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NEW REPORTS ON PARASITISM BY *Haplometroides buccicola* (DIGENEA, PLAGIORCHIIDAE) IN BRAZILIAN SNAKES

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ABSTRACT: The occurrence of *Haplometroides buccicola* (Digenea, Plagiorchiidae) in the esophagus of two Brazilian snakes is reported in the present study. The trematodes were collected from one *Micrurus corallinus* (Elapidae) and one *Phalotris lativittatus* (Colubridae); both snakes were found in Botucatu city, São Paulo State, Brazil. Morphological and morphometric analyses of the trematodes are presented. For the first time *Micrurus corallinus* has been recorded as a host for *H. buccicola* and this is the second time that *P. lativittatus* has been reported as a host for this trematode species.

KEY WORDS: *Haplometroides buccicola*, Plagiorchiidae, *Phalotris lativittatus*, *Micrurus corallinus*, snakes.

CONFLICTS OF INTEREST: There is no conflict.

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INTRODUCTION

The current study aimed to report the occurrence of *Haplometroides buccicola* (Digenea, Plagiorchiidae) in a new host, *Micrurus corallinus* (Serpentes, Elapidae), and also the second case of infection by this trematode species in *Phalotris lativittatus* (Serpentes, Colubridae).

The host snakes were captured in the municipality of Botucatu, São Paulo State, and were donated to the Center for the Study of Venoms and Venomous Animals (CEVAP) of São Paulo State University (UNESP). In both snakes trematodes were found in their esophagus. Three helminthes were collected in *M. corallinus* and nine in *P. lativittatus*. The trematodes were fixed in AFA (alcohol-formol-acetic acid) under slight pressure of a coverslip for 10 minutes, and then transferred to 70% alcohol for further processing. The specimens were stained with carmine and cleared in creosote.

Morphological and morphometric analyses were accomplished in a computerized imaging system (Qwin Lite 3.1®, Leica, Germany). Measurements for the specimens are reported as the mean and range (minimum-maximum).

The trematodes were deposited in the Reference Helminthological Collection (CHIBB) of the Department of Parasitology, Botucatu Biosciences Institute, UNESP.

The trematodes (Figure 1, Table 1) presented: tegument covered with spines; oral subterminal sucker; prepharynx not evident; muscular pharynx; short and narrow esophagus; slightly sinuous intestinal ceca (distributed until the testicular region); pre-equatorial acetabulum; preacetabular, postbifurcal, submedian genital pore, opening near the right cecal branch; small cirrus pouch positioned behind the acetabulum and presenting an opposed curvature beside the ovary; ovoid testes with irregular contours, in a diagonal, postacetabular and intercecal position; ovoid ovary just behind the acetabulum, with regular contours, pre-testicular, intercecal; a Mehlis' gland located below and on the right ovary portion; a seminal receptacle posterior to the Mehlis' gland; vitellaria consisting of few bunched developed follicles, in a lateral and extracecal position, distributed from the zone slightly anterior to the genital pore to the testicular zone; a well-developed uterus, occupying most of the post-testicular zone; a long and narrow vagina; ovoid, operculated and thick shelled eggs with two small, apical lateral protuberances; terminal excretory pore.

The *Haplometroides* species found in *M. corallinus* and *P. lativittatus* was identified using the identification key proposed by Silva *et al.* (7). The genus *Haplometroides* is

included in the family Plagiorchiidae (9) and only three snake parasite species have been described for this genus: *H. buccicola* (2), *H. odhneri* (4) and *H. intercaecalis* (7).

Haplometroides buccicola was previously reported in snakes from several South American countries. Odhner (2) found this trematode in a specimen of *Micrurus* sp. (= *Elaps* sp.) from Paraguay. After, this helminth species was reported in *Micrurus frontalis* from Argentina (3) and Brazil (6). *Micrurus lemniscatus* (4), *Leptotyphlops koppesi* (8), *Phalotris lativittatus* (5) and *Epicrates cenchria crassus* (4) were other hosts recorded in Brazil for *H. buccicola*.

The present study reports the first case of infection by *H. buccicola* in *M. corallinus*. Elapid snakes have been reported as hosts for this trematode (2, 3, 4, 6). However, despite the large geographic distribution of *M. corallinus* (1), this is the first report on the helminth fauna of this snake in Brazil.

With regard to *P. lativittatus*, only one case of infection by the trematode exists in the literature. Silva *et al.* (5) reported the occurrence of *H. buccicola* in a *P. lativittatus* specimen deposited in the Herpetological Collection of CEVAP. The trematodes were collected from the mouth and esophagus of the snake, but the helminthes were in inadequate conditions for the morphometric analysis since they were fixed incorrectly inside the snake organs. In the *in toto* preparations, the worms were bent, crooked or kneaded, which hindered not only the measuring, but also the illustration of the trematodes. The present study is the second report of *H. buccicola* occurrence in *P. lativittatus*, thus confirming this species as a host. In this study, the trematodes were processed correctly and the prepared material permitted appropriate illustrations and morphometric analysis, thereby contributing to the knowledge of the species.

