

Species and Ecological Diversity of Nematodes Amphibian Uzbekistan

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Annotation: This article provides a list of species diversity and some environmental features of the amphibian nematode of Uzbekistan.

Keywords: amphibian, nematodofauna, transformation, Lake Frog, green toad

1. Introduction

Amphibian nematodes in Uzbekistan are a poorly studied group of helminths. Nematodes parasitizing amphibians in the body strongly affect all vital physiological processes of the animal. The study of amphibian nematodes can be used to solve many unresolved issues of general biological, physiological and environmental parasitology. However, prior to our studies, there was no special work on nematodofauna of amphibians.

2. Literature Review

Several studies have been devoted to the research of the amphibian nematode, starting from the 30s of the last century B.G. Massino [1] on the basis of materials 5 of the SGE in Bukhara, amphibians noted the nematodes *Hystrichis tricolor* larvae and *Rhabdias bufonis*.

A.A. Brain, K.M. Ryzhikov, B.E. Sudarikov [2] as a part of the 289th SGE in the territory of Turkmenistan and partially in Karakalpakstan (Muynak) studied 110 specimens. amphibian (green toad, common toad and lake frog). At the same time, the nematode *Gnathostoma hispidum* was discovered.

E.V. Vashetko, B.Kh. Siddikov [3] in Tashkent, Navoi, Jizzakh regions as well as Tashkent and Karshi examined 272 specimens. green toad. In this case, 13 species of nematodes were identified.

D.A. Azimov, E.F. Ikromov [4] studied the helminth fauna of amphibians of the Ferghana Valley. As a result, 20 species of nematodes were registered, of this number of nematodes, for the first time in Uzbekistan, 5 species of nematodes were identified: *Strongyloides spiralis*, *Aplectana multipapillosa*, *Cosmocercoides skrjabini*, *Neoxysomatium brevicaudatum*, *Thelandros tba*. The distribution and functional - biological groups of each species of nematodes in the Ferghana Valley are analyzed.

3. Material and Methodology Research

Complete helminthological autopsy of amphibians was carried out according to the traditional method (Scriabin, 1928). Amphibians were mined in various geographical areas of Uzbekistan. The article is based on data from

complete helminthological autopsies of 1435 copies. 2 types of amphibians.

In 2000-2013 We examined 847 lake frogs - *Rana ridibunda* and 588 green toads - *Bufo viridis*. A total of 15986 copies were found. nematodes. The bulk of helminths were localized in the digestive system and respiratory tract of amphibians.

In the taxonomic list for each species, the number of infected individuals (specimens) is given in front of the brackets, the percentage of invasion in percent, the limits of invasion intensity in specimen in parentheses

4. Result and Discussion

Type Nematelminthes Schneider, 1973

Order Diocetophymida (Railliet, 1916, Subord.) Yamaguti, 1961

Family Diocetophymidae (Gastellani et Chalmers, 1910, Subfam.) Railliet, 1916.

Hystrichis tricolor, larvae - in the intestines of 62 (7.31 / 1 - 5) lake frogs. Very rare species, foothill zone.

Order Rhabditida Chitwood, 1933

Family Rhabdiasidae Railliet, 1915

Rhabdias bufonis - in the lungs of 405 (68.87 / 1 - 14) green toad, 645 (76.1 / 5 - 26) lake frogs. Numerous species are found everywhere.

Rhabdias rebrovenosus - in the lungs of 79 (13.3 / 4 - 7) green toads. A very rare species, in the lowlands.

This nematode in amphibians we mark for the first time in Uzbekistan.

Family Strongyloididae Chitwood et McIntosh, 1934

Strongyloides spiralis - in the intestinal epithelium of 127 (21.5 / 4-17) green toad, 290 (34.23 / 4-37) lake frog. The usual view, on the plains and foothills.

Strongyloides sp.1 - in the intestinal epithelium of 34 (4.01 / 1 - 22) lake frogs. Little studied form. It occurs on the lowlands of the Ferghana Valley.

Strongyloides sp. 2 - in the intestinal epithelium of 52 (6.13 / 2-15) lake frogs. Little studied form. It occurs in foothill zones (Sherabad district of Surkhandarya region).

Family: Trichostrongylidae (Leiper, 1908, Subfam) Leiper, 1912

Oswaldocruzia filiformis (Goeze, 1782) - in the intestine of 87 (14.79 / 3-8) green toad. Locally common. It occurs on the lowland and foothill zones.

Oswaldocruzia biolata (Molin, 1880) Travassos, 1917 - in the intestines of 25 (4: 25 / 3-9) green toad. A small species. It occurs on the lowland and foothill zones.

Oswaldocruzia ukraineae Iwanitzky, 1928 - into the intestines of 45 (7.65 / 3 - 11) green toads. A small species. It occurs on the lowland and foothill zones.

Kathlaniidae Lane Family, 1914

Spirogonura govacus sp.n. Ikromov et Azimov, 2004 - in the intestines 98 (16.66 / 2 - 9) of green toad. Locally distributed species, foothill and mountainous areas.

