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Original Research Paper

The Helminth Fauna Study of European Common Toad in the Volga Basin

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ABSTRACT

In this paper we considered information on the helminth fauna of the European common toad *Bufo bufo* (Linnaeus 1758) from 5 regions of the Volga basin. This study includes consolidated data of different authors over the last 30 years, supplemented by the results of our own research. There are reliably known finds of 14 species of helminths: Trematoda-8, Nematoda-6. Trematodes *Gorgodera asiatica* Pigulevsky, 1945 and *Astiotrema monticelli,* Stossich 1904, mtc, were observed for the first time in a given host on the territory of Russia and the Volga basin. Four species of nematodes make the basis of helminth fauna: *Rhabdias bufonis*, *Oswaldocruzia filiformis*, *Aplectana acuminata* and *Neoxysomatium brevicaudatum*. For each species of helminths, the following information is included: taxonomic position, localization, area of detection, biology, definitive hosts, geographic distribution, and the degree of host-specificity.

INTRODUCTION

European common toad *Bufo bufo* (Linnaeus 1758) inhabits Europe from Ireland to the Eastern Siberia and lake Baikal in the East. It is connected to the Taiga zone in which it prefers swampy dark coniferous-parvifoliate forests of northern Taiga and lowland bogs of southern Taiga part. In the forest it inhabits enclosed moist habitats overgrown with grass and bushes, ravines and damp meadows, fields, burning areas, forest edges and roadsides. In addition, it occurs in mixed and deciduous forests, river valleys with riparian and meadow vegetation. It avoids the vast open spaces; inhabits forested anthropogenic landscapes-forest cordons, parks, rural areas (Dunayev 1999, Garanin 1983, Kuzmin 1999, 2012).

Helminths fauna of the common toad in the Volga basin is studied not fully and overall mosaic. Until recently, there were known sporadical studies conducted in Vologda (Radchenko & Shabunov 2008), Kostroma (Radchenko & Budalova 1980) regions and the Republic of Bashkortostan (Bayanov 1992, Petrova & Bayanov 2000). Unfortunately, this summary does not include the data of G. Yumagulova (Yumagulova 2000), as the material has been collected by the author in the mountain forest zone of Southern Ural. According to Troitskaya & Smirnova (1975), common toad was one of the 8 species of amphibians helminthologically studied in the the Volga-Kama region (Republic of Tatarstan), but the results have never been published. On the other hand, there appeared information on helminths fauna of this amphibian species in the Republic of Mordovia (Chikhlyaev et al. 2015, Chikhlyaev et al. 2009, Lukiyanov et al. 2009) and Chuvashia (Chikhlyaev et al. 2010). Part of the data on the trematodes fauna of common toad in the Middle Volga region are presented in reports of Kirillov et al. (2012) and Chikhlyaev et al. (2012 a, b).

The aim of the study is to compile information on the helminths fauna of Europian common toad populations of the Volga basin based on our own research and literature analysis.

MATERIALS AND METHODS

Various authors between 1980 and 2015 performed the complete helminthological autopsy of 246 specimens of European common toads from 5 regions of the Volga basin: 1) Vologda and Kostroma regions (Upper Volga), 2) Republic of Mordovia, Chuvashia and Bashkortostan (Middle Volga).

To determine the helminth we used the reports of Ryzhikov et al. (1980) and Sudarikov et al. (2002). Data on helminths biology and distribution is taken from multivolume papers of K. Skryabin "Trematodes of animals and humans" (1952 Vol. 7; 1953 Vol. 8; 1970 Vol. 23), "Bases of nematodology" (1961 Vol. 10) and works of other authors. When defining helminth to the species we held to the systems developed by Skryabin et al. (1961), taking into account the opinion of Prudhoe & Bray (1982) and other

researchers. In addition, we considered the latest information on the taxonomy of trematodes (Keys to the Trematoda 2008, Olson et al. 2003, Tkach et al. 2001) and "Fauna Europaea" site data (http://www.faunaeur.org).

