

## TREMATODES FROM BIRDS LIVING ALONG THE TISZA

O. SEY

Teacher's Training College, Institute for Zoology, Pécs  
(Received March 27, 1968)

In the years between 1963 and 1966 I carried out the helminthological elaboration of a material from an investigation made in the environs of two points at the Tisza (Szeged, Vásárosnamény). The material of investigation has contained the following birds species, the major part of them from Szeged, namely: *Podiceps ruficollis* Pall. (3 pieces), *Ardea cinerea* L. (4 pieces), *A. purpurea* L. (7 pieces), *Anas platyrhynchos* L. (6 pieces), *Rallus aquaticus* L. (2 pieces), *Porzana porzana* L. (3 pieces), *Gallinula chloropus* L. (6 pieces), *Fulica atra* L. (18 pieces), *Tringa erythropus* Pall. (8 pieces), *T. stagnatilis* Besch. (7 pieces), *Larus ridibundus* L. (7 pieces), *L. canus* L. (1 piece), and the minor part of them from Vásárosnamény, namely: *Podiceps ruficollis* Pall. (2 pieces), *Ardea cinerea* L. (1 piece), *Anas platyrhynchos* L. (2 pieces), *Oriolus oriolus* L. (6 pieces), *Corvus cornix* L. (4 pieces), *Turdus merula* L. (5 pieces), *Sturnus vulgaris* L. (7 pieces). The investigation has included 99 birds altogether, belonging to 16 species. My present paper is containing an information about the *Trematodes* found.

As a result of the investigation we have observed 20 *Trematodes* species belonging to 10 families. A great part of *Trematodes* could be found also during other examinations performed in other areas of this country (in the plain in Northeastern Hungary, in Transdanubia, and in the Great Hungarian Plain), nonetheless, the present investigation has enlarged our knowledge concerning the parasitic vermin fauna of this country with a new species (*Schistogonimus rarus*, Braun, 1901). In the environs of the Tisza the parasitic vermins of wild fowls have not been investigated intensively so far, thus the results obtained may be regarded as new data concerning the region of Tisza.

### Taxonomical Part

*Strigeidae* Railliet, 1919.

*Cotylurus hebraicus* Dubois, 1934.

It is a parasite in the small intestines of birds belonging to the *Rallidae* family. In a single case it was observed in the gastro-intestinal tract of a *Fulica atra* from Szeged. From the fauna of this country it was first found similarly in this species (Sey, 1966).

*Diplostomatidae* Poirier, 1886.

*Diplostomum spathaceum* (Rud., 1819).

It is a wide-spread parasite of the gastro-intestinal tract of water fowls. Two specimens of gulls (*Larus ridibundus*) coming from Szeged were infected by 5—57 vermin specimens, and a *Larus canus* coming similarly from Szeged was but mildly infected. In the Hungarian fauna it occurred similarly from the *Larus ridibundus* (Edelényi, 1962) the first time.

*Schistosomatidae* Looss, 1899.

*Dendritobilharzia pulverulenta* (Braun, 1901).

A parasite occurring in the blood-vascular system of water fowls, as a rule in that of the *Anatidae* family. In the course of my investigations, I have found two specimens in one of the *Anas platyrhynchos* originating from Szeged. In this country it had occurred only in the *Fulica atra* (Edelényi, 1964; Sey, 1967), thus its presence in a wild duck means a new host in Hungarian relation.

