Species composition of metacercariae trematodes in *Bithynia troscheli* in the south of Western Siberia (Russia)[1]

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Abstract. This work presents new information on the role of the bithyniid snails "*leachi*" group as the second intermediate hosts of trematodes. *Bithynia troscheli* (Paasch, 1842) of 13 water bodies located at 54-56 parallels from the Irtysh and Ob basins were examined. 17 species of digenetic trematode metacercariae in 7 families were found, which significantly exceeds the data presented for the European water bodies of Russia. The similarity in the species composition of metacercariae trematodes associated with *B. troscheli* from the Irtysh and Ob basins was 59%.
Keywords: metacercaria, trematode, bithyniid snails, Bithyniidae, Western Siberia, Novosibirsk region, Omsk region.

Gastropods inhabiting freshwater reservoirs of the Palaearctic are recorded not only as the first intermediate, but also as the second intermediate hosts of trematodes. Publications where this information is reflected are rare. However, there is a monograph by V.E. Sudarikov et al. [10], which summarizes the data on the species composition of metacercariae trematodes in the Eastern European region of Russia. The monograph contains information about 58 metacercariae species in 28 genera (16 families) registered in molluscs. Of these, 23 species of 7 families were recorded in mollusks of the family Bithyniidae. It should be noted that the majority of species were found in *Bithynia tentaculata* (Linne, 1758). In *Bithynia leachi* (Scheppard, 1823), metacercariae of only 7 species of 5 families were recorded. According to Ya.I. Starobogatov [9] in Western Siberia *B. leachi* do not live, however, there are two species of Bithyniids of the "*leachi*" group [*Bithynia troscheli* (Paasch, 1842) and *Bithynia inflata* (Hansen, 1845)]. The bithyniid snails "*leachi*" group in water bodies of the steppe zone of the West Siberian Plain were noted as the second intermediate hosts for 11 metacercariae trematodes species [1, 6]. The purpose of this study is to analyze the species composition of metacercariae trematodes associated with prosobranch molluscs of 13 populations of *B. troscheli* from the Ob and Irtysh basins (in the Novosibirsk and Omsk regions).

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Materials and methods

The species composition of metacercariae trematodes associated with Bithyniidae family mollusks has been carried out by us from 1994 to the present [4]. This study includes part of the collections from the reservoirs of the Novosibirsk and Omsk Oblasts (south of Western Siberia). In the Ob basin, *B. troscheli* were collected both in the floodplains in the upper reaches of the Ob (**I** - below the dam of the Novosibirsk - 54°53′23″, 83°05′18″)[2], and in its tributaries of the first and second order (**II** Orda river 54°22′76″, 81°55′26″; **IV** Talmenka river 54°42′25″, 83°16′50″; **V** Karakan river 54°50′22″, 82°44′94″; **VI** Uen river 55°31′0, 83°16′0), as well as in the Berdsky bay (**III** - 54°47′04″, 83°05′43″) of Ob reservoir.

From the Irtysh basin, in the Omsk Oblast bithyniid snails found were collected in the middle reaches of the river in floodplain areas (**IX** - 55°49′00″, 74°31′00″) (**X** - 54°79′, 73°40′) (**XI** - 55°06′, 73°14′), as well as in tributaries of the Irtysh of the second order (**VII** Musikha river 55°52′16″, 80°05′18″) and Murashevskoe lake (**VIII** - 55°43′16″, 75°34′39″) in the Novosibirsk Oblast were examined. All these reservoirs are located in the forest-steppe zone of the West Siberian Plain. In addition, two lacustrine samples of bithyniid snails from the forest bog zone in the Omsk Oblast were studied: Krivoye lake (**XII** -56°25′, 74°37′), and Shatanovskoye lake (**XIII** - 56°75′, 75°15′). The definition of mollusks was carried out according to the key [9]. **608** specimens of *B. troscheli* from the Ob basin, and **657** specimens of *B. troscheli* from the Irtysh basin were examined by the compressor method.