RESULTS AND DISCUSSION

In total, the European common toad in 5 regions of the Volga basin were reliably recorded into 14 species of helminths belonging to 11 genera, 6 families, 5 orders and 2 classes: Trematoda-8, Nematoda-6 (Table 1). Eleven species of them are widely specific, polyhostal parasites of amphibians, and 3 -specific, oligohostal for the family Ranidae. Helminth species, narrowly specific to this host were not found. For the first time in common toad of Russian fauna and the Volga basin are found 2 species of helminths: trematodes *Gorgodera asiatica* Pigulevsky, 1945 and *Astiotrema monticelli* Stossich, 1904, mtc.

Among all the found helminths, 12 species of trematodes and nematodes are parasitic only in the imago stage and use the frogs as definitive hosts. Trematode *Astiotrema monticelli* is found only on metacercaria stage, thus amphibians are supplementary (metacercaria) hosts for these helminths. And one more trematode species, *Gorgoderina vitelliloba*, combines different stages of development in the same individual or individuals of different ages, and defines the role of amphibians as amphixenic hosts.

Below is an annotated list of common toad helminths species, with their taxonomic position, localization, place of detection, biology and geographic distribution. Information about the host-specificity degree of the parasites is also provided. Additionally, for each helminth, is provided a list of definitive hosts in Russia, corrected on the basis of literature analysis (Kirillov et al. 2012, Kuzmin 1999, 2012, Kuzmin & Maslova 2005, Ryzhikov et al. 1980).

Class: Trematoda Rudolphi, 1808
Order: Fasciolida Skrjabin et Schulz, 1935
Family: Gorgoderidae Looss, 1899
Genus: *Gorgodera* Looss 1899
Gorgodera cygnoides Zeder 1800

Localization: bladder

Areas of detection: Republic of Mordovia (Chikhlyaev et al. 2015) and Chuvashia (Chikhlyaev et al. 2010).

Biology: It is a widely specific parasite of anurans. Intermediate hosts are bivalved mollusks of genera *Cyclas*, *Pisidium* and *Sphaerium*; supplementary-larvae and imagoes of dragonflies, cyclopidae *Mesocyclops leuckarti* (Pigulevsky 1952, Sudarikov et al. 2002).

Definitive hosts: *Pelophylax ridibundus* (Pallas 1771), *P. lessonae* (Camerano 1882), *Rana arvalis* Nilsson, 1842, *R. temporaria* Linnaeus, 1758, *R. macrocnemis* Boulenger, 1885, *Bombina bombina* (Linnaeus 1761), *Pelobates fuscus* (Laurenti 1768), *Bufo viridis* Laurenti 1768, *B. calamita* Laurenti 1768, *Hyla arborea* (Linnaeus 1758), *H. orientalis* Bedriaga 1890.

Distribution: Palaearctic

***Gorgodera asiatica* Pigulevsky 1945**

Localization: bladder.

Geographical distribution: Republic of Mordovia (Chikhlyaev et al. 2009, Lukiyanov et al. 2009). It is observed for the first time in common toad on the territory of Russia and the Volga basin.

Biology: It is a narrowly specific parasite of marsh frog. Known intermediate hosts are bivalved mollusks of the genus *Sphaerium*; supplementary-larvae of dragonflies and caddisflies of the genus *Limnophilus* (Sudarikov et al. 2002).

Definitive hosts: *P. ridibundus, P. nigromaculatus* (Hallowell 1861), *Rana dybowskii* Guenther 1876.

Distribution: Palaearctic.

***Gorgodera microovata* Fuhrmann 1924**

Localization: bladder.

Areas of detection: Republic of Mordovia (Chikhlyaev et al. 2015).

Biology: It is a specific parasite of anurans family Ranidae. The development cycle has not been studied. Probably, as other trematodes of the family Gorgoderidae, they use bivalved mollusks as intermediate hosts and larvae of aquatic insects-as supplementary.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus* (Linnaeus 1758), *R. arvalis*, *R. temporaria, R. asiatica* Bedriaga 1898.

Distribution: Europe.

Gorgodera varsoviensis Sinitzin 1905

Localization: bladder

Area of detection: Kostroma region (Radchenko & Budalova 1980).

Biology: It is a specific parasite of anurans family Ranidae. As an intermediate host it uses bivalved mollusks *Sphaerium corneum*; as supplementary-dragonfly larvae and imagoes of different genera and species, caddisflies *Limnophilus flavicornis* (Sudarikov et al. 2002).

