms that pose a threat to fish health and disrupt their vital activity. Leeches typically inhabit the skin, internal organs, or skeletal system of fish, feeding the fish, and in some cases leading to their death. In this article, we provide an overview of leeches parasitizing fish, their biology, effects, and dangers to fish.*

Key words: *internal organs, skeletal system, fish, organisms, parasitic.*

БИОЭКОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА ПИЯВОК

Аннотация. *Пиявки, паразитирующие на рыбах, в основном являются организмами, представляющими угрозу здоровью рыб и нарушающими их жизнедеятельность. Пиявки обычно обитают на коже, внутренних органах или скелетной системе рыб, питая рыб, а в некоторых случаях приводя к их гибели. В этой статье мы приводим обзор пиявок, паразитирующих на рыбах, их биологии, воздействии и опасности для рыб.*

Ключевые слова: *внутренние органы, скелетная система, рыба, организмы, паразитический.*

ENTRANCE

The ringworm type includes about 9000 species. Most flatworms live freely in seas, freshwater bodies, or soil. Rare species are adapted to parasitic life. The leech (Hirudinea) class, belonging to the annelid type, is important in nature as an ectoparasite.

Leeches mainly include animals that feed on the blood of invertebrates or vertebrates.

There are about 400 species of leeches on Earth. In terms of the general type of structure, leeches are in many ways similar to other flatworms.

LITERATURE ANALYSIS AND METHODOLOGY

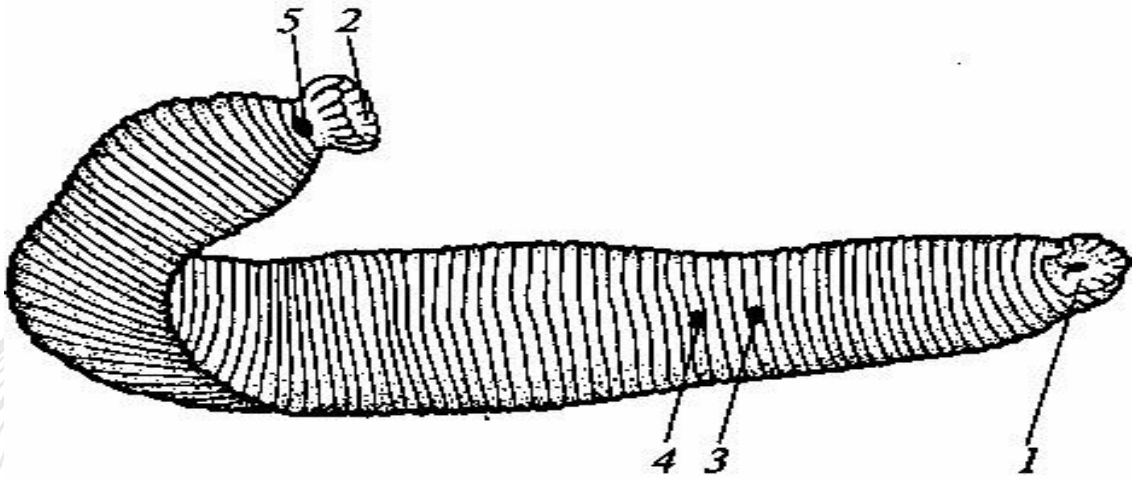
V.A. Dogel was the first to study fish parasites and developed parasitological methods in 1933. Later, his students A.P. Markevich in 1951 and I.E. Bikhovsky-Pavlovsky in 1952 developed parasitological methods. In Uzbekistan, ichthyoparasitological studies were first conducted by V.L. Yakimov in 1917, 1923, with the study of parasites of Amu Darya fish. V.L. Yakimov discovered the blood-sucking parasite “Cryptobia ninae kohliyakimovi” (in blood plasma) and “Haemogragarina turkestanica” (in erythrocytes). In 1934, V.A.Dogel and

I.E.Bikhovsky identified parasitic species Ichthyopthirius multifiliis, Diplozoon paradoxum, Diplostomum spathaceum, Posthodiplostomum cuticola, Rhipidocotyle illense, Ergasilus sieboldi in the Amu Darya delta.

In 1952, S.O.Osmanov identified 15 species of parasites in fish, 8 of which were first discovered in the Amu Darya River. Later, in 1954, 1960, S.O.Osmanov reported the presence of 73 species of parasitic helminths in 18 fish species (780 fish specimens were examined) in the Amu Darya delta. Of these, 52 species of parasites were found in the Amu Darya for the first time. In the materials collected by S.O.Osmanov in 1964 and 1965 from the Amu Darya and Zarafshan rivers, the first species of nematodes (Procamallanus siluri, Rhabdochona varicorhini), monogenetic suckers (Dactylogyrus pseudominor, D.neoparvus, D.narimani, Gyrodactylus pusanovi), and trematodes (Asymphylodora kafirnighani) were discovered. In 1956, U.D. Jalilov and N.G. Gavrilov identified a new species - Diplozoom tadzhikistanicum.

Leeches crawl with their suckers; some species swim with their bodies bent into a snake-like shape. Other characteristics that allow them to be classified as a special class are associated with the semi-parasitic lifestyle of most leeches.

