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Passeritrema rysavyi gen. n. and sp. n. (Trematoda: Lecithodendriidae) from passerine birds in the Czech Republic

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Summary

Passeritrema rysavyi was described from intestine of *Erithacus rubecula* (Turdidae) and *Motacilla alba* (Motacillidae) in the Czech Republic. The genus and the species have the following features: oblong body covered with spines, small suckers, weakly developed pharynx, large widening of the distal part of both branches of intestine. Testes are one beside the other, ovary laterally in front of them. Bursa cirri large egg-form is in front of acetabulum of which it empties onto body surface. Vitellaria are symmetrical in two clusters behind testes. Uterus in rear part of body contains large number of eggs. Genus is monotypic.

Key words: Trematoda; Lecithodendriidae; *Passeritrema rysavyi*; passeriform birds; Central Europe

Introduction

Trematodes of superfamily Lecithodendrioidea are parasites of higher vertebrates. Most frequently, they occur in amphibians and mammals (especially bats). In birds, they belong among rare species, as it was found only by few authors. Development cycles of most of the genera are not known. This is why opinions on their system differ. Genera are frequently monotypic, filed into independent subfamilies or families (Skarbilovich, 1948; Odening, 1964; Yamaguti, 1971; Sharpilo and Iskova, 1989). In insectivorous birds of Central Europe, they mostly occur for a short period between arrival and migration. In Central Europe both hosts are migrants, hibernate in Mediterranean or in North Africa.

Material and Methods

In 1962 - 2002, 679 birds of 11 species of family Turdidae (*Erithacus rubecula* 115) and 119 birds of 7 species of family Motacillidae (*Motacilla alba* 42) were examined. Altogether 12 trematodes of family Lecithodendriidae, 11 in *E. rubecula* and one in *M. alba* were found. Trematodes were fixed in 70 % alcohol, stained with borax carmine and mounted into Canadian balsam.
All the given sizes are in millimetres.

Results

Passeritrema gen. n.
Generic diagnosis: Lecithodendriidae, Lecithodendriinae.
Type species: *Passeritrema rysavyi* Sitko, 2003.
Type host: *Erithacus rubecula*.
Oblong body covered with spines. Subterminal oral sucker same size or smaller than acetabulum. Acetabulum is in the middle of body. Pharynx weakly developed. Short intestine with conspicuously wide branches. Large globular testes situated in a row on lateral edges of body, separated by loops of uterus. Oval ovary is laterally in front of them. Bursa cirri conspicuously large, egg-shaped, in zone of acetabulum between intestinal branches, are neither spines nor papillas, empty under orifice of uterus. Genital atrium present. Cirrus not developed. Receptaculum seminis and Laurer channel developed. Vitellaria composed from large follicles laterally, in two clusters behind testes. Uterus in rear part of body contains a large number of eggs. Excretory sac V-shaped at the end of body. Genus is monotypic, parasitizing in the intestine of birds.

Passeritrema rysavyi sp.n.
Description (holotype and 11 paratypes), oblong body 1.571 long (holotype, Fig. 1 a,b) (paratypes: range 1.314 – 1.771 mean 1.513 Fig. 1 c,d,e), widest in region of testes 0.514 (0.387 – 0.571, 0.513). Tegument densely covered with tiny spines, longer in front part of body 0.017 (0.012 – 0.017, 0.017) in dense rows, smaller and sparser behind testes 0.010 (0.007 – 0.010, 0.010). Suckers of small