Definitive hosts: *P. ridibundus, P. lessonae, P. esculentus, R. arvalis, R. temporaria.*

Distribution: Europe

Genus *Gorgoderina* Looss 1902
Gorgoderina vitelliloba (Olsson 1876)

Localization: bladder

Areas of detection: Republic of Mordovia (Chikhlyaev et al. 2009; Lukiyanov et al. 2009) and Chuvashia (Chikhlyaev et al. 2010)

Biology: It is a widely specific parasite of anurans. Intermediate hosts are bivalved mollusks *Sphaerium corneum*, *Sph. drepanaudi*, *Pisidium casertanum* and *Musculium lacustre*; supplementary-the tadpoles of frogs, larvae of alderflies *Sialis lutaria* (Pigulevsky 1953; Vojtková 1974). Typically, helminth infects adults who are prone to cannibalism, who eat tadpoles and underyearlings, infested with metacercariae (Kalabekov 1976). Amphibians function as amphixenic host of the parasite, separate stages of which use specimens of different ages as supplementary (metacercariae) and definitive hosts.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria, R. macrocnemis, B. bombina*.

Distribution: Palaearctic

Order: Plagiorchiida La Rue 1957
Family: Pleurogenidae Looss 1899
Genus: *Pleurogenes* Looss 1896
Pleurogenes claviger (Rudolphi 1819)

Localization: small intestine.

Areas of detection: Vologda region (Radchenko & Shabunov 2008), Republic of Mordovia (Chikhlyaev et al. 2015; Lukiyanov et al. 2009)

Biology: It is a widely specific parasite of amphibians. Intermediate hosts are-gastropods *Bithynia tentaculata*; supplementary-larvae of dragonflies, caddisflies, beetles of different genera and species, mayflies *Ephemera vulgata* and *Cloeon dipterum*, alderflies *Sialis lutaria*, as well as aquatic sow bug *Asellus aquaticus*, amphipods *Gammarus pulex* and *Pontogammarus robustoides* (Grabda-Kazubska 1971, Khotenovsky 1970, Sudarikov et al. 2002).

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria*, *R. macrocnemis, B. bombina*, *P. fuscus*, *B. viridis*, *H. arborea, H. orientalis, Lissotriton vulgaris* (Linnaeus 1758)*, Triturus cristatus* (Laurenti 1768).

Distribution: cosmopolite.

Genus: *Pleurogenoides* Travassos 1921
Pleurogenoides medians (Olsson 1876)

Localization: small intestine

Areas of detection: Republic of Mordovia (Chikhlyaev et al. 2009, Lukiyanov et al. 2009)

Biology: It is a widely specific parasite of anurans. Intermediate hosts are gastropods *Bithynia tentaculata*, *Lymnaea limosa*, *L. stagnalis* and *Planorbarius corneus*; supplementary-larvae of aquatic arthropods: dragonflies, caddisflies, mayflies, beetles of different genera and species, alderflies *Sialis flavilatera*, dipterans of genera *Chironomus* and *Tendipes*, as well as amphipods and water sow bug *Asellus aquaticus* (Khotenovsky 1970, Sudarikov et al. 2002).

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria*, *R. amurensis* Boulenger 1886, *B. bombina*, *P. fuscus*, *B. viridis*, *H. arborea, H. orientalis, L. vulgaris, T. cristatus*.

Distribution: Palaearctic

Inserta sedis

Genus: *Astiotrema* Looss 1900

Taxonomic note: Traditionally, parasitologists referred genus *Astiotrema* Looss 1900 to the family Plagiorchiidae Lühe 1901. Eventually Prudhoe and Bray (1982) suggested that *Astiotrema* is a collective genus. Recent studies of Tkach et al. (2001) and Olson et al. (2003) have shown that the species *Astiotrema monticelli* Stossich 1904 is not related to Plagiorchidae but it is close to family Heterophyidae (Leiper 1909) Odhner 1914. According to modern concepts genus *Astiotrema* refers to taxa of uncertain systematic position (Keys to Trematoda 2008).

Astiotrema monticelli Stossich 1904, mtc.

Localization: intestine mesentery.

Areas of detection: Republic of Mordovia (Chikhlyaev et al. 2009, Lukiyanov et al. 2009). It is observed for the first time in common toad on the territory of Russia and Volga Basin.

