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Testate Amoebae Communities (Protozoa: Arcellinida and Euglyphida) in Rabisha Reservoir (Northwestern Bulgaria)

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Abstract: The species diversity, biotopic distribution, frequency and dominant structure of testate amoebae communities in Rabisha Reservoir (Northwestern Bulgaria) were studied. A total of 78 species and varieties, belonging to 19 genera were identified in the benthal and in the phytal of the reservoir. The genera *Difflugia* (32 species; 39.45% relative significance) and *Centropyxis* (12; 12.23%) were both by the highest taxonomic diversity and abundance. With low number of species but with a significant number of specimens and respectively dominant were genera *Pseudodifflugia* (4; 12.23%), *Trinema* (3; 9.47%), *Phryganella* (1; 6.71%) and *Difflugiella* (5; 5.62%). *Centropyxis aculeata, Difflugia gramen, Phryganella hemisphaerica, Trinema enchelys* and *Tr. lineare* were established the most frequent and with a high relative significance. The benthal of the reservoir is characterized by greater taxonomic diversity than the phytal (75 and 40 taxa, respectively). The results indicated that the benthal from the littoral zone (depth from 0.5 to 1.5 m) (54 taxa) and the benthal of the deep-water (8 to 12 m) (53 taxa) are by similar diversity but, with respect to the structure of testate amoebae communities, they differ significantly. Only two species were constant in all biotopes – *Difflugia gramen* and *Trinema enchelys*. The dominant species both in the three biotopes were not established.

Key words: Protozoa, Testate amoebae, Rabisha Reservoir, distribution, frequency of occurrence, dominance frequency

Introduction

Testate amoebae are widespread and common inhabitants of freshwater lakes. In them they occur in many types of biotopes. Testaceans are abundant and frequent component of the benthos which inhabite various types of sediment. They are well presented in the hydrophyte, hygrophyte and submerged vegetation. Although testate amoebae are not typically planktonic, they can be established in plankton samples and their occurrence should not be considered accidental (Schönborn 1962, Moraczewski 1967, Laminger 1971, Bereczky 1973, Grospietsch 1975, Balik, Song 2000, Patterson, Kumar 2000, Roe, Patterson 2006, Escobar *et al.* 2008, Lansac-Tôha *et al.* 2008, Lorencova 2009).

In the second half of last century, many lakes in Bulgaria were converted into reservoirs with a purpose to use their waters for irrigation, drinking necessities or to provide electric power. At present, in various parts of the country were built over 2000 small and large reservoirs.

Until now there are several investigations about testate amoebae in reservoirs. In the watercatchment area and littoral of Beli Iskar Reservoir (Southwestern Bulgaria) Golemansky, Todorov (1993) established 78 taxa and analysed the species diversity in studied areas. Davidova *et al*. (2008) investigated the distribution and ecology of testate amoebae in Ticha Reservoir (Northeastern Bulgaria) and reported of finding a total of 104 species and varieties. In different biotopes of Batak Reservoir (Southern Bulgaria) Todorov *et al*. (2008) established 93 taxa of testate amoebae and studied the frequency of occurrence and

dominant structure of the testacean communities. The results of the research showed that testacean fauna of the reservoirs is comparatively rich and varied.

The aim of the present work is to enlarge our knowledge of the testacean communities in reservoirs. The study is focused on research of the diversity, biotopic distribution and ecology of testate amoebae in the Rabisha Reservoir.

Studied Area

Rabisha Reservoir was built as a part of the irrigation system 'Rabisha' at the place of the Lake Rabisha in 1963. It is located at 43º44'18" N latitude and 22º35'9" E longitude, at the western end of northern parts of Stara Planina Mountain, north of Rabisha hill, at 278 m a. s. l. The shore on the hill side is rocky, but on the other sides is grassy. Lake Rabisha had tectonic origin. It was a completely closed water basin – without natural surface inflows or outflows. Now the reservoir increases its water from rainfall and from the rivers Vitbol and Archar through artificial channels. The reservoir is with top area about 3250 dka and full volume 45 x 10^6 m^3. The maximal depth is 12 m. The bottom is sand, gravel, stones and mud. In the littoral zone it is overgrown with submerged vegetation – *Potamogeton sp., Myriophyllum* sp., etc. The water is alkaline – pH between 8.2 and 9.0, and hardness is 17.96º dH. Its temperature is from 0º C (in winter) to 32º C (in summer). The reservoir freezes in winter (Varbanov 2002, Penin 2007).

Material and Methods

The samples examined in the present study were collected in August 2007. The locations of the sampling sites are given in Fig. 1. The materials were grouped into the following biotopes:

1. Benthal – 1a. Benthic samples from the littoral zone of the reservoir at a depth from 0.5 to 1.5 m – 6 samples, N 1-6;

1b. Benthic samples from the deep-water at a depth from 8 to 12 m – 6 samples, N 7-12; Eckmann's grab was used for the collection of the benthic samples from the deep-water.