When determining metacercariae trematodes, the diameter and thickness of the cyst were measured. The cyst was removed mechanically or dissolved in antiformin. Excysticated metacercariae were measured after fixation with acetic acid carmine [10]. Temporary preparations are cleared with glycerin. When identifying trematodes, the works of Russian and foreign authors mentioned by us earlier [5] were used.Using the Jaccard index, the similarity of the species composition of metacercariae trematodes in *B. troscheli* from the Irtysh and Ob basins was analyzed.

$$K_j = \frac{c}{(a+b)-c}$$

Where *a* — number of metacercariae trematodes species in bithyniid snails from the Ob basin
b — number of metacercariae trematodes species in bithyniid snails from the Irtysh basin,
c — number of trematode species common to bithyniid snails from the Ob and Irtysh basins

Results

[2]Samplingsite / Geographicalcoordinates (N, E)

In the present study, 17 species of digenetic trematode metacercariae in 7 families were found in *B. troscheli* from the water bodies of the Irtysh and Ob basins of the Novosibirsk and Omsk Oblasts. Here is a systematic list of the trematodes that we have discovered. For each species, a brief description of the morphological features of metacercariae and morphometric parameters, their localization in the host's body, the maximum infection intensity is given, the places of their detection are indicated, as well as information about previous registrations.

Representatives of the family **Monorchidae** Odhner, 1911 belong to the intestinal parasites of fish. Earlier, their metacercariae were found in mollusks, insects, crustaceans, and leeches [10]. Monarchid metacercariae found in mollusks in the Eastern European region belong to seven species of three genera. Prosobranch molluscs have all 7 species. Metacercariae of monarchids develop inside globular cysts with a thin fragile shell. Cysts are large, thin-walled. Localization of metacercariae in the liver and other organs of the mollusk. In a number of studies, progenitic individuals have been noted [see. review 5]. Metacercariae of two genera, which are similar in morphometric parameters, but differ in the shape and size of the excretory bladder, were found in bithyniid snails from the reservoirs of Western Siberia [3].

Representatives of the first genus ***Asymphylodora*** Looss, 1899 are characterized by a long esophagus and a small thin-walled excretory bladder. We found metacercariae of one species - ***A. tincae*** Modeer, 1790.They were registered in three populations (**II III VIII**), with a maximum infection intensityof 4 specimens. The diameter of the cysts is 0.31-0.49 mm. Earlier, metacercariae of *A. tincae* were recorded in 10 species of gastropods, both pulmonary and prosobranch, including *B. leachi* [10].

Representatives of the second genus ***Parasymphylodora*** Szidat, 1943 are characterized by a large tubular thick-walled excretory bladder. In the present study, metacercariae of two species of this genus were found. The diameter of the cysts (0.260 - 0.320 mm) and the size of the body of metacercariae (length 0.63-0.68; width 0.31-0.51 mm) of these species have no significant differences, but they differed in the ratio of the suckers, the size of the spines on the anterior part body.Thus, the spines on the anterior part of the body of the metacercariae of ***P. progenetica*** Sercowa et Bychowsky, 1940 are smaller than those on the posterior part.Metacercariae of the second species of this genus, ***P. markewitschi*** Kulakowskaja, 1947, have larger spines on the front of the body than on the back.The abdominal sucker is 1.5 times larger than the oral one in *P. progenetica*, or less than 1.5 times for *P. markewitschi*. Progenic specimens of *P. progenetica* from *B. troscheli* contained up to two hundred eggs in the uterus. We found *P. progenetica* metacercariae in two populations (**III** and **VIII**), with a maximum infection intensity of 1 specimen. The species was recorded in water bodies of both Irtysh and Ob basins, but only in the Novosibirsk region. Metacercariae of the second type were noted by us in only one

population (**III**). The maximum infection intensity was 2 specimens. Some of the material is defined only to the genus. Metacercariae ***Parasymphylodora sp.*** recorded in five populations (**II VIII XI XII** and **XIII**), with a maximum infection intensity of 12 specimens.