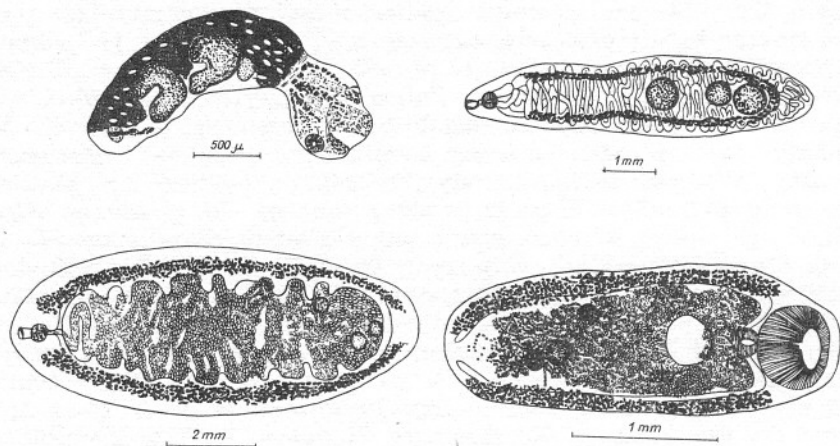


Fig. 1

*Cyclocoelidae* Kossack, 1911.

*Cyclocoelum mutabile* (Zeder, 1800).

There have been found four specimens in the abdominal cavity of a *Tringa erythropus* coming from Szeged. It is a frequent parasite of some species of the *Rallidae* and *Scolopacidae* families. In morphologic relation a high degree variability may be observed at this species, therefore Byhowskaya-Pawlowskaya (1962) regards a lot of vermins, considered so far to be a separate species, as synonyms of the *Cyclocoelum mutabile*.

In this country, first (Edelényi, 1964) the *Actitis hypoleucos* and then the *Fulica atra*, *Gallinula chloropus* (Sey, 1965, 1966) were found in the abdominal cavity. Its occurrence in the *Tringa erythropus* means a new host in Hungarian relation.

*Transcoelum oculus* (Kossack, 1911).

It is a parasite of the nasal cavity of *Fulica atra*. It could be found only in the material got from the investigation in Szeged, in three specimens. There can be observed considerable differences concerning the sizes of genitals. With us it was first demonstrated from *Fulica atra* (Sey, 1966).

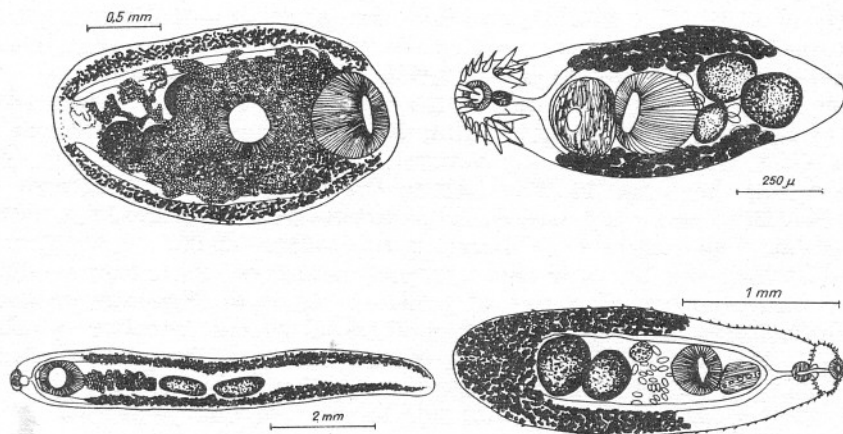


Fig. 2

*Tracheophilus sisowi* Skrjabin, 1913.

There occurred but a single specimen in the trachea of the host *Anas platyrhynchos* originating from Szeged. In this country, it was first demonstrated similarly from the same host (Sey, 1966).

*Haematotrephus kossacki* (Witenberg, 1923).

It has occurred at a single occasion in the abdominal cavity of the host *Tringa erythropus* that came from Szeged. There could be noticed but a low degree of infection (only two specimens found).

In Hungary, it was first observed by Edelényi (1964) in the abdominal cavity of *Philomachus pugnax*, later on it could be found in the abdominal cavity of *Tringa erythropus*, as well (Sey, 1966).

*Brachylaemidae* Stiles et Hassal, 1898.

*Leucochloridium holostomum* (Rud., 1819).

It is a parasite living in the vicinity of the cloaca of a few species of the *Rallidae* family. In my collection there occurred only two specimens of it in the cloaca of *Porzana porzana* coming from Szeged. In our country, it was first found in the same host (Sey, 1965).

*Leucochloridium actitis* (McIntosh, 1932).