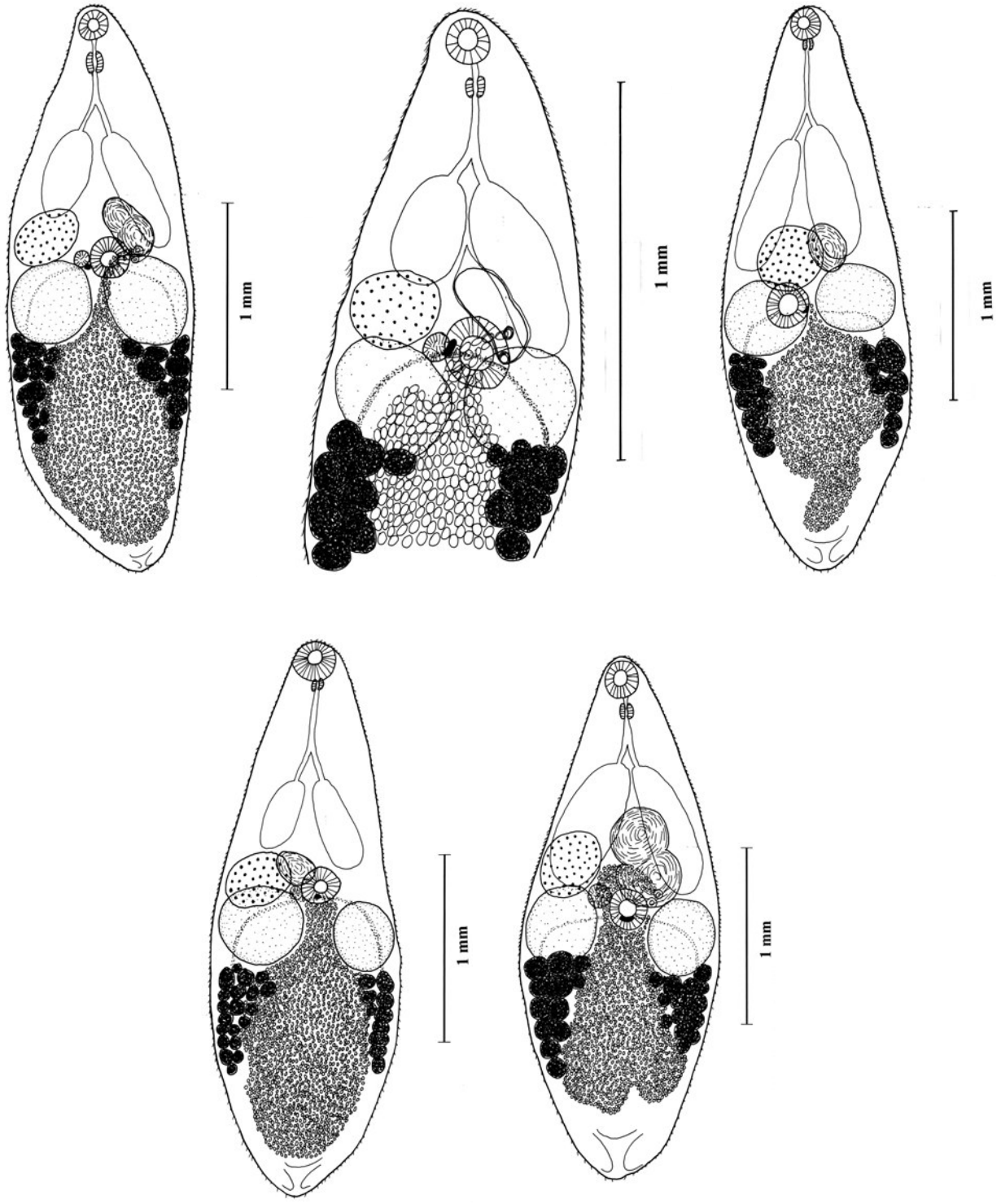

Fig. 1. A – *Passeritrema rysavyi* sp. nov. Holotypes – ventral wiev; B – detail of genital organs; C,D,E – Paratypes

size, widely separated one from other 0.522 (0.495 – 0.785, 0.652). Oral sucker subterminal, globular 0.116 (0.104 – 0.122, 0116) × 0.104 (0.087 – 0.116, 0.103). Acetabulum globular, more rarely oval 0.133 (0.116 – 0.145, 0.129) × 0.122 (0.104 – 0.145, 0.123) in middle body, larger than oral sucker. Ratio of suckers lengths 1.15 (1.0 – 1.19, 1.11) widths 1.117 (1.05 – 1.47, 1.20). Praepharynx short 0.036 (0.010 – 0.036, 0.016) or missing. Pharynx small, fine 0.058 (0.053 – 0.070, 0.061) × 0.058 (0.036 – 0.058, 0.048). Oesophagus 0.157 (0.109 – 0.261, 0.157) di-