Metacercariae of the second family **Opecoelidae** Ozaki, 1925 were found in representatives of different types of animals (amphipods, leeches, mollusks, etc.).In contrast to the previous family, the integument of Opecoelidae family metacercariae is smooth, the abdominal sucker is 1.8-1.9 times larger than the oral one. On the territory of the Eastern European region, metacercariae of one genus *Sphaerostoma* Rudolphi, 1809 of two species were found in mollusks [10]. In the present study, metacercariae of one species, ***Sphaerostomum globiporum*** (Rudolphi 1802), were found, only in one population of *B. troscheli* (**I**). Spherical cysts with a thin fragile shell, 0.20-0.28 mm in diameter. The maximum infection intensityis 145 metacercariae. Earlier, metacercariae *S. globiporum* were found in bithyniid snails "*leachi*" group in water bodies of the steppe zone of the West Siberian Plain [1]. Quantitative data for trematodes at all stages of their life cycle are rare. The paucity of such studies is primarily due to the fact that, in addition to helminthological studies of all hosts with which the trematode life cycle is associated, it should also include quantitative information on the biology of all hosts (intermediate and final). We have traced the seasonal dynamics of the development of the trematode *S. globiporum*. Bithyniid snails collected in May were studied from May to September, which made it possible to trace the development of the trematode in a seasonal aspect. The overwintered individuals contained trematodes infection of the last year, which by the spring became sexually mature, being in the sporocyst cavity. Each sporocyst contained about four non-cystic metacercariae and/or sexually mature marites with eggs. The entire space of the sporocyst between metacercariae and marita was filled with eggs, the number of which varied from tens to several hundred. The maximum number of sporocysts in one *B. troscheli* is up to 180 specimens. The size of sporocysts is up to 3 mm. Sporocysts actively moved and moved into the water, leaving the shell of their host. They made worm-like movements, which could attract the attention of the final hosts - fish. Trematodes detected in summer (June-July) can be divided into two groups (infection of the last year, and infection of the present year). The first group of trematodes consisted of sporocysts and metacercariae overwintered in the host. The number of sporocysts (last year infection) in the mollusk decreased from June to August by 9-10 times. Each sporocyst contained up to 12 larvae (tailless cercaria, non-cysticated metacercariae and marita) and eggs. In the cavity of the mollusk, both encysted and non-encysted metacercariae were noted (ratio 1:6). The second group of trematodes (infection of the present year) was represented by smaller sporocysts (up to 1.2 mm). Their number in one mollusk reached 130 specimens. Each contained 2-3 copies short-tailed cercariae. Daughter sporocysts (1.5 mm in size) contained from 2 to 5 larvae. Their

emission, neither in June nor in July, was not recorded, but was found only in August. When bithyniid snails were kept under laboratory conditions, the emission of cercariae continued in September too. In autumn, in the infected molluscs, in addition to daughter *S. globiporum* sporocysts, maternal sporocysts were also noted. The total number of all sporocysts is up to 30 specimens in one host. At the same time, only short-tailed cercariae were found in some sporocysts, and only tailless cercaria in others (ratio 7:2).To estimate the abundance of *S. globiporum* trematodes in a particular ecosystem, it is necessary to take into account the density of infected molluscs and the abundance index of trematodes at each stage, in different months. Five-year counts of the *B. troscheli* population showed from 44±11 spec./m^2 to 211±32 spec./m^2 in different years.A quantitative assessment of *S. globiporum* trematodes revealed that in different years in May, the density of trematodes per 1 m^2 was: 137-822 sporocysts, 248-1488 maritas, 290-1740 metacercariae and 2474-14844 eggs. By August, only eggs remain of these forms, and besides this, new sporocysts with short-tailed cercaria are formed. Their number is 791-4749 eggs and 260-1560 sporocysts containing from 8580 to 51,480 cercaria.

Metacercariae of the third family **Echinostomatidae** Dietz, 1909 are widely represented in mollusks from water bodies of the European part of Russia - 22 species of 6 genera. Of these, only one species was recorded in representatives of the bithyniid snails "*leachi*" group [10]. The trematodes of this family are characterized by the presence of an adoral disc with thorns, their number and location are similar to that of the marita. Metacercariae develop inside cysts with a two-layer membrane. The inner layer is thin, homogeneous, the outer layer is hyaline, transparent, of various thicknesses. Localization of metacercariae of trematodes Echinostomatidae in the mantle of gastropods. Metacercariae trematodes of four genera [4, 5], which are presented in this work, were found in bithyniid snails of southern Western Siberia.