2. Phytal – samples of submerged vegetation (*Potamogeton* sp., *Myriophyllum* sp.) – 6 samples, N 13-18;

A half of each sample was fixed with 4% formaldehyde and was studied in a laboratory immediately after the collection. Another half was kept alive for *in vivo* investigation. The species were identified with light microscope Amplival using bright field, at 400x magnification.

The frequency of occurrence of particular species was calculated using the formula: **pF** = m/n x 100, where m is the number of samples in which one species was found and n is the total number of samples. Different species, depending on pF index, were divided into 3 categories as follows: constant – found in more than 50% of the samples; incidental – found in 25-50%; accidental – found in less than 25%.

The dominance was established on the basis of the relative significance of each species n_i/N x 100, where n_i is the number of individuals of each species and N – the total number of all individuals. All species were divided into 4 groups: subrecedent – with relative significance < 1%; recedent – with relative significance 1-2%; subdominant – with relative significance 2-5%; dominant – with relative significance > 5%.

The dominance frequency was calculated by the formula: **DF**=d/n x 100, where d is the number of samples in which one species dominates and n is the total number of samples.

The similarity between the testacean fauna of Rabisha Reservoir and the other reservoirs in Bulgaria was calculated by the Jaccard's similarity factor (k):

k = C / A+B-C x 100, where A is the number of species (genera) in the studied reservoir; B – the number of found species (genera) in the compared basin; C – the number of the common species.

Results

A total of 1014 testate amoebae specimens, belonging to 78 taxa (including species and varieties) and 19 genera were counted in Rabisha Reservoir. All the found taxa are reported for first time for the investigated reservoir. The list of observed species and varieties, their dominance frequency and frequency of occurrence in the studied biotopes are presented in Table 1. The number of taxa and the relative sig-

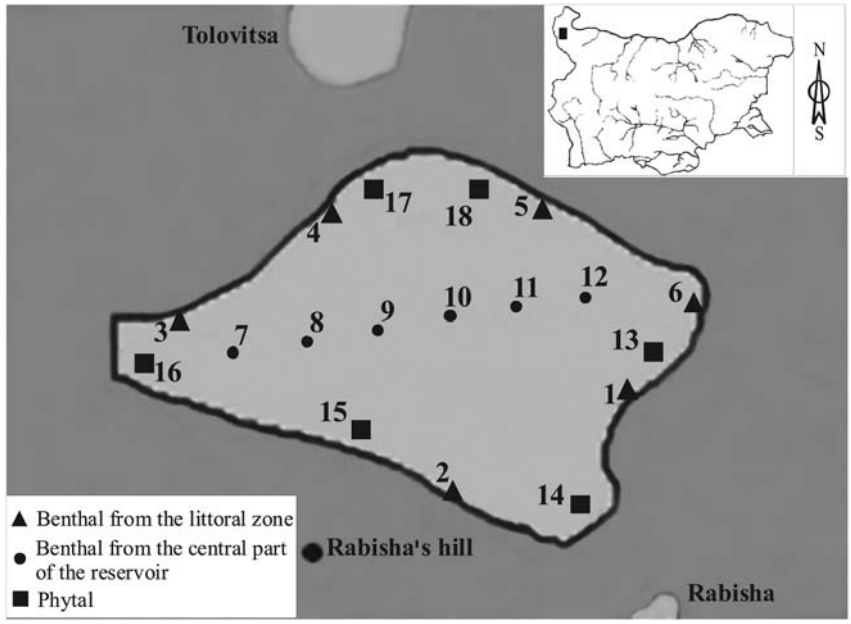


Fig. 1. Location of the sampling sites.

nificance of the genera, established in different biotopes are given in Fig. 2 and 3.

The genera *Difflugia* (32 species; 39.45% relative significance) and *Centropyxis* (12; 12.23%) are characterized by the highest species diversity and abundance. They include 56% of the species and 51.65% of the individuals, established in the reservoir. With relatively lower number of species, but with a significant number of individuals and respectively dominant are genera *Pseudodifflugia* (4; 12.23%), *Trinema* (3; 9.47%), *Phryganella* (1; 6.71%) and *Difflugiella* (5; 5.62%). The genus *Euglypha* is established by 4 species but they are found in single specimens, and therefore the genus belongs to the subrecedent (0.89%). The remaining 12 genera are presented with 1-3 species and low relative significance, and belong to the subdominant (3 genera), recedent (4) and subrecedent (5).

Twenty two or 28.21% of the total established in the reservoir 78 species were found in all biotopes, as 6 of them were both the most frequently occurring and also had the greatest population density. These are: *Centropyxis aculeata*, *Difflugia gramen*, *Phryganella hemisphaerica*, *Trinema enchelys*, *Tr. lineare* and *Psammonobiotus linearis.* Almost as many – 18 or 23.08% are species which were established in only one of all investigated samples, with a very low abundance, sometimes single specimens.