Family Subulascariidae Freitas et Dobbin, 1957

Subulascaris sp. - in the intestines of 8 (0.94 / 2 - 5) lake frogs. Rare form. We have discovered on the plain zone near the rice fields of the Sirdarya region.

Family Cosmocercidae (Railliet et Henry, 1916, Subfam) Travassos, 1925

Aplectana acuminata (Schrank, 1788) - in the rectum, as well as in the small intestine of 101 (11.92 / 2 - 7) lake frogs and 126 (21.42 / 1 - 10) green toads. Common species found on lowland and foothill zones.

Aplectana multipapillosa Ivanitzky, 1940 - in the rectum of 77 (9.09 / 5 - 16) lake frogs and 103 (17.51 / 3 - 16) green toads. The usual form, found in addition to mountainous areas.

Cosmocerca commutata (Diesing, 1851) - in the rectum of 69 (8.14 / 1 - 14) lake frogs and in 244 (41.49 / 1 - 14) green toads. Widespread species, found in all vertical zones of the republic.

Cosmocerca ornata (Dujardin, 1845) - in the rectum of 42 (7.14 / 3 - 9) green toads. Locally common. It occurs on the lowlands of Uzbekistan.

Cosmocercoides skryabini (Ivanitzky, 1940) - in capsules of the subling 93 (15.81 / 3 - 32) of green toad. Locally widespread species, found on the lowland and foothill zones of Uzbekistan.

Cosmocercoides sp.- in the intestines of 15 (2.55 / 2 - 4) green toads. Locally distributed species found in foothill zones

Neoxysomatium brevicaudatum (Zeder, 1800) - in the small and rectum of 68 (11.56 / 2 - 8) green toads. The usual form, found on lowland zones.

Neoxysomatium sp.- in the intestines of 34 (5.78 / 2 - 5) green toads. Locally common. It occurs in the foothills of Uzbekistan.

Neoraillietnera praeputiale (Skrjabin, 1916) - in the rectum of 74 (12.58 / 2 - 5) green toad. The usual species, we noted on the lowland and foothill zones of the republic (Bukhara and Kashkadarya regions).

Paraplectana sp.- in the small intestine 75 (12.75 / 2 - 5) green toads. Locally widespread view. It occurs in the foothill mountain zone.

Family Oxyuridae Cobbold, 1864

Thelandros tba (Dinnik, 1930) Volgar, 1959 - in the intestines of 19 (3.23 / 1 - 14) green toads and in 87 (10.27 / 4 - 20) lake frogs. Locally common. It occurs in adyr and piedmont zones.

Thelandros sp. - in the intestines of 14 (1.65 / 2 - 4) lake frogs. A small species.

Order Spirurida Chitwood, 1933

Family Spiruridae Oerly, 1885

Spirocercia lupi (Rud. 1819), larvae - in the stomach wall of 37 (6.29 / 3 - 11) green toads and in 19 (2.24 / 1 - 16) lake

frogs. Locally common. It occurs on the lowland and foothill zones of the Republic.

Gongylonema pulchrum (Molin, 1857), larvae-in the body cavity of 17 (2.89 / 2 - 6) green toads. Locally widespread view. It occurs on the lowland and foothill zones of the Republic.

Agamospirura larvae

Agamospirura magna Sharpilo, 1963, larvae-in the mesentery of 27 (4.59 / 2 - 4) green toads. Locally common. It is found on lowland zones.

Thus, in Uzbekistan, 29 species of nematodes belonging to 3 orders, 9 families, and to one species of larva of the *Agamospirura* group were found in the studied amphibians.

According to our data, the maximum values were found for *R.bufo* 76.1% in the lake frog, 41.4% for *C. commutata* in the green toad. Indicators of invasion intensity in some cases reach a high value: 37 copies. *S.spiralis* in a lake frog, 32 specimens. *C. skryabini* in green toad, 26 copies *R. bufo* in the lake frog. A variety of nematodofauna is found in the green toad of 21 species, lake frog 12 species. Among the detected nematodes, 20 species are found in the foothill zone, 18 plains and 5 species in the mountain zone.

5. Conclusion

In general, the nematodofauna of amphibians is closely related to its lifestyle and is formed depending on the length of time the amphibian stays in the water and on the creature, biotopic confinement. The basis of the nematodofauna of amphibians in the "populations" of Uzbekistan is composed of sexually mature and larval forms of nematodes, the infection rate of which is generally low. Of interest are data on the infection of green toads in various habitats of the city of Kokand, where green toad is numerous. It turned out that the species composition of nematodes was very depleted, which did not depend on the sample size.

In our opinion, the low species diversity of green toad nematodes from populations is associated with environmental pollution. The anthropogenic transformation of biocenoses can lead to the destruction of historically developed parasitic systems. A consequence of this is a decrease in the species diversity of parasites, a decrease in the size of invasion and a simplification of the structure of the community of the latter.

Our studies have significantly expanded our understanding of the diversity of the nematodofauna of one of the systematic and ecological groups of vertebrates in Uzbekistan.

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