Echinostoma Rudolphi, 1809 - The type genus of the family of uniting intestinal infecting birds, less often mammals. Metacercariae of this genus were previously recorded in more than two dozen species of gastropods and in five species of bivalve molluscs, as well as in dragonfly larvae [10]. In the present study, two species of this genus were found. The first species is ***Echinostoma revolutum*** Frohlich, 1808, Kanev, 1985 with a cyst diameter of 0.12-0.24 mm. and a cyst thickness of 0.023-0.27 mm. The adoral disc contains 37 thorns. The maximum infection intensity is 1 specimen. We noted metacercariae of *E. revolutum* only in one population (**III**).Their occurrence in *B. troscheli* in samples from other water bodies in the south of Western Siberia can be up to 15.8% [8]. The second species of this genus, ***Echinostoma uralensis*** Skrjabin, 1915, has 39 thorns on the adoral disc. The diameter of the cysts is 0.151-0.176 mm, with a thinner cyst of 0.012-0.016 mm. Metacercariae of this species were noted by us in only one population (**VII**) with a maximum infection intensity of 12 specimens. The occurrence of

E. uralensis metacercariae in *B. troscheli* in samples from other water bodies in the south of Western Siberia was slightly less frequent - 10.5% [8] than in the previous specie. In the ecosystems of Russia, these species were previously recorded in *B. tentaculata* [10]. The mollusk *B. troscheli* was recorded for the first time in Russia as the second intermediate host of this genus.

The second genus of this family is ***Echinoparyphium*** Dietz, 1909, with a wide range of definitive hosts. Representatives of four species of this genus have been recorded in the bithyniid snails of Western Siberia [4, 5]. In the present study, some of the metacercariae were identified to species level - ***Echinoparyphium sp***., which were found in five populations of *B. troscheli* (**II VIII XI XII XIII**). The maximum infection intensity was 12 specimens. In addition, two species of this genus have been found. The first species, ***Echinoparyphium aconiatum*** Dietz, 1909, contains 37 spines on the adoral disc. The diameter of the cysts is 0.242-0.261 mm. The cyst thickness is 0.02-0.03 mm. In our collections, *E. aconiatum* metacercariae were found in 5 populations of *B. troscheli* (**III VI IX X XI**) from both basins (Irtysh and Ob). The maximum infection intensity is 18 specimens. In Western Siberia, metacercariae of *E. aconiatum* in *B. troscheli* from the basin of Chany lake were found in 81.6% of the samples [8]. In the European part of Russia, metacercariae *E. aconiatum* have been recorded in gastropods (11 species) and bivalve (3 species) molluscs, in leeches, dragonfly larvae, tadpoles, and also in the marsh turtle [10].

The second species of this genus, ***Echinoparyphium recurvatum*** Linstow, 1873, has 45 spines on the adoral disc. The diameter of the cysts was 0.132-0.163 mm. The cyst thickness is 0.02 mm. The maximum infection intensity was 29 specimens. In the present study, metacercariae of *E. recurvatum* were found in *B. troscheli* in half of the samples (**I III VII IX XI XII XIII**). The data revealed do not contradict the data obtained earlier, since the occurrence of metacercariae of this species was 44.7% of the samples of *B. troscheli* [8]. Of the five species of the genus *Echinoparyphium* found in mollusks of the Eastern European region of Russia, three were recorded in *B. tentaculata*, and representatives of the bithyniid snails "*leachi*" group were not recorded as second intermediate hosts. However, earlier metacercariae *E. aconiatum* and *E. recurvatum* were found in of the bithyniid snails "*leachi*" group in water bodies of the steppe zone of the West Siberian Plain [1].

The third small genus ***Hypoderaeum*** Dietz, 1909, unites intestinal parasites of birds (Anatidae, Charadrii and Rallidae). In the ecosystems of Russia, metacercariae of this genus were recorded in 9 species of gastropods and in 4 species of bivalve molluscs, as well as leeches and tadpoles [10]. One of the features of this genus of trematodes is that the adoral disc has many (49 or more) small and often falling spines. In the present study, metacercariae were identified

before genus. The diameter of the cysts is 0.134-0.141 mm. The cyst thickness is 0.016 mm. Metacercariae ***Hypoderaeum sp.*** were found in *B. troscheli* in two populations (**VI** and **X**). The maximum infection intensity is 3 specimens.

The largest metacercariae of this family belong to the genus ***Moliniella*** Hübner, 1939, represented by one species ***Moliniella ansceps*** Molin, 1859. They had a cyst diameter of 0.267-0.360 mm. The cyst thickness is 0.026-0.028 mm. There are 35 thorns on the adoral disc. In the present study, *M. ansceps* metacercariae were found in two populations of *B. troscheli* (**III** and **X**). The maximum infection intensityis 4 specimens. Even in areas with a high number of final hosts - birds Rallidae family, for example, in the ecosystem of Chany lake, the occurrence of *M. ansceps* metacercariae in *B. troscheli* was 10.5% [8]. In water bodies of the European part of Russia, metacercariae of this species were recorded in 6 gastropods species, including *B. tentaculata* [10].