vides into two narrow intestinal branches 0.048 and 0.072 (0.048 – 0.129, 0.095) long, 0.017 (0.014 – 0.017, 0.017) wide. They rapidly widen into a gab form. Widest lower part of intestine adjoins acetabulum. Widened part of intestine is created from wide cells. Right branch 0.360 (0.240 – 0.377, 0.319) × 0.133 (0.100 – 0.203, 0.167) partly covers ovary, left 0.232 (0.232 – 0.336, 0.292) × 0.133 (0.116 – 0.174, 0.155) reaches up to testes or partly overlaps them. One branches of intestine slightly longer. Testes globular conspicuously large are in a row behind ovary in lateral parts of body. Right testis 0.261(0.174 – 0.261, 0.216) × 0.232 (0.162 – 0.261, 0.216) slightly larger than left 0.232 (0.174 – 0.232, 0.205) × 0.244 (0.174 – 0.244, 0.207). Bursa cirri between branches of intestine in front of acetabulum partly ovary covers, oval conspicuously large, covered by a very fine membrane 0.238 (0.145 – 0.302, 0.211) × 0.116 (0.093 – 0.203, 0.115). Empty onto body surface in zone of acetabulum in left half of body under orifice of uterus. Cirrus not developed. Genital atrium present. Ovary broadly oval 0.151 (0.116 – 0.180, 0.158) × 0.220 (0.145 – 0.255, 0.206), in front of acetabulum. Globular Mehlis gland 0.070 (0.046 – 0.075, 0.066) × 0.070 (0.046 – 0.093, 0.075) situated between ovary and acetabulum, Vitellaria well-developed, behind testes at lateral edges of the body. They contain loops of uterus from ventral as well as dorsal side. They even reach ¼ length of body, composed from relatively large follicles 0.040 in diameter, largest of size 0.170 × 0.100. Right branch 0.348 (0.261 – 0.406, 0.329) × 0.145 (0.116 – 0.332, 0.197), left 0.348 (0.215 – 0.349, 0.297) × 0.332 (0.116 – 0.332, 0.174), same lengths or one of ¼ longer. Empty of vitellaria slim and long right 0.269 (0.180 – 0.313, 0.216) × 0.012 (0.007 – 0.012, 0.012), left longer 0.313 (0.216 – 0.319, 0.266) × 0.012 (0.005 – 0.012, 0.010). They run in a row from front edge of vitellaria up to acetabulum. Behind, they unite and form a vilellarine sac 0.031 (0.031 – 0.048, 0.036) × 0.024 (0.024 – 0.048, 0.031). Uterus well developed, running from ovary up to end of body, where it returns back. Loops of uterus fill in whole rear part of body. They run between vitellaria and testes. In front, they reach up to first half of ovary. Then, they descend to upper edge of acetabulum and outfall onto body surface left of it. Eggs 0.022 – 0.024 (0.024) × 0.012 – 0.017 (0.014). Excretory sac is in V-shape at end of body, empty terminally onto body surface.

Hosts: *Erithacus rubecula* (type host), *Motacilla alba*.

Site of infection: Intestine.

Localities: Klec (České Budějovice), Záhlinice (Zlín) (type locality) Czech Republic.

Intensity of infection: *Erithacus rubecula* 1 – 6 specimens, *Motacilla alba* 1 species.

Prevalence: *Erithacus rubecula* 1.74 %, *Motacilla alba* 2.38 %.

Geographic distribution: Central Europe.

Specimens deposited: The holotype and 11 paratypes deposited in the helminthological collection, Moravian Ornithological Station, Comenius Museum, Přerov, CzR No. holotype P- P 25 / 03 / 1, paratype P- P 26 / 03 / 11.

Etymology: The species is named in honour of Prof. RNDr. Bohumil Ryšavý, D.Sc.

Discussion

Yamaguti (1971) describes these genera of trematodes from the family Lecithodendriidae in birds. The following ones differ from the genus *Passeritrema*:

Echinuscodendrium Skarbilovich, 1943 – vitellaria in front of acetabulum, intestine equally wide along all the length, genital pore postacetabular, intertesticular. Large pharynx developed. Described from passeriform birds in North America.

Leygonimus Gynetzinskaya, 1947 – vitellaria in front of acetabulum, intestine equally wide along all length reaching up behind testes, a well-developed bursa cirri empties laterally onto surface of body behind testes. Ovary lobated. Described from Ralliformes in Europe.

Lecithodolfusia (Odening, 1964) – vitellaria in front of acetabulum, intestine equally wide along all body reaching up to the end of body. A well-developed bursa cirri empties onto surface of body laterally at level of testes. Ovary lobated. Described from Ralliformes in Europe.