Biology: It is a widely specific parasite of anurans, which act as supplementary hosts of the parasite. In mature stage it parasitizes in the intestine of common water snakes and vipers (Sharpilo 1976, Shevchenko & Vergun 1960).

Definitive hosts: *P. ridibundus*, *R. arvalis*, *B. bombina*, *P. fuscus, H. arborea, H. orientalis, L. vulgaris*.

Distribution: Europe

Class: Nematoda Rudolphi 1808
Order: Rhabditida Chitwood 1933
Family: Rhabdiasidae Railliet 1915
Genus: *Rhabdias* Stiles et Hassal 1905
Rhabdias bufonis (Schrank 1788)

Localization: lungs

Area of detection: Vologda (Radchenko & Shabunov 2008), Kostroma (Radchenko & Budalova 1980) regions, Repub-

lic of Mordovia (Chikhlyaev et al. 2009, 2015, Lukiyanov et al. 2009), Chuvashia (Chikhlyaev et al. 2010) and Bashkortostan (1992 Bayanov 2000 Petrova & Bayanov).

Biology: It is a widely specific soil-transmitted parasite of anurans. It is a soil-transmitted helminth. Infection of amphibians occurs through active (percutaneous) penetration of invasive larvae from the soil, which then migrate with the lymph and blood flow to the site of localization-to the lungs (Hartwich 1975); less often through the reservoir hosts - oligochaetes and mollusks (Savinov 1963).

Definitive hosts: *P. ridibundus*, *P. lessonae*, *R. arvalis*, *R. temporaria*, *R. macrocnemis, R. amurensis, R. dybowskii, R. pirica* Matsui, 1991, *B. bombina*, *P. fuscus, B. viridis, B. verrucosissimus* (Pallas 1814), *B. eichwaldi* Litvinchuk, Borkin, Skorinov et Rosanov 2008, *B. raddei* Strauch 1876, *H. arborea, H. orientalis*.

Distribution: Holarctic

Family: Trichostrongylidae Leiper, 1912
Genus: *Oswaldocruzia* Travassos, 1917
Oswaldocruzia filiformis (Goeze 1782)
Syn: *Oswaldocruzia bialata* (Molin 1860)
Syn: *Oswaldocruzia goezei* Skrjabin et Schulz 1952

Taxonomic note: According to the priority of the first audited, the species of nematode Travassos (Travassos 1937) and, in accordance with the current opinion (Moravec & Vojtkova 1975) that we share, the species *Oswaldocruzia goezei* Skrjabin et Schulz 1952 and *Oswaldocruzia bialata* (Molin 1860) are the synonyms for *Oswaldocruzia filiformis* (Goeze 1782).

Localization: small intestine

Areas of detection: Vologda (Radchenko & Shabunov 2008), Kostroma (Radchenko & Budalova 1980), Republic of Mordovia (Chikhlyaev et al. 2009, 2015, Lukiyanov et al. 2009), Chuvashia (Chikhlyaev et al. 2010) and Bashkortostan (Bayanov 1992, Petrova & Bayanov 2000).

Biology: It is a widely specific parasite of amphibians, soil-transmitted helminth. Infection occurs through incidental contact between the host and infective larvae on land (Hendrix 1983).

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria*, *R. macrocnemis, R. amurensis*, *B. bombina*, *P. fuscus*, *Pelodytes caucasicus* Boulenger 1896, *B. viridis*, *B. verrucosissimus, B. raddei, H. arborea, H. orientalis, H. japonica* Guenther 1859, *L. vulgaris*, *Salamandra salamandra* (Linnaeus 1758).

Distribution: Palaearctic

Order: Ascaridida Skrjabin et Schulz, 1940

Family: Cosmocercidae Travassos, 1925
Genus: *Aplectana* Railliet et Henry, 1916
Aplectana acuminata (Schrank, 1788)

Localization: the intestine

Areas of detection: Vologda (Radchenko & Shabunov 2008) and Kostroma (Radchenko & Budalova 1980) regions, the Republic of Chuvashia (Chikhlyaev et al. 2010) and Bashkortostan (Petrova & Bayanov 2000).