Marits of the fourth family **Cyclocoelidae** Stossich, 1902 are localized in the trachea, bronchi, and air sacs of birds. Representatives of this family are characterized by the second variant of secondary dixenic life cycles [7]. Since the cercariae trematodes of this family do not have locomotion organs [2], they may not leave the body of the mollusk, encysting near the rectum of the host mollusk. However, there are observations that redia can leave the shell of their first intermediate host, and move to a nearby mollusc. The metacercariae of the trematodes Cyclocoelidae develop inside globular cysts, with a relatively thick two-layer membrane. The body is rolled up into a dense ball that fills the entire cavity of the cyst. There is no oral sucker on the front of the body; it is replaced by a terminal organ. The intestinal trunks merge into an arch at the posterior end of the body. Numerous large glandular cells fill almost the entire body cavity. In the present study, the species of metacercariae was not identified - ***Cyclocoelidae gen. sp.*** Metacercariae had cysts of different diameters 0.120-0.240 mm. The entire inner space of the cyst is filled with glandular cells. The intestinal trunks are thin, diverge at an obtuse angle, parallel to the lateral edges of the body, connecting to an arch at the posterior end. Metacercariae *Cyclocoelidae gen sp.* found in eight populations of *B. troscheli* (**III V VII IX X XI XII XIII**), with a maximum infection intensityof up to hundreds of specimens. Previously, metacercariae of this family were noted only in pulmonary molluscs [2, 10]. However, in our collections, they are often found in bithyniid snails from water bodies in the south of Western Siberia. For example, metacercariae *Cyclocoelidae gen. sp.* were noted in 26.3% of *B. troscheli* samples from the basin of Chany lake [8].

Marits of the fifth family **Cyathocotilidae** (Mühling, 1898) Poche, 1925 belong to the intestinal parasites of birds, less often mammals and reptiles. Trematodes of the family Cyathocotylidae at the metacercaria stage have been found in both vertebrates (amphibians, fish)

and invertebrates (mollusks, leeches) [10]. In gastropods on the territory of Russia, two metacercariae species genus Cyathocotyle Muhling 1896 were recorded, both species were found in bithyniid snails. The metacercariae of the *Cyathocotyle* trematodes develop inside globular cysts with a thick bilayer hyaline sheath. The body of the metacercaria fills the entire space of the cyst.

Metacercariae of the first species, ***Cyathocotyle bushiensis*** Khan, 1962, are located inside thick-walled spherical cysts with a double hyaline membrane. The outer shell is dark gray, the inner one is light and transparent. The cysts with a diameter of 0.297 mm had a thickness of the outer wall layer of 0.029 mm, and of the inner layer of 0.022 mm. The diameter of the cysts and the thickness of their walls increase with the age of the metacercariae. According to our data, the diameter of young cysts varied from 0.209 to 0.254 mm (mean 0.228±0.018), mature 0.279 - 0.343 mm (0.299±0.0245), wall thickness in young cysts: 0.025-0.045 mm (0.036±0.0092); in mature: 0.057-0.065 mm (0.062±0.0035). Localization: hepatopancreatic gland. The maximum infection intensity was 25 specimens. It was shown earlier that 65.8% of *B. troscheli* collections from water bodies in the south of Western Siberia contained *C. bushiensis* metacercariae [8]. The present study confirms that *C. bushiensis* metacercariae are widespread in the bithyniid snails of Western Siberia, since they were found in 10 out of 13 populations studied (except for **II III** and **VI**). Sexually mature marita *C. bushiensis* were raised by us during the experimental infection of the downy chick *Fulica atra* bred in an incubator. The survival rate of metacercariae was 10%.

The second species of this genus, ***Cyathocotyle bithyniae*** Sudarikov, 1974, had smaller cysts (diameter 0.152 - 0.174 mm), with a shell thickness of 0.019-0.025 mm. Localization of metacercariae: muscle tissue of mollusks (leg, head, mantle fold, tentacles). In the present study, this species was found in 4 populations of *B. troscheli* (**I III VI XI**). The maximum infection intensityis 51 specimens. The occurrence of *C. bithyniae* metacercariae in *B. troscheli* in the basin of Chany lake was 73.7%. [8]. The mollusk *B. troscheli* was recorded for the first time in Russia as the second intermediate host of *C. bithyniae*. The definitive host of *C. bithyniae* trematode has not been registered in nature. Previously, maritas were grown in laboratory conditions in two out of 5 domestic ducklings [1]. We did not succeed in growing *C. bithyniae* maritas during the infection of toadstool chicks and domestic ducklings.