The benthal from the littoral zone and the benthal of the deep-water are characterized by similar taxonomic diversity. In the benthal from the littoral zone were established 54 species, belonging to 17 genera, and in the benthal of the deep-water – 53 species and 17 genera.

In the benthal from the littoral zone with the highest number of species and individuals are characterized the genera *Difflugia* (23 species; 30.17% relative significance) and *Centropyxis* (11; 25.62%). The genera *Trinema* (2; 11.16%) *Plagiopyxis* (1; 7.02%) and *Corythionella* (1; 5.79%), although they were presented with 1 or 2 species, are also dominant. The comparatively high relative importance of the genera *Plagiopyxis* and *Corythionella* is mainly due to the occurrence of the taxa respectively *Plagiopyxis declivis* and *Corythionella georgiana*. These species were present in half of the studied samples but always with a large number of individuals. *Corythionella georgiana* and the species *Centropyxis aculeata*, *Difflugia bryophila*, *Trinema enchelys* had dominance frequency equal to or greater than 50% (Table 1). These 4 species comprise 33.06% of individuals found in this biotope. The dominance frequency of each of the other taxa was lower – between 16.7 and 33.3%.

Ten (18.52%) of the all 54 found species had an occurrence of more than 50% and appeared to be

Table 1. List of taxa, their dominance frequency (DF) and frequency of occurrence (pF) in the studied biotopes of Rabisha Reservoir.
The species marked with an asterisk is new to the Bulgarian protozoan fauna.

Taxa	Biotopes					
	Benthal (1a)		Benthal (1b)		Phytal	
	DF	pF	DF	pF	DF	pF
Arcella discoides Ehrenberg, 1843	-	-	0.0	33.3	-	-
A. discoides v. sccutelliformis Playfair, 1917	-	-	-	-	0.0	16.7
A. hemisphaerica Perty, 1852	0.0	16.7	0.0	33.3	0.0	16.7
Centropyxis aculeata (Ehrenberg, 1830) Stein, 1857	83.3	83.3	0.0	33.3	83.3	83.3
C. aerophila Deflandre, 1929	0.0	33.3	-	-	0.0	50.0
C. aerophila v. sphagnicola Deflandre, 1929	16.7	33.3	0.0	66.7	0.0	16.7
C. cassis (Wallich, 1864) Deflandre, 1929	0.0	33.3	0.0	16.7	-	-
C. constricta (Ehrenberg, 1841) Deflandre, 1929	0.0	33.3	-	-	-	-
C. deflandriana Bonnet, 1959	0.0	16.7	-	-	-	-
C. ecornis (Ehrenberg, 1841) Leidy, 1879	0.0	50.0	0.0	16.7	16.7	50.0
C. globulosa Bonnet &Thomas, 1955	-	-	0.0	16.7	-	-
C. hirsuta Deflandre, 1929	0.0	16.7	-	-	0.0	16.7
C. marsupiformis (Wallich, 1864) Deflandre, 1929	16.7	50.0	-	-	0.0	33.3
C. orbicularis Deflandre, 1929	0.0	16.7	-	-	-	-
C. platystoma (Penard, 1890) Deflandre, 1929	33.3	33.3	-	-	-	-
Corythionella georgiana Nicholls, 2005	50.0	50.0	0.0	16.7	-	-
Cyclopyxis eurystoma Deflandre, 1929	16.7	33.3	33.3	83.3	0.0	16.7
C. kahli Deflandre, 1929	0.0	16.7	-	-	-	-
Cyphoderia ampulla (Ehrenberg, 1841)Leidy, 1870	-	-	0.0	16.7	-	-
C. laevis Penard, 1902	16.7	33.3	0.0	16.7	16.7	16.7
Difflugia acuminata Ehrenberg, 1838	-	-	0.0	66.7	-	-
D. ampullula Playfair, 1918	0.0	16.7	0.0	16.7	-	-
D. avellana Penard, 1890	16.7	33.3	-	-	-	-
**D. baculosa* Schönborn, 1966	-	-	0.0	16.7	-	-
D. bicornis Penard, 1890	0.0	33.3	-	-	-	-
D. brevicolla Cash, 1909	0.0	16.7	0.0	16.7	-	-
D. bryophila (Penard, 1902) Jung, 1942	50.0	66.7	16.7	83.3	0.0	16.7
D. curvicaulis Penard, 1899	0.0	33.3	-	-	-	-
D. curvicaulis v. inflata Decloitre, 1951	-	-	-	-	0.0	16.7
D. decloitrei Godeanu, 1972	0.0	16.7	0.0	16.7	-	-
D. distenda Ogden, 1983	16.7	16.7	-	-	16.7	16.7
D. dragana Ogden & Zivkovic, 1983	-	-	0.0	16.7	-	-
D. elegans Penard, 1890	16.7	50.0	-	-	16.7	16.7
D. glans Penard, 1902	-	-	0.0	16.7	-	-
D. globularis (Wallich, 1864) Leidy, 1877	0.0	16.7	0.0	66.7	0.0	16.7
D. globulosa Dujardin, 1837	0.0	33.3	0.0	16.7	-	-
D. gramen Penard, 1902	33.3	66.7	100.0	100.0	16.7	66.7
D. lacustris (Penard, 1899) Ogden, 1983	33.3	33.3	0.0	16.7	0.0	16.7
D. levanderi Playfair, 1918	0.0	16.7	16.7	66.7	16.7	16.7

Table 1. Continued.