Biology: It is a widely specific parasite of the larvae, less often-of adult amphibians. It is a soil-transmitted helminth. Infection is associated with the aquatic environment.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria, R. amurensis, B. bombina*, *P. fuscus*, *B. viridis, H. arborea, H. orientalis, T. cristatus*.

Distribution: Europe

Genus: *Cosmocerca* Diesing, 1861
Cosmocerca ornata (Dujardin, 1845)

Localization: rectum

Areas of detection: Vologda (Radchenko & Shabunov 2008) region, the Republics of Mordovia (Chikhlyaev et al. 2009, 2015, Lukiyanov et al. 2009) and Chuvashia (Chikhlyaev et al. 2010).

Biology: It is a widely specific parasite of amphibians, soil-transmitted helminth. Infection is associated with the aquatic environment.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *P. esculentus*, *R. arvalis*, *R. temporaria, R. amurensis, R. pirica, B. bombina*, *P. fuscus*, *B. viridis, B. verrucosissimus, H. arborea, H. orientalis.*

Distribution: Europe

Genus: *Neoxysomatium* Ballesteros Marquez 1945
Neoxysomatium brevicaudatum (Zeder 1800)
Syn: *Oxysomatium brevicaudatum* (Zeder 1800)

Taxonomic note: According to the K. Skryabin and colleagues (Skryabin et al. 1961), the occurrence of the gubernaculum and two equal spicules in the reproductive system of males does not allow to relate this species of nematodes to the genus *Oxysomatium* Railliet et Henry 1913 and indicates the membership of the genus *Neoxysomatium* Ballesteros Marquez 1945.

Localization: rectum

Areas of detection: Vologda (Radchenko & Shabunov 2008) region, Republics of Mordovia (Chikhlyaev et al. 2009, Lukiyanov et al. 2009), Chuvashia (Chikhlyaev et al. 2010) and Bashkortostan (Bayanov 1992, Petrova, Bayanov 2000).

Table 1: European common toad helminths in different regions of Volga basin.

Helminths species	VR	KR	RM	RCh	RB
	Class TREMATODA Rudolphi, 1808				
	Order Fasciolida Skrjabin et Schulz, 1937				
	Family Gorgoderidae Looss, 1899				
Gorgodera cygnoides (Zeder, 1800)			+	+	
Gorgodera asiatica Pigulewski, 1943			+		
Gorgodera microovata Fuhrmann, 1924			+		
Gorgodera varsoviensis Sinitzin, 1905	+				
Gorgoderina vitelliloba (Olsson, 1876)			+	+	
	Order Plagiorchiida La Rue, 1957				
	Family Pleurogenidae Looss, 1899				
Pleurogenes claviger (Rudolphi, 1819)	+		+		
Pleurogenoides medians (Olsson, 1876)			+		
	inserta sedis				
Astiotrema monticelli Stossich, 1904, mtc.			+		
	Class NEMATODA Rudolphi, 1808				
	Order Rhabditida Chitwood, 1933				
	Family Rhabdiasidae Railliet, 1915				
Rhabdias bufonis (Schrank, 1788)	+	+	+	+	+
	Family Trichostrongylidae Leiper, 1912				
Oswaldocruzia filiformis (Goeze, 1782)	+	+	+	+	+
	Order Ascaridida Skrjabin et Schulz, 1940				
	Family Cosmocercidae Travassos, 1925				
Aplectana acuminata (Schrank, 1788)	+	+		+	+
Cosmocerca ornata (Dujardin, 1845)	+		+	+	
Neoxysomatium brevicaudatum (Zeder, 1800)	+		+	+	+
Neoraillietnema praeputiale (Skrjabin, 1916)	+	+			
Species in total	6	4	11	7	4
Trematoda	2	-	7	2	-
Nematoda	4	4	4	5	4
Examined, specimens	**23**	**8**	**150**	**16**	**49**

Notes: VR-Vologda region (2008 Radchenko, Shabunov); KR-Kostroma region (1980 Radchenko, Budalova); RM-The Republic of Mordovia (2009 Lukiyanov et al. 2009, 2015 Chikhlyaev et al.); RCh-The Chuvash Republic (2010 Chikhlyaev et al.); RB-The Republic of Bashkortostan (1992 Bayanov, 2000 Petrova, Bayanov).