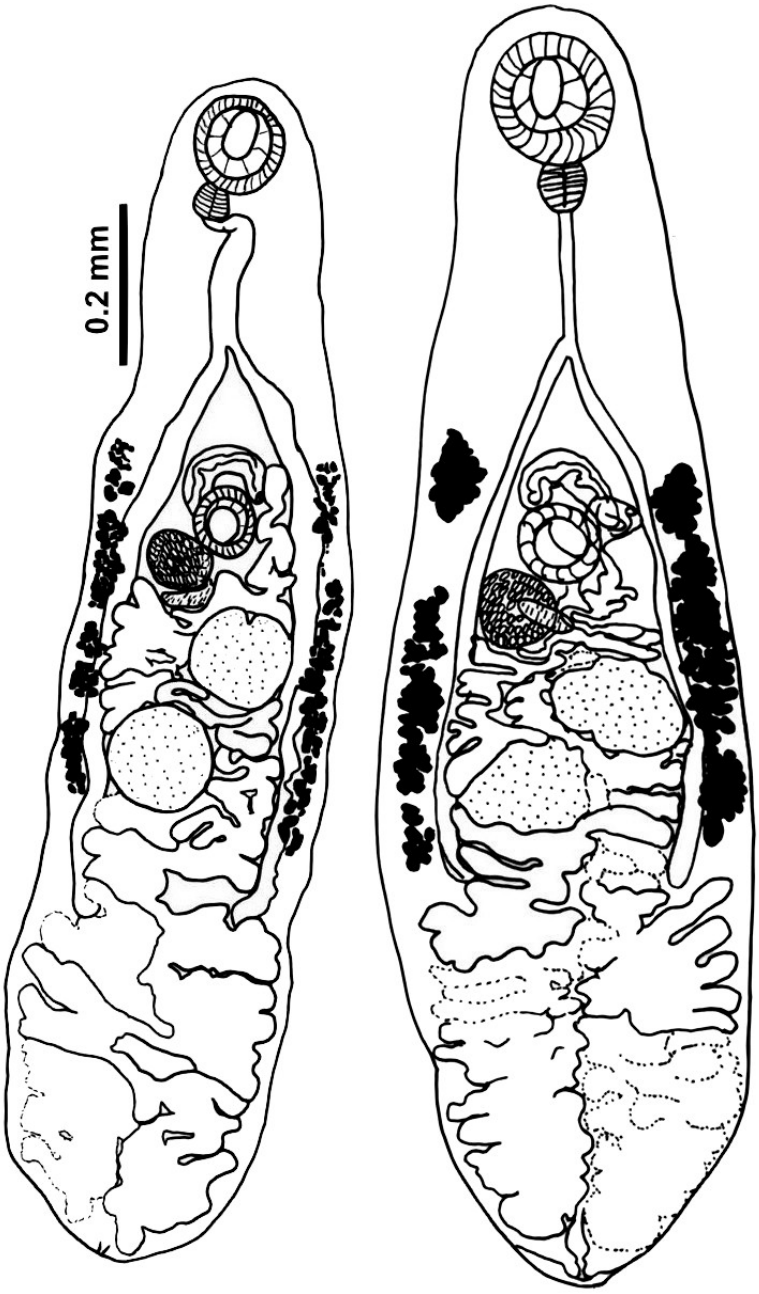

Figure 1. *Haplometroides buccicola* (Digenea, Plagiorchiidae) from the esophagus of *Micrurus corallinus* (Elapidae) (left) and *Phalotris lativittatus* (Colubridae) (right).

Table 1. Morphometric data of *Haplometroides buccicola* found in the esophagus of *Micrurus corallinus* (Elapidae) and *Phalotris lativittatus* (Colubridae) from the municipality of Botucatu, São Paulo, Brazil

Variables	*Haplometroides buccicola*					
	***Micrurus corallinus* (n = 3; CHIBB 2533)**			***Phalotris lativittatus* (n = 5; CHIBB 1813)**		
	Mean (μm)	Minimum (μm)	Maximum (μm)	Mean (μm)	Minimum (μm)	Maximum (μm)
Length	7768.6	7167.8	8792.9	7498.2	6411.9	8175.2
Width	1769.0	1618.9	1973.3	1991.8	1662.2	2128.9
Oral sucker						
Length	551.9	509.2	584.2	593.8	487.3	666.6
Width	562.7	530.4	602.7	602.0	518.6	649.0
Acetabulum						
Length	421.5	416.1	427.2	393.0	326.7	477.6
Width	424.5	407.7	433.0	417.6	368.7	457.8
Dist OS-AC	1837.9	1383	2281.3	1834.9	1647	1980
Pharynx						
Length	196.4	183.4	209.5	209.4	185.9	227.2
Width	235.3	191.9	280.4	228.4	211.8	247.0
Esophagus						
Length	895.1	598.4	1174.4	865,75	743,5	984
Width	167.5	156.5	177.9	80,5	60,91	121,2
Dist IC-PE	2362.5	2116.6	2660.7	2576.8	2068.7	2941.7
Anterior testis						
Length	600.5	496.3	796.2	526.3	436.7	626.5
Width	573.4	444.3	663.0	638.9	506.6	767.0
Posterior testis						
Length	709.6	635.8	856.7	568.0	403.0	765.4
Width	674.5	660.4	700.7	694.7	549.9	777.8
Cirrus pouch						
Length	773.03	740.2	811.5	701.32	606.6	776.6
Width	171.10	154.2	182.1	173.3	135.1	206.1
Ovary						
Length	401.3	350.6	444.5	400.4	326.7	502.6
Width	388.9	354.5	412.1	408.6	378.4	434.3
Seminal receptacle						
Length	285.53	214.58	371.5	191.3	172.0	208.9
Width	123.51	97.64	145.58	125.4	108.6	140.9
Eggs*						
Length	40.9	38.5	43.4	42,6	38,2	45,5
Width	23.2	20.9	25.4	24,7	22	27,4

CHIBB: Reference Helminthological Collection, Department of Parasitology, Botucatu Biosciences Institute, UNESP, Botucatu, São Paulo State, Brazil; Dist OS-AC: distance between oral sucker and acetabulum; Dist IC-PE: distance between intestinal ceca and posterior end of the body.

*Mean of 10 eggs/specimen of *H. buccicola.*

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