Taxa	Biotopes					
	Benthal (1a)		Benthal (1b)		Phytal	
	DF	pF	DF	pF	DF	pF
D. lobostoma Leidy, 1879	0.0	16.7	83.3	100.0	-	-
D. lucida Penard, 1890	-	-	-	-	16.7	16.7
D. mammilaris Penard, 1893	0.0	16.7	-	-	0.0	16.7
D. manicata Penard, 1902	-	-	16.7	100.0	-	-
D. microstoma (Thomas, 1954) Ogden, 1983	16.7	33.3	-	-	0.0	16.7
D. minuta Rampi, 1950	0.0	16.7	0.0	16.7	16.7	16.7
D. penardi Hopkinson, 1909	-	-	16.7	33.3	-	-
D. pristis Penard, 1902	16.7	16.7	83.3	100.0	0.0	16.7
D. pulex Penard, 1902	0.0	16.7	16.7	100.0	33.3	33.3
D. sarissa Li Sun Taï,1931	0.0	33.3	0.0	100.0	-	-
D. styla Ogden & Zivkovic, 1983	0.0	16.7	-	-	-	-
D. tenuis (Penard, 1890) Ogden, 1983	-	-	0.0	66.7	-	-
D. tricornis Ogden, 1983	0.0	16.7	-	-	0.0	16.7
Difflugiella angusta Schönborn, 1965	-	-	0.0	66.7	16.7	16.7
D. horrida Schönborn, 1965	-	-	16.7	66.7	33.3	33.3
D. oviformis Bonnet &Thomas, 1955	0.0	16.7	16.7	33.3	0.0	16.7
D. oviformis v. fusca (Penard, 1890) Bonnet &Thomas, 1955	-	-	0.0	33.3	-	-
D. pusilla Playfair, 1918	0.0	16.7	0.0	33.3	-	-
Euglypha acanthophora (Ehrenberg,1841) Perty,1849	-	-	0.0	16.7	0.0	16.7
E. aspera Penard, 1899	-	-	0.0	16.7	-	-
E. rotunda Wailes, Penard, 1911	0.0	33.3	-	-	16.7	16.7
E. tuberculata Dujardin, 1841	-	-	0.0	33.3	0.0	16.7
Lesquereusia modesta Rhumbler, 1895	0.0	33.3	-	-	-	-
Microchlamys patella (Clap., Lachm., 1885) Cockerell, 1911	0.0	16.7	0.0	33.3	16.7	33.3
Pareuglypha reticulata Penard, 1902	0.0	16.7	16.7	33.3	-	-
Phryganella hemisphaerica Penard, 1902	16.7	33.3	16.7	100.0	83.3	100.0
Plagiopyxis declivis Thomas, 1955	33.3	50.0	0.0	16.7	33.3	66.7
Pontigulasia elisa Penard, 1893	0.0	33.3	-	-	-	-
P. rhumbleri Hopkinson, 1919	16.7	33.3	-	-	16.7	33.3
Psammonobiotus linearis Golemansky, 1970	0.0	33.3	0.0	66.7	50.0	50.0
Pseudodifflugia compressa Schulze, 1874	-	-	0.0	16.7	-	-
P. fascicularis Penard, 1902	-	-	0.0	33.3	-	-
P. fulva Archer, 1870	-	-	0.0	33.3	-	-
P. gracilis Schlumberger, 1845	16.7	16.7	0.0	83.3	33.3	50.0
Schoenbornia viscicula Schönborn, 1964	-	-	0.0	33.3	33.3	33.3
Tracheleuglypha acolla Bonn. & Thomas, 1955	-	-	0.0	16.7	-	-
Trinema complanatum Penard, 1890	-	-	0.0	16.7	-	-
T. enchelys (Ehrenberg, 1838) Leidy, 1878	50.0	50.0	33.3	83.3	33.3	83.3
T. lineare Penard, 1890	16.7	50.0	0.0	33.3	33.3	66.7
Total species/genera 78/19	54/17		53/17		40/15	