Biology: It is a widely specific soil-transmitted parasite of amphibians. Infection is associated with the terrestrial environment.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *R. arvalis*, *R. temporaria, R. macrocnemis, B. bombina*, *P. fuscus*, *B. viridis.*

Distribution: Holarctic

Genus: *Neoraillietnema* Ballesteros Marquez, 1945
Neoraillietnema praeputiale (Skrjabin, 1916)
Syn: *Aplectana praeputialis* (Skrjabin, 1916)

Localization: rectum

Taxonomic note: According to Skryabin at al. (1961), the absence of gubernaculum in males and the amphidelphic position of the uterus in the female's body does not allow to refer this species of nematodes to the genus *Aplectana* Railliet et Henry 1916 and indicates the membership of the genus *Neoraillietnema* Ballesteros Marquez 1945.

Areas of detection: Vologda (Radchenko & Shabunov 2008) and Kostroma (Radchenko & Budalova 1980) regions.

Biology: It is a widely specific parasite of anurans, soil-transmitted helminth.

Definitive hosts: *P. ridibundus*, *P. lessonae*, *R. arvalis*, *R. temporaria, R. macrocnemis, B. bombina*, *B. viridis, H. arborea, H. orientalis.*

Distribution: Europe

The greatest diversity of helminths species in common toads is reported in the Republic of Mordovia (11 species); smaller amount is observed in the Republic of Chuvashia (7) and the Vologda region (6); minimum-in the Kostroma region and the Republic of Bashkortostan (4 species) (Table. 1). These differences are primarily of biotopical nature, as they depend on the diversity of amphibians habitat conditions in a given biotope, each with its own, historically developed complex of abiotic (the availability of water bodies nearby, soil composition, humidity) and biotic (flora composition

and diversity of vertebrate and invertebrate hosts) factors. On the other hand it can be caused by different sampling amount.

Helminths composition of common toad varies considerably in certain regions of the Volga basin. Of the reported 14 species, only two are observed in all the samples (100% occurrence): these are nematodes *Rh. bufonis* and *O. filiformis*. Very close to them are species *A. acuminata* and *N. brevicaudatum*, they are found in 4 of 5 studied regions. Trematodes in the habitat of this host are much less common. Species *G. cygnoides*, *G. vitelliloba* and *P. claviger* are found in 2 samples only; the findings of the remaining species have narrow regional confinement (Table 1).

Helminthofauna of amphibians is closely related to their way of life and is formed according to biotopical conditions, duration of stay in the water and food range. Helminth composition of common toad in the Volga Basin is presented mostly by trematodes (8 species), which occur sporadically at low infestation range. It happens due to a short-term connection of amphibians to water bodies, breeding-fasting and eating terrestrial invertebrates, infested by trematodes in larva stage. Nematodes are somewhat inferior in number of species (6), but some of them are much more common in the habitat of the host, they are distinguished by high values of invasion indicators, and thus are usual (background) species of helminths. Should be noted that the core of common toad helminthofauna in the territory of the Volga basin make 4 species of nematodes: *Rh. bufonis, O. filiformis, A. acuminata* and *N. brevicaudatum*. This is due to amphibian's terrestrial life style in an enclosed moist habitats.

A peculiar feature of common toad helminth fauna is the minimal number of helminth species (1), parasitizing in the larval stage, for which it acts as a supplementary host. This is probably due not only to the peculiarity of its terrestrial lifestyle and food spectrum, but also because of physiological characteristics: density of the skin and the poisonous effect of cutaneous glands that can prevent the percutaneous penetration of invasive stages. Certain obstructions for the helminth larvae infestation make this amphibian species rather inconvenient intermediate host, and generally exclude it from the parasites' circulation of vertebrates of higher trophic levels: reptiles, birds and mammals.

According to Ryzhikov et al. (1980), on the territory of former Soviet Union were known two trematode species found in the common toad on mesocercariae and metacercaria stages: *Alaria alata* (Goeze 1782) Krause 1914 and *Strigea strigis* (Schrank 1788) Abildgaard, 1790. Our research thus ascertains the finding of third in the list trematode species metacercariae - *A. monticelli* - in this species of amphibian host (Chikhlyaev et al. 2009, 2012b, 2015, Kirillov et al. 2012, Lukiyanov et al. 2009).

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