Macyella Neiland, 1951 – vitellaria in front of acetabulum, intestine equally wide along whole the body reaching region of testes. A well-developed bursa cirri empties laterally onto surface of body behind testes. Ovary lobated. Described from passeriform birds in North America, Europe and Turkey, found in Charadriiformes, in the Czech Republic found in Piciformes.

Metoliophilus Macy et Bell, 1968 – vitellaria in front of acetabulum, intestine equally wide along whole length of the body reaching up to the end of body. A well- developed bursa cirri empties onto surface of body medially behind testes. Ovary lobate. Described from passeriform birds in North America.

Pseudocryptotropa Yamaguti, 1958 – vitellaria situated on the whole of the body from pharynx up behind testes at the end of body, intestine slightly widened behind bifurcation, reaching up to testes. Genital pore dorsally at level of acetabulum, genital bursa above acetabulum, cirrus is missing. Testes at the end of body. Described from Caprimulgiformes in Asia.

Phaneropsolus Looss, 1899 – vitellaria in front of acetabulum, intestine slightly widened behind bifurcation, reaching up to testes, bursa cirri straight or curved, genital pore usually median, behind pharynx or at its level. Described from passeriform birds in Egypt and Caprimulgiformes in Russia.

Mosesia Travassos, 1928 – vitellaria in the anterior part of the body, intestine equally wide, reaching region of testes. Cirrus pouch arcuate, encircling acetabulum, genital pore submedial or sublateral in acetabular or praeacetabular zone. Described from birds in North America and Europe.

Ornithodendrium Oshmarin, 1950 – vitellaria in front of acetabulum, intestine strongly widened behind bifurcation reaching region of testes. Cirrus pouch claviform, praeacetabular. Genital pore median, immediately praeacetabular. Described from birds in Asien.

Pleuropsolus Mehra, 1935 – vitellaria clustered together anterolateral to ceca, intestine slightly widened behind bifurcation reaching region of acetabulum. Cirrus pouch strongly curved, anterodorsal to acetabulum. Genital pore slightly to left, just in front of acetabulum. Described from birds in Europe and Asien.
Caprimulgorchis Iha, 1943 – vitellaria in front of acetabulum, intestine equally wide along all its length. Cirrus pouch large, rounded, between acetabulum and left cecum. Genital pore median praeacetabular. Ovary divided into several lobes. Described from Caprimulgiformes in India.
Passeritrema significantly differs from all the genera of the birds described, due to position of vitellaria in the rear part of the body behind testes, with a large bursa cirri of egg-shaped form and strongly widened intestinal ceca. According to its position it has been classified as a member of the subfamily Lecithodendriine Looss, 1892.
Yamaguti (1971) files three genera from mammals into the subfamily Lecithodendriinae Looss, 1892: *Lecithodendrium* Looss, 1896, *Mesothatrium* (Skarbilovich, 1948) Songandares-Bernal, 1956 and *Papillatrium* Richard, 1966. Genus *Passeritrema* differs from previous described genera:
Body is oblong, in so far known genera globular or pear-shape. In genus *Lecithodendrium*, young specimens have oval body, or it may be caused by fixation due to pressure of covering glass. Tegument densely covered by tiny spines, which are most developed in the front part of the body. Tiny spines on tegument found seldom in *Lecithodendrium*. They never occur in *Mesothatrium* and *Papillatrium.* Ovary is in front of testes by *Lecithodendrium* and *Papillatrium* between testes by *Mesothatrium* behind testes. Pharynx weakly developed, in so far known species well distinguishable. Intestine terminated with pocket shaped widening, which along lateral edges of body reaches behind ovary and frequently covers front edge of testes. In so far described species of all genera, intestinal branches running only from bifurcation up to lateral edge of body.
Vitellaria large, composed of large follicles in the rear half of body. Behind testes, they take about a half of width of body. Their outlets are very long starting at front edge of vitellaria, uniting at region of acetabulum creating vitelline sac. In *Papillatrium* and *Mesothatrium*, vitellaria are found in a row mostly in the central part of the body. In *Lecithodendrium*, it is at lateral edge of body, short composed of small follicles. In all three genera outlets start in middle of vitellaria, vitelline sac is not created. Bursa cirri are without spines or papillas, genital pore in region of acetabulum. In *Papillatrium*, papillas are developed, in *Mesothatrium* spines, in *Lecithodendrium* - without papillas or spines. Genital pore is laterally in the acetabulum region, in so far known species between bifurcation of intestine and acetabulum.

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