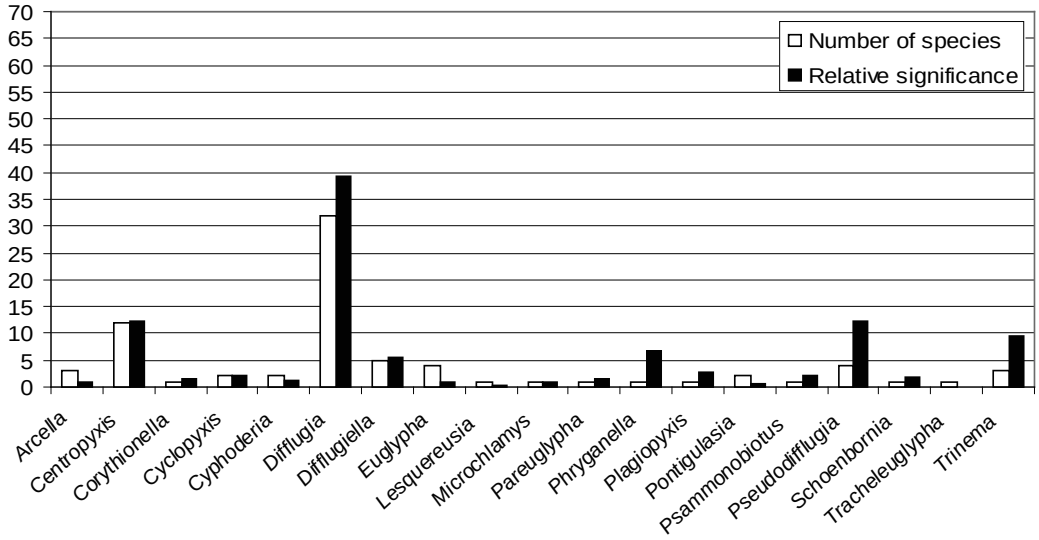


Fig. 2. Number of taxa and relative significance of the genera established in Rabisha Reservoir.

constant species – *Centropyxis aculeata* (83.3%), *Difflugia bryophila* (66.7%), *D. gramen* (66.7%), *Centropyxis ecornis* (50.0%), *C. marsupiformis* (50.0%), *Corythionella georgiana* (50.0%), *Difflugia elegans* (50.0%), *Plagiopyxis declivis* (50.0%), *Trinema enchelys* (50.0%) and *Tr. lineare* (50.0%).

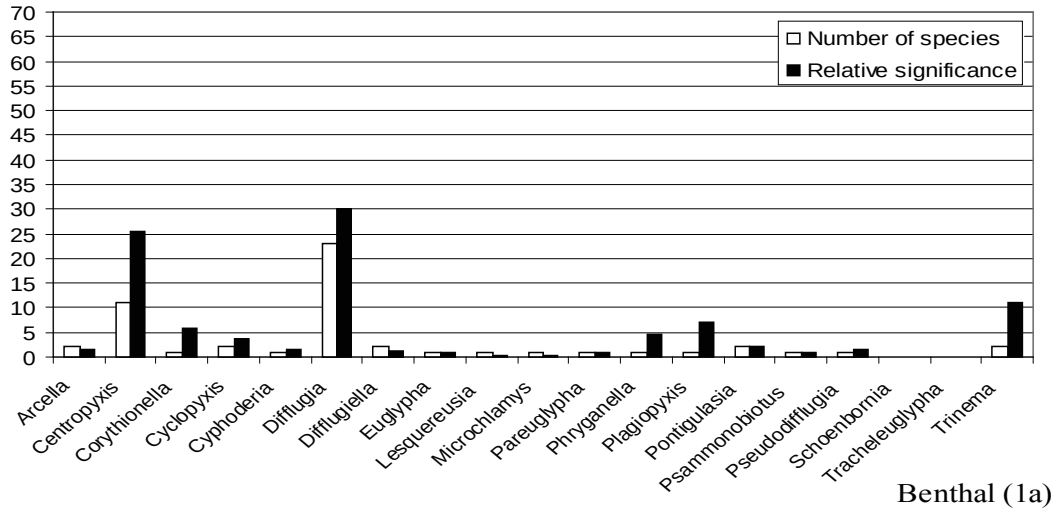
The number of species and specimens in the samples of this biotope varied significantly – respectively between 4 and 36 and between 9 and 93 (Fig. 4, 5).