It lives first of all in *Tringa* species, occurring anyway also in the gastro-intestinal tract of other fowls. During my examinations, I have found 2—4 specimens in the cloaca of *Tringa stagnatilis*.

In this country, it first occurred (Se y, 1965) in a similar organ of *Tringa nebularia*, thus its occurrence in *stagnatilis* means a new host in Hungarian relation.

*Echinostomatidae* Dietz, 1909.

*Petasiger* (N.) *neocomense* Fuhrmann, 1927.

It has occurred in high number in the small intestines of the *Podiceps ruficollis* originating from Szeged. In literature, a description of the species is given by several authors, drawings being enclosed about certain organs of the species. The specimens found by me are differing from the data of the descriptions mentioned therefore I afford here a short description of the species.

The vermin is of small body. Body length: 0,814—1,124 m/m, width 0,337—0,449 m/m. The front part of its body is thickly covered by tiny spines till about the height of the abdominal suckers.

On the head collar, located in the front part of body, and of a size of 0,168—0,224  $\times$  0,112—0,140 m/m, 19 spines can be found. From the spines 4—4 take place on the ventral lobule, these being bigger ones (0,084 m/m), the other 11 ones are on the rim of collar, having a size of 0,046 m/m. The mouth sucker is almost round, 0,072—0,074  $\times$  0,057—0,069 m/m. The pharynx is short, of oval shape, 0,051—0,69  $\times$  0,046 m/m. Between the pharynx and the mouth sucker, there can be found a short praepharynx of a size of 0,034—0,046 m/m. The oesophagus is 0,142 m/m long, dividing before the abdominal sucker into two intestinal branches. The abdominal sucker is in the middle of body, of a size of 0,202—2,224  $\times$  2,224—0,252 m/m.

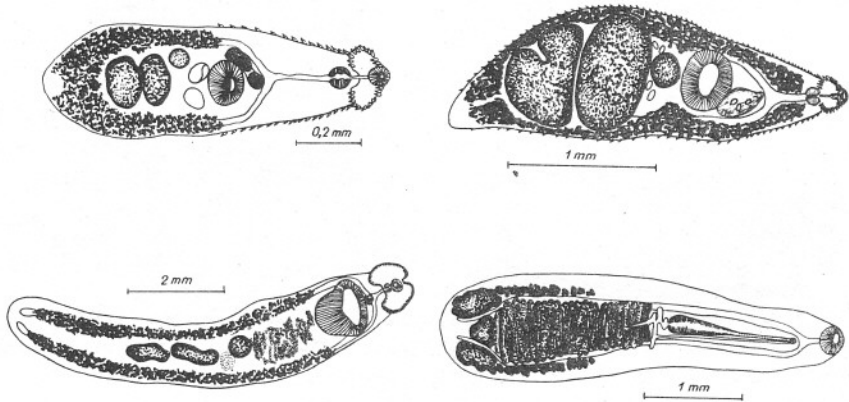


Fig. 3

The testicles are of irregular oval shape, located in the posterior half part of body, slanting related to each other. Size of the front testicle is 0,162—0,236  $\times$  0,089—0,168, that of the posterior one 0,112—0,213  $\times$  0,112—0,168 m/m.

The ovary of oval shape and of normal rim can be found in the area between the testicles and the abdominal sucker, somewhat on the right from the middle line. Its size is: 0,069—0,112  $\times$  0,051—0,101 m/m.

The vitelline glands are composed of rather large follicles. They begin before the abdominal sucker, almost in the height of the intestinal branching and reach till the middle of the posterior testicle, spreading on both sides of the body.

The specimens in my collection (about 40 pieces) are differing from the specimens known from the literature first of all in point of the latter quality. According to the literary data, namely, the vitelline glands spread as far as the end of body, filling even the area behind the posterior testicle. In my own specimens, however, the vitelline glands never bear on the area behind the posterior testicle.

The cirrusbag is between the front part of the abdominal sucker and the intestinal branching, of a size of  $0,168-0,224 \times 0,112-0,168$  m/m.