Despite the low species diversity, leeches are widespread. They live not only in the fresh waters of all continents. On all land, except Antarctica, there are also seas and oceans: from the Arctic and Antarctic to the tropical seas. In humid tropical conditions, terrestrial leeches are found in forests and meadows. The flattened body of leeches from the shoulder-abdominal side can reach from 5 to 5. Length 250 mm. The body shape is worm-shaped or leaf-shaped.



1 - oral nipple; 2 - posterior nipple; 3 - male genital opening; 4 - female genital opening; 5 - anal opening.

The leeches are segmented, but the number of segments or somites in the body corresponds to the number of outer rings. One true somite usually has 3-5 outer rings. Somites, in turn, combine into 6 areas of the body.

1) anterior sucker area (head area) - head lobe and five somites (I-V);

2) pre-clitelline regions - three somites (VI-VIII);

3) belt (clitellar) zone - three somites (IX-XI);

4) stomach area - six somites (XII-XVII);

5) digestive tract - nine somites (XVIII-XVI);

6) in hairy leeches, the posterior sucker area consists of 4 somites (XXVII-XXX), in all others - 7 somites (XXVII-XXXIII).

By the general type of structure, leeches are similar to other rings in many respects, but they do not have hairs, and therefore they are divided into a special class. The absence of hairs in them is also associated with a different mode of movement, and a number of other features distinguishing them from polychetes and oligochetes are associated with the fact that most leeches attach to the bodies of other animals, sucking their blood, and lead a semi-parasitic lifestyle. The most noticeable feature of leeches is the suckers at both ends of the body; the mouth is located in the middle of the anterior sucker, while the posterior one serves only for attachment.

Leeches inhabit ponds, swamps, riverbanks, and old places with sticky silt at the bottom.

In natural conditions, the famous medical leech is found only in our southern regions: in Ukraine, the Caucasus, and Central Asia.

Its mouth is armed with three very strong toothed plates - "jaws," with which an adult leech can pierce the skin of large animals and humans and suck blood, therefore medical leeches have been used since ancient times to suck blood in the treatment of certain diseases (especially in cases of cerebral hemorrhage, blood vessel obstruction, myocardial infarction).

In the central and northern regions of our country, medical leeches are not found, but similar and similarly large pseudo-horse leeches are common, whose jaws cannot pierce the skin of large animals and attack various small aquatic animals: worms, snails, insect larvae, as well as fish. We also have smaller species of leeches, such as the reddish or yellow-gray nephelid. You can easily take these leeches with you to the jar for observation. The jar should be covered with glass or bandaged with gauze or paper, otherwise the leeches may slip out.

Large leeches can be fed by earthworms, while nephelytes can be fed by small worms, larvae, and even pieces of white bread.

Observing a living leech in a jar of water, one can see its "stepping" movements, in which it first stretches forward, then clings to the underwater object with its anterior sucker, then releases the posterior sucker, carrying it to the anterior end of its body.

Due to well-developed muscles, the leech can swim slowly, performing wave-like movements throughout its body: in addition to longitudinal and circular muscles, leeches also

have oblique muscles and muscles extending from the back towards the abdomen (when these muscles contract, the leech's body becomes flat, which makes swimming more comfortable).

However, despite the strong development of the leech muscles and its vigorous movement, it moves very slowly. This is especially noticeable when compared to a fish or at least a swimming beetle, whose muscles are connected to rigid and mobile skeletal parts - the fish's spine and the swimming beetle's outer chitinous covering.

In an aquarium, and sometimes in natural conditions, one can observe a small pseudo-horse leech (in nepheline or octopus) clinging to something underwater and moving in a wave-like motion.

Their significance lies in the fact that, thanks to movements, the water does not freeze on the surface of the nephellite's body, the fresh stream of water carries oxygen necessary for respiration.

The diverse movements of leeches are possible thanks to the well-developed muscles. In leeches, under the epithelium, in addition to longitudinal ring leeches, there are muscles, diagonal muscles, and posterior muscles, which extend into the abdominal cavity and longitudinal muscles. When they contract, the leech's body becomes flat, which is convenient for it.

The circulatory system of leeches undergoes varying degrees of reduction.

Only hairsongs have a true circulatory system. (Acanthobdellida) and proboscis (Rhynchobdellida) leeches, which have dorsal, ventral, and lateral blood vessels.

Due to their nutritional characteristics, leeches have a unique appearance.

In fish leeches (family. Piscicolidae), the last pair of stomach appendages, called "blind pouches," can be completely single.

Leeches, parasitic in fish, feed on their blood and attach to various parts of the body, gills, and oral mucosa.

In mass infections, fish develop injuries leading to blood loss and anemia.

In the skin of leeches, receptors for various stimuli are scattered: mechanical, temperature, chemical, and light.

Sensory organs include the "goblet-shaped organs." They are arranged in straight metameric transverse rows, in one row in each segment.

Conclusion

Leeches, parasitic in fish, pose a great danger to their health. Their impact negatively affects not only the growth of fish, but also their overall health. Chemical and mechanical treatments should be used to control leeches, and good sanitary conditions should be provided for the fish.

These methods can be effective in protecting fish from parasites.

Identifying fish parasites and taking effective measures against them is very important for the preservation of fish life and the stability of ecological systems.

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