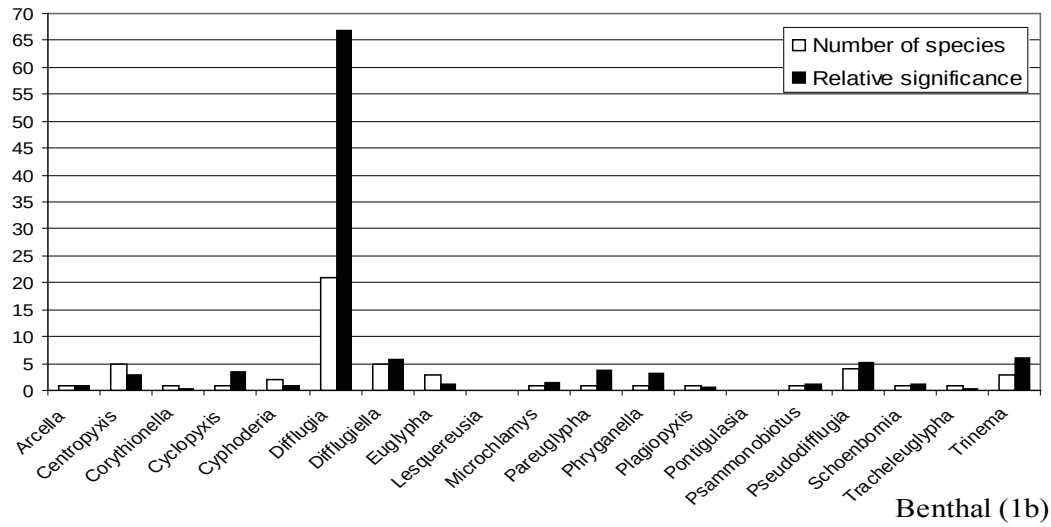
In the benthal of the deep-water the majority of species and individuals belong to one genus – *Difflugia*, established with 21 species and relative significance 66.85%. Dominant, but with significantly lower abundance are also genera *Trinema* (3; 6.08%), *Difflugiella* (5; 5.80%) and *Pseudodifflugia* (4; 5.25%). On one hand the dominant role of the genus *Difflugia* is due to the presence of many species of this genus, on the other – to the species *D. gramen*, *D. lobostoma* and *D. pristis*, which were established with a large number of individuals in all samples and have dominance frequency between 83.3% and 100% (Table 1). These three species together made up 40.33% of total count. The dominance frequency of each of the 50 other taxa was lower – between 16.7 and 33.3%. The dominant part of the others three genera – *Trinema*, *Difflugiella* and *Pseudodifflugia* is due to the presence of several species of each genus, which are evenly represented in the studied samples. Of these genera, species with high dominance frequency have not been established.

Of all 53 species found in this biotope, 19 (35.85%) are constant – *Difflugia gramen* (100%), *D. lobostoma* (100%), *D. manicata* (100%), *D. pristis* (100%), *D. pulex* (100%), *D. sarissa* (100%), *Phryganella hemisphaerica* (100%), *Cyclopyxis eurystoma* (83.3%), *Difflugia bryophila* (83.3%), *Pseudodifflugia gracilis* (83.3%), *Trinema enchelys* (83.3%), *C. aerophila v. sphagnicola* (66.7%), *Difflugia acuminata* (66.7%), *D. globularis* (66.7%), *D. levanderi* (66.7%), *D. tenuis* (66.7%), *Difflugiella angusta* (66.7%), *D. horrida*(66.7%) and *Psammonobiotus linearis* (66.7%). The analysis of the results showed that 11 or 57.9% of the constant species belong to the genus *Difflugia*.

Testate amoebae fauna of the benthal of deep-water were almost equally represented in all samples – the species richness varied between 23 and 26 and the abundance of shells varied among samples between 38 and 76 (Fig. 4, 5).

In the phytal were found 40 taxa belonging to 15 genera. The species were distributed among the genera as follows: with the greatest number of individuals were established genus *Pseudodifflugia* (24.63% relative significance). The overall dominance of the genus is entirely attributed to the presence of *Pseudodifflugia gracilis*. This species, commonly reported from aquatic habitats, was found in 3 of the six studied samples with a high abundance. Dominant simultaneously with respect to number of species and relative sig-





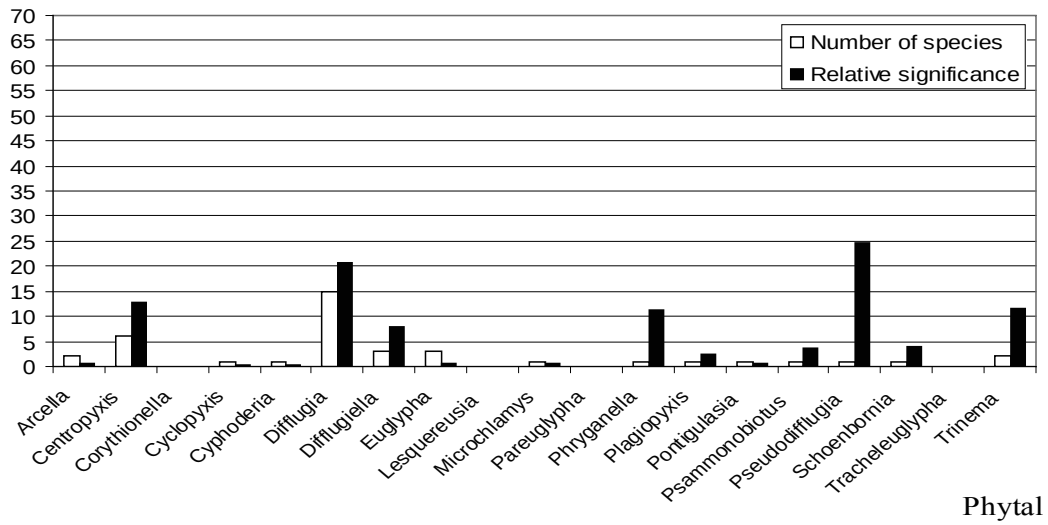


Fig. 3. Number of taxa and relative significance of the genera established in different biotopes of the reservoir.

