

TREMATODES OF WILD DUCK (*ANAS PLATYRHYNCHOS* L.) IN THE BELGRADE AREA

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Out of the total of 100 wild ducks (*Anas platyrhynchos* L.) from the Belgrade area examined 72.0% were infected by trematodes. Fourteen species of trematodes were detected: *Apatemon gracilis* juven., *Cotylurus cornutus*, *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Echinoparyphium recurvatum*, *Echinostoma revolutum*, *Hypoderaeum conoideum*, *Catatropis verrucosa*, *Notocotylus i. imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* and *Metorchis xanthosomus*.

The trematodes *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Catatropis verrucosa*, *Notocotylus i. imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* and *Metorchis xanthosomus* were detected for the first time in *Anas platyrhynchos* L. in Yugoslavia.

These results show the significant role of wild ducks (*Anas platyrhynchos* L.) in the epizootology of trematodosis in other birds, domestic waterfowl, gallinacea and fish.

Key words: wild duck, *Anas platyrhynchos* L., trematodes

INTRODUCTION

In the area of Yugoslavia investigations of the extent of parasitic infection of birds, especially waterfowl, are insufficient.

The most numerous widely distributed waterfowl in the area of Belgrade are the gull (*Larus ridibundus* L.), wild duck (*Anas platyrhynchos* L.) and moorhen (*Fulica atra* L.).

In the first phase we investigated endoparasites that take part in the infection of *Larus ridibundus* L. In next phase we have examined the species, extent and intensity of infection by trematodes in wild ducks (*Anas platyrhynchos* L.) from the Belgrade area, and their eventual role in the epizootology of trematodosis of domestic birds and fishes.

Studies conducted in contemporary Yugoslavia and former Yugoslavia showed that in *Anas platyrhynchos* L. the following species of trematodes were

found: *Echinostoma revolutum* and *Hypoderaeum conoideum* (Šoti and Dimitrijević, 1974); *Echinostoma revolutum*, *Echinostoma paraulum*, *Echinoparyphium petrowi*, *Echinoparyphium recurvatum*, *Hypoderaeum conoideum*, *Echinochasmus mirus*, *Mesorchis gracilis*, *Prosthogonimus ovatus*, *Apatemon gracilis*, *Cotylurus cornutus*, *Cotylurus flabelliformis*, *Notocotylus attenuatus*, *Catatropis verrucosa*, *Paramonostomum alveolatum*, *Bilharziella polonica* (Brglez, 1977); *Psilotrema brevis* (Brglez and Hristovski, 1982); *Psilochasmus oxyurus* (Brglez, 1982) and *Cryptocotyle concavum* (Brglez, 1982).

MATERIAL AND METHODS

A total of 100 wild ducks (*Anas platyrhynchos* L.) from the Belgrade area (Reva I and Kolektor) were caught for this study.

The examination and collection of parasites was conducted using standard parasitological methods. Trematodes were identified in their native state or from a collection of preparations stained with acid carmine (Boch and Supperer, 1983.)

RESULTS AND DISCUSSION

Out of 100 wild ducks (*Anas platyrhynchos* L.) examined 72 were infected with trematodes.

Fourteen species of trematodes were found: *Apatemon gracilis* juven., *Cotylurus cornutus*, *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Echinoparyphium recurvatum*, *Echinostoma revolutum*, *Hypoderaeum conoideum*, *Catatropis verrucosa*, *Notocotylus i. imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* and *Metorchis xanthosomus*. In birds from Reva I area all fourteen species of trematodes were detected in birds from Kolektor area only six species were detected: *Apatemon gracilis* juven., *Cotylurus cornutus*, *Bilharziella polonica*, *Echinoparyphium recurvatum*, *Echinostoma revolutum* and *Hypoderaeum conoideum*.

The largest number (48.61%) of infected wild ducks carried two species of trematodes, followed by wild ducks with one species (34.72%), with three (11.11%) and with four species (5.56%).

The locality of the species of trematodes found was as follows:

Ventriculus: *Apatemon gracilis* juven.

Intestines: *Apatemon gracilis* juven., *Cotylurus cornutus*, *Echinochasmus coaxatus*, *Echinoparyphium recurvatum*, *Echinostoma revolutum*, *Hypoderaeum conoideum* and *Metagonimus yokogawai*.

Caecum: *Echinostoma revolutum*, *Catatropis verrucosa* and *Notocotylus i. imbricatus*.

