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Free-living freshwater nematodes in Vlasina Lake (Serbia, Pčina District, Surdulica Municipality)

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Abstract. For the first time, a short hydrofaunistic research of Vlasina Lake, was carried in Serbia, Pčina District, Surdulica Municipalityut. A total 18 free-living fresh water nematods species were found. Information on frequency of occurrence and frequency of dominance is given. The study gives first information on the free-living fresh water nematods of the Vlasina Lake. For the first time data are reported on free-living fresh water Nematoda from Serbia.

Key words: hydrofaunistic, freshwater nematodes, Serbia.

Introduction

Vlasina Lake is located in Serbia, Pčina District, Surdulica Municipality. Vlasina Lake is an artificial lake created on a former peat bog by building a dam. The Vlasina River flows into the lake. There are two islands in the lake – Duga del (78.4 decares) and Stratoria (18.2 decares) covered with forest. There are also several floating islands in the lake. When the water level rises, large pieces of peat with a thickness of about two meters are torn from the shore, which are carried by the wind and waves together with all the vegetation and animals on them. The largest floating island is called Moby Dick by the locals. The average depth of the lake is about 10.5 meters and its maximum depth reaches 34 meters. The Vlasina Lake is located at 1210 meters above sea level and is surrounded by meadows, birch, juniper, beech and pine forests. With a government decision from 2006, the area of the lake with the adjacent surrounding territories (including the territory of the municipality of Tsrna Trava, Yablanishki district north of lake) was declared a nature reserve with a total area of 12.741 hectares (Fig.1).

At the present time the representation of the nematode fauna have passed the entire biosphere and inhabit all of the known habitats, including the underground waters (Tsvetkov *et al.* 1980; Pandourski 1993, 1994a, b). The enormous quantity of the nematodes, which, according to some authors (Rees 1940), amount to several millions of specimens/m^2, determines their significance for the balance of the organic substances in the water basins.

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Material and Methods

A total of 36 zoobenthos samples were collected by dr.Stefan Stoichev in April 2018 . The samples were rinsed on sieves, mesh width 500 pm and 150 pm. To get the nematodes extended, they were heated up to 60 °C in a water basin and then fixed in 4 % formaline solution. Preparation and identification were performed by Gagarin (1981).

Fig. 1. Vlasina Lake (Photo: Stefan Stoichev).

Results and Discussion

The results are presented in Tabl. 1. *Dorylaimus stagnalis* is found in the whole reservoir. Beside the species of high pF % and high DT % values (*Monhystera stagnalis* and *Eudorylaimus carteri*), species with high presence frequency and low values of the range of dominance *Plectus cirratus* were found. The nematodes and *Cylindrolaimus communis* and *Prismatolaimus intermedius* are of low frequency, but of higher importance as dominants. The present data establish stenobiontic character of some species as well. The abundant development of these species is possible only in narrow limits of the environmental conditions. Out of this limits they cannot be found or they are quantitatively scanty. It is most probable that the more polluted stretches of the lake cause instability of the environment.

Nematodes are among the most numerous groups in the animal world. Their exact number is not determined, but Cobb (according to Paramonov 1970) suggests their number on Earth is superior to five hundred thousand species. Nematoda are an example of such a state in the evolution of a given taxonomic unit, which is designed by Severtsov (according to Paramonov 1970) with the term biological progress. It is described by the following characteristics: - Increase in the density of the species populations - Enlargement of the area - Extensive ecological flexibility and occupation of new ecological niches.

Tab. 1. Qualitative composition frequency of occurrence and a dominant analysis of the nematode species found.

Species composition	**pF %**	**DF %**	**DT %**
Dorylaimus stagnalis Dujardin, 1848	88.88	75.00	84.38
Dorylaimus sp.	2.77		
Eudorylaimus carteri (Bastian, 1865) Andrassy, 1959	69.44	33.33	47.99
Eudorylaimus sp.	2.77		
Monhystera stagnalis Bastian, 1865	86.11	47.22	54.83
Monhystera filiformis Bastian, 1865	80.55	5.55	6.89
Monhystera sp.	2.77		
Plectus cirratus Bastian, 1865	75.00	2.77	3.69
Plectus sp.	2.77		
Cylindrolaimus communis De Man, 1880	8.33	5.55	66.62
Cylindrolaimus sp.	2.77		
Tripyla glomerans Bastian, 1865	41.66	30.55	73.33
Tobrilus gracilis (Bastian, 1865)	25.00	16.66	66.64
Tobrilus sp.	2.77		
Rhabditis filiformis Bütschlii, 1873	19.44	5.55	28.54
Rabditis sp.	2.77		
Prismatolaimus intermedius (Bütschlii, 1873	5.55	2.77	49.90
Prismatolaimus sp.	2.77		

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