The uterus is short, containing but a few ova. The size of ova is:  $0,046-0,057 \times 0,028-0,051$  m/m.

In our fauna the species has only a single datum (Edelényi, 1965).

*Hypoderaeum conoideum* (Bloch, 1782).

It was found in 1—4 specimens in the small intestines of *Anas platyrhynchos* coming from Vásárosnamény. From its morphologic features it can be mentioned that I have counted 48—50 spines on the rather undeveloped head collar.

In this country it was first observed in the host mentioned above (Edelényi, 1965 and Sey, 1966).

*Echinostoma chloropodis* (Zeder, 1800).

It is an everyday parasite of the *Gallinula chloropus*. I have found it in the material of an investigation carried out in Szeged apart from the *Gallinula chloropus* in the *Porzana porzana*, as well. Thus, as regards the occurrence of the parasite, the latter host is a new datum in Hungarian relation.

In this country, it was so far similarly found in *Gallinula chloropus* (Edelényi, 1964, and Sey, 1966).

*Echinochasmus* (*E.*) *coaxatus* Dietz, 1909.

I have found it only in a single case, in two specimens, in the material of investigation in Szeged. The vermins are taking place penetrating strongly the small intestines of *Podiceps ruficollis*.

In this country some occurred so far from the *Podiceps cristatus* (Edelényi, 1964), and similarly from the *Podiceps ruficollis* (Sey, 1966).

*Echinochasmus* (*E.*) *beleocephalus* (Linstow, 1873).

It is a parasite of the gastro-intestinal tract of species belonging to the *Ardeidae* family.

I have found a single specimen of it in the small intestines of an *Ardea cinerea* originating from Szeged.

In this country it was first observed similarly in an *Ardea cinerea* (Sey, 1966).

*Echinochasmus* (*Ep.*) *bursicola* (Creplin, 1837).

It was observed in great number (2—120) in *bursa Fabricii* of the *Ardea purpurea* coming from Szeged. They have penetrated strongly into the substance of gland so that only the posterior end of their body could



be seen. After the parasites being removed, some holes could be well observed in the substance of the *bursa Fabricii*.

*Patagifer bilobus* (R u d., 1819).

It is mostly a parasite of the gastro-intestinal tract of species belonging to the *Ciconiidae* family, it could, however, be observed in the *Podiceps ruficollis*, as well. The material was got from an investigation in Szeged, two hosts were infected with them in 3—5 specimens.

In this country, it was first described from *Platalea leucordia* (E d e l é n y i, 1965) and *Podiceps ruficollis* (S e y, 1965).

*Notocotylidae* L ü h e, 1909.

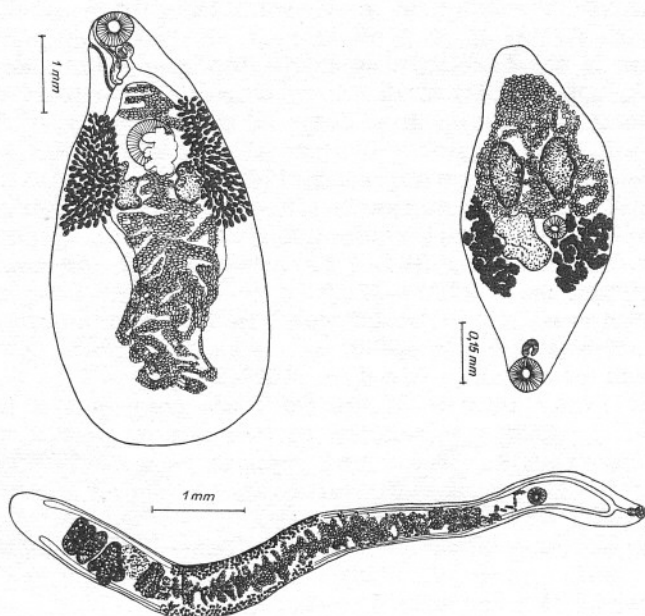


Fig. 4

*Notocotylus ralli* B a y l i s, 1936.