Liver: *Metorchis xanthosomus*.

Trachea: *Tracheophilus sisowi*.

Kidney: *Eucotyle zakharowi*.

Blood vessel heart, intestines, liver, kidney and spleen: *Bilharziella polonica*.

Sinus head: *Hyptiasmus arcuatus*.

The most wide spread species of trematodes in *Anas platyrhynchos* L. was *Bilharziella polonica*, identified in 46.0% of the examined birds (Figure 1). A very high extent of infection occurred with *Echinostoma revolutum* (37.0 %).

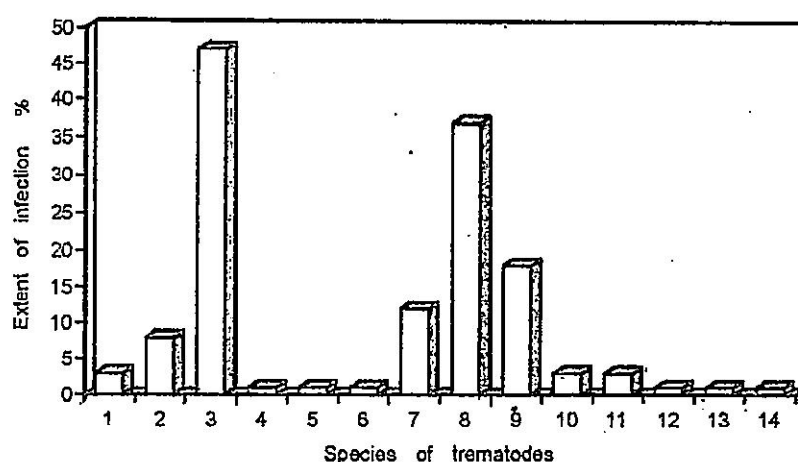


Figure 1. Extent of infection by the identified species of trematodes in *Anas platyrhynchos* L.

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| 1. <i>Apatemon gracilis</i> juven. | 8. <i>Echinostoma revolutum</i> |
| 2. <i>Cotylurus cornutus</i> | 9. <i>Hypoderaeum conoideum</i> |
| 3. <i>Bilharziella polonica</i> | 10. <i>Catantropis verrucosa</i> |
| 4. <i>Tracheophilus sisowi</i> | 11. <i>Notocotylus i. imbricatus</i> |
| 5. <i>Hyptiasmus arcuatus</i> | 12. <i>Eucotyle zakharowi</i> |
| 6. <i>Echinochasmus coaxatus</i> | 13. <i>Metagonimus yokogawai</i> |
| 7. <i>Echinoparyphium recurvatum</i> | 14. <i>Metorchis xanthosomus</i> |

The extent of infection with other species of trematodes, especially with *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* and *Metorchis xanthosomus* was on a much lower level.

The intensity of infection with the species of trematodes detected varied between the species of trematodes and the areal from which the birds originated. The most numerous specimens of trematodes were found in wild ducks infected with *Echinoparyphium recurvatum* (13) and *Catantropis verrucosa* (13). The intensity of infection with *Hyptiasmus arcuatus*, *Metorchis xanthosomus*, *Tracheophilus sisowi* and *Echinochasmus coaxatus* was very low (Table 1).

In the Reva I area the intensity of infection was the highest in the birds infected with *Echinoparyphium recurvatum* and *Catantropis verrucosa* (13), then with *Bilharziella polonica*, *Hypoderaeum conoideum*, *Notocotylus i. imbricatus* and *Echinostoma revolutum* (Table 2). In wild ducks from the Kolektor area intensity of infection was the highest with the trematodes *Bilharziella polonica*

(11), *Cotylurus cornutus* (10), *Echinoparyphium recurvatum* (9) and *Echinostoma revolutum* (9).

Table 1. Intensity of infection by the identified species of trematodes in *Anas platyrhynchos* L.