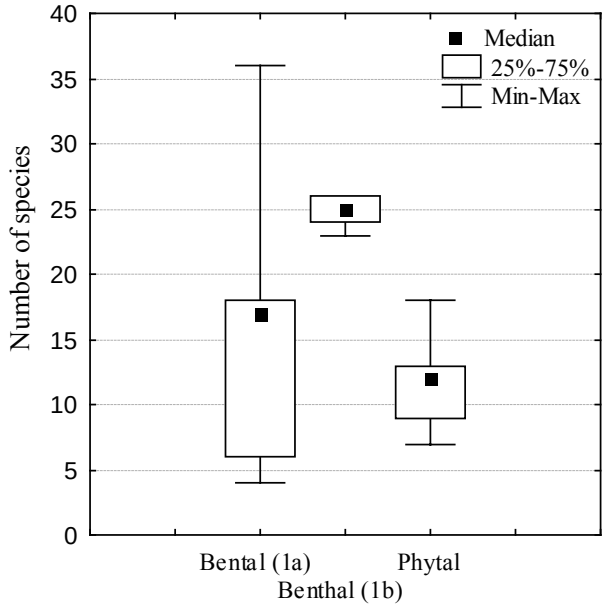


Fig. 4. Box plots comparing species richness in samples from Rabisha Reservoir. Species richness was significantly higher in samples from benthal (1b) in comparison with its from phytal (*t*-test, $p<0.01$).

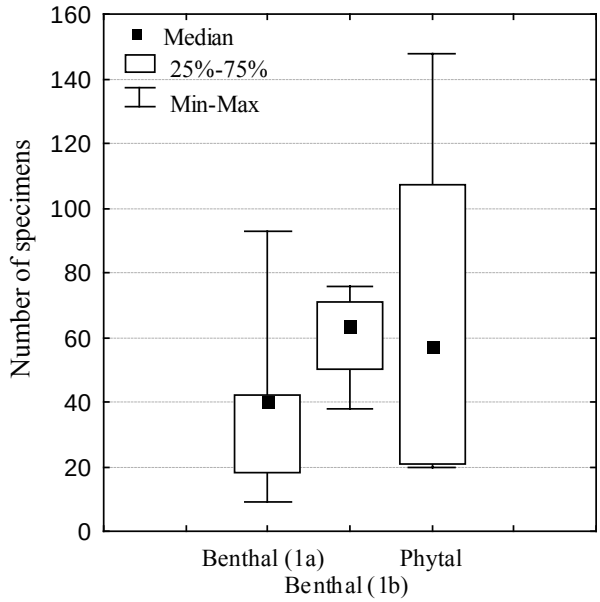


Fig. 5. Box plots comparing the number of specimens in samples from Rabisha Reservoir.

nificance are genera *Difflugia* (15 species; 20.73%) and *Centropyxis* (6; 12.68%). With small number of species but with a relatively large number of individuals are the genera *Trinema* (2; 11.46%), *Phryganella* (1; 11.22%) and *Difflugiella* (3; 8.05%). The high relative importance of the genera *Phryganella* is due to only one species – *Phryganella hemisphaerica*, which, however was established in all samples and has high dominance frequency – 83.3%. With a high dominance frequency in this biotope were and species *Centropyxis aculeata* (83.3%) and *Psammonobiotus linearis* (50%) (Table 1). These 3 species comprise about 30% of individuals found in this biotope.

According to the frequency of occurrence ten species (25%) had an occurrence of more than 50% and appeared to be constant. These are: *Phryganella hemisphaerica* (100%), *Centropyxis aculeata* (83.3%), *Trinema enchelys* (83.3%), *Difflugia gramen* (66.7%), *Plagiopyxis declivis* (66.7%), *Trinema lineare* (66.7%), *Centropyxis aerophila* (50%), *C. ecornis* (50%), *Psammonobiotus linearis* (50%) and *Pseudodifflugia gracilis* (50%).

In the phytal, the number of taxa varied among samples between 7 and 18, while the number of specimens varied at the most degree – between 21 and 148 (Fig. 4, 5).

Discussion

The analysis of the obtained results showed that the testacean fauna of the studied reservoir is presented mainly by the genera *Difflugia* and *Centropyxis*, which are dominants in terms of taxonomic diversity and the number of individuals. These two genera comprise 62.96% of the dominant and 55.56% of the constant species found in the reservoir.

The great species diversity and the considerably predominating of the representatives of the genera mentioned above, is characteristic of testacean fauna also to in many other continental basins (Moraczewski 1962, 1967, Schönborn 1962, Golemansky 1967, Bereczky 1973, Grospietsch 1975, Kulikovskaya 1983, Vikol 1992, Alekperov, Snegovaya 1999, Todorov, Golemansky 2000).