It was found in a single case and in a single specimen in the caecum of a *Rallus aquaticus* coming from Szeged.

In this country it was first found in a similar organ of the same host (S e y, 1966).

*Lecithodendriidae* O d h n e r, 1911.

*Leyogonimus polyoon* (L i n s t o w, 1887).

It is known from some species of the *Rallidae* family.

During my investigations it could be observed only in two occasions, in 3—5 specimens, from the *Gallinula chloropus*.

In this country, besides my findings, it occurred in the *Fulica atra*, as well (S e y, 1966).

*Prosthogonitidae* N i c o l l, 1942.

*Schistogonimus rarus* (B r a u n, 1901).

They are, first of all, the parasites of the *bursa Fabricii* from the *Anatidae* family. It was found in the *Anas platyrhynchos* originating from Szeged. In the fauna of this country it is a new species. Its morphologic features are made known in the following.

It is a vermin of a large, strongly flattened body. Length of its body is 4,8—6 m/m, width in the area behind the testicles 3,1—3,2 m/m. The surface of its body is covered densely by tiny spines.

The mouth sucker located at the front part of its body is 0,385—0,455  $\times$  0,315—0,350 m/m. The pharynx is well developed of a size 0,175—0,210  $\times$  0,171 m/m. The oesophagus is short, 0,070—0,170 m/m, divided in to two branches in front of the abdominal sucker. The intestinal branches are running at first along the two sides of the body, behind the testicles, however, they proceed towards the middle-line of body and finish blindly. The branches of intestines do not get to the end of body but they terminate as far as 0,413—0,912 m/m from it.

The abdominal sucker takes place in the frontal onethird part of the body. The size of the abdominal sucker is 0,420—0,560  $\times$  0,490 m/m.

The testicles can be found behind the abdominal sucker in the frontal half of the body and are of mildly lobular shape. The size of the right testicle is 0,420—0,700  $\times$  0,385—0,350 m/m, that of the left one is 0,560  $\times$  0,420—0,490 m/m. The cirrusbag is of winding course, it lies at the right side of oesophagus and its efferent opening is beside the mouth sucker. The ovary is bunche-formed and can be found dorsally in the height of the abdominal sucker.

The uterus is well-developed, taking place behind the abdominal sucker in the middle-line of body. The bends of uterus may be found also between the abdominal sucker and the bifurcation of the intestines. The uterine bends behind the abdominal sucker fill only the area between the intestinal branches without spreading beyond it. The uterus does not get till the end of body only till the opening of the secretory pore. The female genital opening lies a little farther from the male genital opening, in the height of the middle of the mouth sucker. The vitelline glands begin before the abdominal sucker and behind the intestinal bifurcation, their back part ending in the area behind the testicles.

The ova are oval-shaped, of a size 0,019—0,023  $\times$  0,010—0,012 m/m. *Opisthorchidae* Braun, 1901.

*Opisthorchis longissimus* (Lin stow, 1883).

It is the characteristic parasite of the wading birds. One of the *Ardea cinerea* individuals from Vásárosnamény was infected with 3 specimens. The parasites were found in the bile ducts of the host animal.

In this country, it was first observed similarly in that host (Se y, 1965).

### Summary

The paper is containing a description of *Trematodes* found in birds collected in the environs of Szeged and Vásárosnamény in the years between 1963 and 1966. As a result of the investigation, there could be demonstrated the following 20 *Trematodes* species altogether, belonging

to 10 families: *Strigeidae*: *Cotylurus hebraicus*; *Diplostomatidae*: *Diplostomum spathaceum*; *Schistosomatidae*: *Dendritobilharzia pulverulenta*; *Cyclocoelidae*: *Cyclocoelum mutabile*, *Transcoelum oculeus*, *Tracheophilus sisowi*, *Haematotrephus kossacki*; *Brachylaemidae*: *Leucochloridium holostomum*, *L. actitis*; *Echinostomatidae*: *Petasiger neocomense*, *Hypoderaeum conoideum*, *Echinostoma chloropodis*, *Echinochasmus coaxatus*, *E. beleocephalus*, *E. bursicola*, *Patagifer bilobus*; *Notocotylidae*: *Notocotylus ralli*; *Lecithodendriidae*: *Leyogonimus polyoon*; *Plagiorchidae*: *Schistogonimus rarus*; *Opisthorchidae*: *Opisthorchis longissimus*.