Metacercariae of the sixth family **Strigeidae** Railliet, 1919 were registered in representatives of various classes of invertebrates, fish, amphibians and reptiles. Possess a wide range of reservoir hosts, including birds and mammals. On the territory of the European part of Russia, metacercariae of 4 genera were found in mollusks, but bithyniid snails were not indicated as hosts [10]. In bithyniid snails of Western Siberia, occurrence of this metacercariae family is very high. Thus, the prevalence of metacercariae Strigeidae in *B. inflate* was more than 14% [1],

and they were found in 28.9% of samples of *B. troscheli* in the lake Chany basin [8]. Marita ***Cotylurus cornutus*** Rudolphi, 1808, Szidat, 1929 were grown in domestic ducklings from metacercariae found in *B. inflate* [1]. In the present study, metacercariae were found in five populations of *B. troscheli* (**I VI IX X XI**) in both regions. Metacercariae are found inside pear-shaped thick-walled cysts with a hyaline sheath. The walls of the cyst grow to the body of the metacercaria and turn into a body shell with five holes (to the suction cups, pseudo suction cups and the posterior end of the body). The maximum infection intensityis 61 specimens. Localization: in the liver of mollusks and gonads, superparasitism is often noted, i.e., when the metacercariae of *C. cornutus* encyst not in the internal organs of the mollusk, but in the sporocysts or redia of trematodes parasitizing in it. It was shown that infestation with metacercariae of this species significantly reduces the individual fertility of *B. troscheli* females [8].

The seventh family **Pleurogenidae** Looss 1899 is represented by the species ***Lacithodolfusia arenula*** Creplin, 1825. The final hosts are shepherd birds. *L. arenula* metacercariae were found in bithyniid snails from water bodies of Kazakhstan, Western Russia and Western Siberia [see review 5]. As a rule, metacercariae of *L. arenula* are recorded in a huge number of host bithyniid snails filling the entire digestive gland (5000–8500 metacercariae). Cysts are round or slightly oval with a diameter of 0.102 x 0.08 mm, with a thin elastic shell of 0.01-0.03 mm. Since the development of parthenogenetic generations and metacercariae occurs in the first intermediate host, this life cycle belongs to the second variant of secondary dixenic life cycles [7]. Earlier, in order to clarify the species belonging of the trematode, we carried out an experimental infection of a one-day-old coot chick, to which a piece of the digestive gland of a mollusk with metacercariae was fed. After 9 days, 798 mature marita *L. arenula* were found in its intestines. In the present study, metacercariae of this species were found in only one population of *B. troscheli* (**VI**), with a maximum infection intensity of 10 specimens. It was previously shown that the occurrence of *L. arenula* metacercariae is not high in 2.6% of *B. troscheli* samples, even in areas with a high abundance of coots, for example, in the ecosystem of lake Chany [8].

Similarity of species composition The similarity in the species composition of metacercariae trematodes associated with *B. troscheli* in the Irtysh and Ob basins in the south of Western Siberia was 59%. In the Ob basin, the maximum similarity of the species composition of 27% was noted between the floodplains of the Ob and the Berdsky bay. The Jaccard index in the tributaries of the Ob river did not exceed 20%. The species composition of trematode metacercariae identified in *B. troscheli* in the Irtysh floodplain varied from 50 to 75%. The species composition of metacercariae trematodes from the lakes of the forest-bog zone coincided

by 100%, but differed from the species composition from the lake of the forest-steppe zone (Kj=43%).The similarity of the species composition of the metacercariae of the trematodes of the present study and similar data on the bithyniid snails "*leachi*" groups from the water bodies of the steppe zone of the West Siberian Plain [1, 6] was 47.4%. The species composition of metacercariae trematodes that we identified in *B. troscheli* in the Irtysh and Ob basins and information associated with *B. leachi* from water bodies of the European part of Russia [10] showed 20% similarity.

Thus, the study revealed that the bithyniid snails "*leachi*" groups from the water bodies of the Irtysh and Ob basins were found to have significantly more metacercariae trematodes species than in European water bodies of Russia.

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