Overall, the benthal of the reservoir is characterized by greater taxonomic diversity than the phytal. Both studied biotopes of the benthal – from the littoral zone and of the deep-water show a similarity in the number of identified taxa. Regarding the structure of testate amoebae communities, however, they differ significantly. As expected, the relative significance of the genus *Difflugia* in the benthal from the littoral zone and phytal was considerably lower than its relative significance in the

benthal of the deep-water, which indicates that that genus is more restricted to the sediments of the deep zone of the lakes.

Given the above, we can say that in the benthal of deep-water is very clearly expressed the dominant part of the genus *Difflugia* – in terms of species diversity, dominance frequency and frequency of occurrence. This dominance of *Difflugia* is commonly observed by many authors in the benthal of different natural lakes in the world (Schönborn 1966, Golemansky 1968, Laminger 1971, Chardez 1985, Todorov, Golemansky 1998, 2000, Scott *et al*. 2001, Davidova 2005), and the great depths of some of the largest reservoirs in Bulgaria (Davidova *et al.* 2008, Todorov *et al.* 2008)

The opposite, the abundance of the genus *Centropyxis* in the benthal from the littoral zone and phytal was higher than in the benthal of the deep-water.

The most striking difference between composition of testate amoeba communities in biotopes is the absence or rarity of several taxa in a biotope that are very common in other. The species *Difflugia lobostoma, D. levanderi, D. globularis, D. acuminata, D. manicata, D. penardi, D. pristis, D. pulex, D. tenuis, Difflugiella angusta, D. horrida* were established with high relative significance and frequency of occurrence in the benthal of the deep-water, while in the benthal from the littoral zone they were found rarely and with single specimens. Other taxa that were frequent or dominant in the benthal from the littoral zone were also conspicuously absent or extremely rare in the benthal of the deep-water – *Centropyxis ecornis, C. marsupiformis, Plagiopyxis declivis, Difflugia elegans*.

Generally, the dominant complexes of the studied biotopes are very different. The abundance and frequency of some taxa varied considerably between studied biotopes (Table 1). Only two species had a frequency of occurrence higher than 50% and are constant in all biotopes – *Difflugia gramen* and *Trinema enchelys*. The dominant species both in the three biotopes were not established.

About 40% of species are found only in one biotope. The benthal of deep-water is characterized by the higest number of such species – 20.52% of all species were found in this biotope only. For the benthal from the littoral zone they are 15.38% and for the phytal – only 3.85%.

A comparison of the results of this study with the results of investigation of Ticha and Batak, two of the largest reservoirs in Bulgaria (Davidova *et al.* 2008, Todorov *et al.* 2008) shows that there is not a big similarity between them. The number of species and varieties encountered in Rabisha (78) is considerably lower than in others reservoirs (104 and 93). The Jaccard's similarity factor (k) had relatively low values on the species level: Rabisha – Ticha (45.6%) and Rabisha – Batak (33.6%). However, comparing the number of genera it was established that there is no significant difference between studied reservoirs (Rabisha – 19 genera, Ticha – 24 and Batak – 21). On the genus level the testacean fauna in Rabisha is similar to that from Ticha (k = 65.38%) and rather different from Batak (k = 39.39%).

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Текамебните съобщества (Protozoa: Arcellinida и Euglyphida) на язовир Рабиша (Северозападна България)

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(Резюме)

Проучени са видовото разнообразие, биотопното разпределение, честотата и доминантната структура на текамебните съобщества в язовир Рабиша (Северозападна България). В бентала и фитала на язовира са установени общо 78 вида и вариетети черупчести амеби от 19 рода. С най-голямо таксономично разнообразие и относителна значимост са родовете *Difflugia* (32 вида; 39,45% относителна значимост) и *Centropyxis* (12; 12,23%). С малък брой видове, но със значителен брой индивиди, и доминантни са и родовете *Pseudodifflugia* (4; 12,23%), *Trinema* (3; 9,47%), *Phryganella* (1; 6,71%) и *Difflugiella* (5; 5,62%). Видовете *Centropyxis aculeata, Difflugia gramen, Phryganella hemisphaerica, Trinema enchelys* и *Tr. lineare* са установени най-често и с висока относителна значимост във всички биотопи. Бенталът на язовира се характеризира с по-голямо таксономично разнообразие в сравнение с фитала (75 и 40 вида, съотв.). Получените резултати показват, че бенталът от литоралната зона на дълбочина от 0,5 до 1,5 m, където са установени 54 вида и бентала на дълбочина от 8 до 12 m с 53 вида, са със сходно разнообразие, но по отношение структурата на текамебните съобщества се различават значително. Само два вида са константни във всички биотопи – *Difflugia gramen* и *Trinema enchelys*. Нито един вид не доминира едновременно и в трите изследвани биотопа.