From the species enumerated the *Schistogonimus rarus* has proved to be new in our fauna.

There were first demonstrated, in the relation of this country, the *Dendritobilharzia pulverulenta* from the bloodvascular system of the *Anas platyrhynchos*, the *Cyclocoelum mutabile* from the gastro-intestinal tract of the *Tringa erythropus*, the *Leucochloridium holostomum* from that of the *Tringa stagnatilis*, and the *Echinostoma chloropodis* from that of the *Porzana porzana*.

The parasites found the course of the investigation have afforded new data and completed our knowledge concerning the helminthofauna of birds living along the Tisza.

#### Distribution of the Trematodes described according to hosts

<i>Podiceps ruficollis</i>	<i>Petasiger neocomense</i> <i>Echinochasmus coaxatus</i> <i>Patagifer bilobus</i>
<i>Ardea cinerea</i>	<i>Echinochasmus beleocephalus</i> <i>Opisthorchis longissimus</i>
<i>Ardea purpurea</i> <i>Anas platyrhynchos</i>	<i>Echinochasmus bursicola</i> <i>Dendritobilharzia pulverulenta</i> <i>Tracheophilus sisowi</i> <i>Hypoderaeum conoideum</i> <i>Schistogonimus rarus</i>
<i>Rallus aquaticus</i>	<i>Notocotylus ralli</i>
<i>Porzana porzana</i>	<i>Leucochloridium holostomum</i> <i>Echinostoma chloropodis</i>
<i>Gallinula chloropus</i>	<i>Leyogonimus polyoon</i> <i>Echinostoma chloropodis</i>
<i>Fulica atra</i>	<i>Cotylurus hebraicus</i> <i>Transcoelum oculeus</i>
<i>Tringa erythropus</i>	<i>Cyclocoelum mutabile</i> <i>Haematotrephus kossacki</i>
<i>Tringa stagnatilis</i>	<i>Leucochloridium actitis</i>



*Larus ridibundus*  
*Oriolus oriolus*  
*Corvus cornix*  
*Turdus merula*  
*Sturnus vulgaris*