Identified species of trematodes	Intensity of infection	
	min	max
<i>Apatemon gracilis</i> juven.	1	3
<i>Cotylurus cornutus</i>	1	10
<i>Bilharziella polonica</i>	1	11
<i>Tracheophilus sisowi</i>	2	2
<i>Hyptiasmus arcuatus</i>	1	1
<i>Echinochasmus coaxatus</i>	2	2
<i>Echinoparyphium recurvatum</i>	1	13
<i>Echinostoma revolutum</i>	1	10
<i>Hypoderaeum conoideum</i>	1	7
<i>Catantropis verrucosa</i>	2	13
<i>Notocotylus i. imbricatus</i>	3	7
<i>Eucotyle zakharowi</i>	5	5
<i>Metagonimus yokogawai</i>	4	4
<i>Metorchis xanthosomus</i>	1	1

Table 2. Intensity of infection by identified species of trematodes in *Anas platyrhynchos* L. on the Reva I and Kolektor areas

Identified species of trematodes	Intensity of infection			
	REVA I		KOLEKTOR	
	min	max	min	max
<i>Apatemon gracilis</i> juven.	1	1	1	3
<i>Cotylurus cornutus</i>	1	3	1	10
<i>Bilharziella polonica</i>	1	8	1	11
<i>Tracheophilus sisowi</i>	2	2	—	—
<i>Hyptiasmus arcuatus</i>	1	1	—	—
<i>Echinochasmus coaxatus</i>	2	2	—	—
<i>Echinoparyphium recurvatum</i>	1	13	1	9
<i>Echinostoma revolutum</i>	1	6	1	9
<i>Hypoderaeum conoideum</i>	1	7	1	3
<i>Catantropis verrucosa</i>	2	13	—	—
<i>Notocotylus i. imbricatus</i>	3	7	—	—
<i>Eucotyle zakharowi</i>	5	5	—	—
<i>Metagonimus yokogawai</i>	4	4	—	—
<i>Metorchis xanthosomus</i>	1	1	—	—

The results of our examinations show that a great number of wild ducks (*Anas platyrhynchos* L.), originating from the Belgrade area, are carriers of many trematodes. The species of trematodes found show that in the surroundings of Belgrade there are conditions for the existence and spread of serious trematodosis in *Anas platyrhynchos* L. Thus, a great number of biotopes exist in which different species of fish, fresh-water snails and other species of intermediate hosts of trematodes find suitable conditions for development and survival. The life cycle and nutrition at behaviour of wild ducks also enables closing

of the cycle of many species of trematodes and the existence of a permanent source of infection. That confirms the well known role of wild ducks in the epizootology of parasitic infection of fish and many mollusca (Sulgostovska and Korpaczewska, 1972; Yatchenko, 1981; Farias and Canaris, 1986).

The results obtained show that wild ducks maybe have a very important role in the epizootology of trematodosis of wild waterfowl and gallinacea, especially because sometimes they separate from their own domicile and migrate. This is confirmed by the series of trematodes found in *Anas platyrhynchos* L. in the surroundings of Belgrade, which found in domestic waterfowl and gallinacea in other areas of former Yugoslavia: *Apatemon gracilis*, *Cotylurus cornutus*, *Echinoparyphium recurvatum*, *Echinostoma revolutum*, *Hypoderaeum conoideum*, *Metorchis xanthosomus* (Mikačić and Erlich, 1941), *Apatemon gracilis*, *Cotylurus cornutus*, *Echinoparyphium recurvatum* and *Echinostoma revolutum* (Petrović, 1956) and *Bilharziella* sp. (Brglez, 1977).

Comparing the results obtained with previous results of investigations in former Yugoslavia, we can conclude that the trematodes: *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Catantropis verrucosa*, *Notocotylus i. imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* and *Metorchis xanthosomus* were detected for the first time in *Anas platyrhynchos* L. in Yugoslavia.

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TREMATODE DIVLJIH PATAKA (*ANAS PLATYRHYNCHOS* L.) NA PODRUČJU BEOGRADA

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SADRŽAJ

Od ukupno 100 pregledanih divljih pataka (*Anas platyrhynchos* L.) poreklom sa područja Beograda 72,0% je bilo inficirano trematodama. Kod ispitivanih divljih pataka ustanovljeno je 14 vrsta trematoda: *Apatemon gracilis* juven., *Cotylurus cornutus*, *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Echinoparyphium recurvatum*, *Echinostoma revolutum*, *Hypoderaeum conoideum*, *Catatropis verrucosa*, *Notocotylus* i. *imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* i *Metorchis xanthosomus*.

Trematode *Bilharziella polonica*, *Tracheophilus sisowi*, *Hyptiasmus arcuatus*, *Echinochasmus coaxatus*, *Catatropis verrucosa*, *Notocotylus* i. *imbricatus*, *Eucotyle zakharowi*, *Metagonimus yokogawai* i *Metorchis xanthosomus* su ustanovljene po prvi put kod *Anas platyrhynchos* L. u Jugoslaviji.