*Diplostomum spathaceum*  
 —  
 —  
 —  
 —

*Larus canus*

*Diplostomum spathaceum*

## References

- Barus, V. and Lelek, A. (1961): Príspevek k poznani helmintofauny lysky cerne (*Fulica atra* L.) a nekterych dalsich vodnich ptaku. — Ceskos. Parasitol. 8, 15—30.
- Bezubik, B. (1956): Materialy do helmintofauny ptokow wodnych Polski. — Acta Parasit. Polon. 4, 59—88.
- Beverley-Burton, M. (1961): Studies on the *Trematoda* of British Freshwater Birds. — Proc. Zool. Soc. 137, 13—40.
- Byhowskaja-Pawlowskaja, I. E. (1962): Trematodü ptic faunü SzSzSzR. Moszkva—Leningrad.
- Byhowskaja-Pawlowskaja, I. E. (1953): Fauna szoszálsikov ptic zapadnoj Szibirii i jijo dinamika. — Parasitol. szbornyik Zool. inta. 15, 5—115.
- Dawes, B. (1956): Trematoda With Special Reference to British and European Forms. — Cambridge University Press.
- Edelényi, B. (1962): A hazai madarak belsőélősködő férgel. I. — Egri Főiskola Évkönyve 533—560.
- Edelényi, B. (1964): A hazai madarak belsőélősködő férgel. II. Állattani Közlemények 51, 31—48.
- Edelényi, B. (1964): A hazai madarak belsőélősködő férgel. III. — Debreceni Agrártud. Főiskola Évkönyve 173—188.
- Edelényi, B. (1965): A hazai madarak belsőélősködő férgel. IV. — Debreceni Agrártud. Főiskola Évkönyve 283—295.
- Gvozdyev, E. V. (1962): Szoszálsiki ahotnucse-pramüszlovüh ptic juzsnava Kazahsztana. — Trud. Int. Zool. 16, 89—124.
- Horváth, L. (1958): *Aves* (in Székessy: Magyarország Állatvilága) Budapest.
- Kopriva, J. and Tenora, F. (1961): Nove poznatky o motolicich které cizopasi u ptaku z rádu *Passeriformes* v Československa. — Ceskos. Parasitol. 8, 241—252.
- Macko, J. (1956): K faune trematodov lysky ciernej (*Fulica atra* L.). — Biologia Bratislava 11, 530—540.
- Macko, J. (1959): K helmintofaune potápkovych vtákov na vychnodnom Slovensku. — Ceskos. Parasitol. 6, 127—158.
- Macko, J. (1961—1962): Ploské cervy a ich vyznam u najbeznejsich volne zijucich vtakcv na vychodnom Slovensku. — Sbornyik Vychod. Muzea 2—3, 129—154.
- Mettrich, D. F. (1958): Helminth Parasites of Hertfordshire Birds. I. *Trematoda*. — J. Helminthol. 32, 49—64.
- Odening, K. (1963): *Echinostomatidae*, *Notocotylata* und *Cyclocoelidae* (*Trematoda*, *Digenea*, *Redioinei*) aus Vögeln des Berliner Tierparks. — Bijdragen tot de Dierkunde. Amsterdam 38—60.
- Puhov, V. I. (1939): K faune paraziticeszskih cservej vodjanoj pticü lüszuhi (*Fulica atra* L.). — Trud. Rosztovszkoj obl. veterin. sztáncii. 6, 120—128.
- Ryjikov, K. M. (1956): Gelmintofauna utinüh ptic Ribinszkovo vodahranyliscsa. — Trud. Gelmint. Lab. 8, 112—129.
- Rysavy, B. (1957): Dalsi poznatky o helmintofauné ptaku v Československa. — Ceskos. Parasitol. 4, 299—329.
- Sey, O. (1965): Tanulmányok a magyarországi parazita féregfaunáról. — Pécsi Tanárképző Főiskola Tudományos Közleményei 179—199.

- Sey, O. (1966): Adatok a szárcsa (*Fulica atra* L.) parazita féregfaunájához. — Allattani Közlemények 53, 123—130.
- Sey, O. (1966): Adatok a vadonélő madaraink parazita féregfaunájához. — Pécsi Tanárképző Főiskola Tudományos Közleményei 53—71.
- Sey, O. (1967): Adatok a vadonélő madaraink parazita féregfaunájához. II. — Pécsi Tanárképző Főiskola Tudományos Közleményei 47—65.
- Sulgośtowska, T. (1958): Flukes of Birds of Druzno Lake. — Acta Parasitol. Polon. 6, 111—138.
- Sulgośtowska, T. (1960): Extra-intestinalis *Trematodes* in Birds of the mesotrophic lakes: Goldapiwo and Marmy Polnocne. — Acta Parasitol. Polon. 8, 471—492.
- Skrjabin, K. I. (1948—1956): Trematodü zsvitnüh i cselaveka. — Leningrad—Moszkva.
- Sztuge, T. Sz. (1964): K gelmintofaunye lüszuhi (*Fulica atra* L.) na ozere Zajszan. — Trud. inta Zool. 19, 121—125.
- Vojtek, J. and Vojtkova, L. (1961): K poznany motolice ptaku a plazu z okolo Komárna. — Zool. ustav University J. — Purkiné v Brune a katedra zool. vysoke skoly zemedelska v Brune 421, 157—172.
- Zajicek, D. (1961): Prispevek k vyskuty a vzájemnému vztaku cizopasných cervu lysky cerne (*Fulica atra* L.), racka chehtaveho (*Larus ridibundus* L.) a kachny divoke (*Anas platyrhyncha* L.). — Sbornik Ceskos. Akad. Zemeld. Ved. Lesnictví 495—514.