DOI: 10.4025/actascibiolsci.v31i3.4917

A new species of *Aphanoblastella* (Monogenea: Dactylogyridae) parasitic on *Rhamdia quelen* (Siluriformes: Heptapteridae) from Southeastern Brazil

Adriano Reder de Carvalho[1], Luiz Eduardo Roland Tavares[2] and José Luis Luque[3*]

*[1]Programa de Pós-graduação em Ciências Veterinárias, Universidade Federal Rural do Rio de Janeiro, Seropédica, Rio de Janeiro, Brazil. [2]Departamento de Patologia, Fundação Universidade Federal de Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brazil. [3]Departamento de Parasitologia Animal, Universidade Federal Rural do Rio de Janeiro, Cx. Postal 74.508, 23851-970, Seropédica, Rio de Janeiro, Brazil. *Author for correspondence. E-mail: jlluque@ufrrj.br*

ABSTRACT. *Aphanoblastella juizforense* sp. nov. is described in the gills of the heptapterid fish *Rhamdia quelen* (Quoy et Gaimard, 1824) from the Paraibuna River, Juiz de Fora, Minas Gerais State, Brazil. The new species can be separated from all congeners by the long coiled copulatory organ with one counterclockwise ring; sinuous accessory piece and for the robust shape of the ventral bar.

Key words: Ancyrocephalinae, Heptapteridae, *Rhamdia quelen*, *Aphanoblastella*, Brazil.

RESUMO. Nova espécie de *Aphanoblastella* (Monogenea: Dactylogyridae) parasito de *Rhamdia quelen* (Siluriformes: Heptapteridae) do sudeste do Brasil. *Aphanoblastella juizforense* sp. nov. é descrita parasitando as brânquias de *Rhamdia quelen* (Quoy et Gaimard, 1824) do rio Paraibuna, Juiz de Fora, Estado de Minas Gerais, Brasil. A nova espécie pode ser diferenciada de todas as outras espécies do gênero por apresentar o órgão copulatório alongado, em forma de espiral, em sentido anti-horário, com peça acessória sinuosa e pela constituição mais robusta da barra ventral.

Palavras-chave: Ancyrocephalinae, Heptapteridae, *Rhamdia quelen*, *Aphanoblastella*, Brasil.

Introduction

Aphanoblastella Kritsky, Mendoza-Franco et Scholz, 2000 is mainly characterized for tandem gonads (testis posterior to germarium); male copulatory organ (MCO) nonarticulated with sinuous accessory piece; a sinistral vaginal pore; a nonsclerotized vaginal tube and ventral bar with medial process. This genus includes parasites on gills from *Rhamdia* spp. in the Neotropical region (KRITSKY et al., 2000). To date, three species of *Aphanoblastella* are known: *A. travassosi* (Price, 1938), *A. robustus* (Mizelle et Kritsky, 1969), and *A. mastigatus* (Suriano, 1986). These three species were formerly included in *Urocleidoides* Mizelle et Price, 1964 and were already recorded parasitic on *Rhamdia quelen* (Quoy et Gaimard, 1824) from the Amazon River basin, Brazil (KRITSKY et al., 2000; PEREIRA JUNIOR et al., 2006).

During a parasitological survey of *R. quelen* from the Paraibuna River, municipality of Juiz de Fora, Minas Gerais State, Brazil, specimens of an undescribed species of *Aphanoblastella* were recovered from the gills. In this paper, this new monogenean is described and compared with closely related species in this genus.

Material and methods

Between October and December 2007, 16 specimens of *R. quelen* were acquired from local fishermen in Paraibuna River (21°41'20"S, 43°20'40"W), municipality of Juiz de Fora, Minas Gerais State, Brazil. Gills were removed and placed in vials containing 1:4000 formalin solution. Collected parasites were fixed and stored in 5% formalin. Some specimens were stained with Gomori's trichrome and others were mounted in Gray and Wess medium as described in Boeger et al. (2006). Illustrations were prepared with the aid of a drawing tube mounted on an Olympus BX-51 phase contrast microscope. Measurements are in micrometers; means are followed by the range and number of specimens measured (n) in parentheses. Accessory piece was measured as a straight line from the proximal to the distal extremity. Ecological terminology is based on Bush et al. (1997). Type specimens are deposited in the Helminthological

Collection of the Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro State, Brazil.

Results and discussion

Dactylogyridae Bychowsky, 1933.
Ancyrocephalinae Bychowsky, 1937.
Aphanoblastella juizforense sp. nov. (Figura 1A-H).

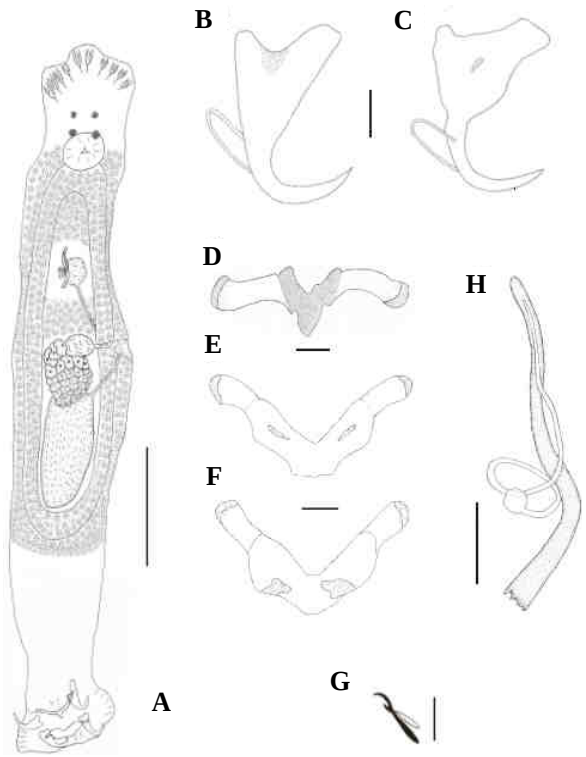

Figura 1. *Aphanoblastella juizforense* sp. nov.: **A** – whole-mount (ventral view); **B** – ventral anchor; **C** – dorsal anchor; **D** – ventral bar; **E** – dorsal bar, anterior view; **F** – dorsal bar, posterior view; **G** – hook; **H** – copulatory complex, ventral view. Scale-bars: Figure A, 100 μm, Figure B – H, 10 μm.

Description (based on 20 adult specimens): Body 781 (680-1000; n = 18) long; greatest width 101 (70-130; n = 18) near midbody (Figure 1A). Cephalic area with three lobes, two laterals, with four head organs each, and one moderately developed with two head organs; eyes 4 equidistant; posterior pair large; accessory pigment granules of the eyes uncommon in cephalic region. Pharynx subspherical, 43 (35-50; n = 8) diameter; esophagus short. Peduncle broad, haptor 58 (43-80; n = 5) wide, 88 (75-100; n = 5) long. Ventral anchor 37 (33-38; n = 15) long, elongate superficial root, short deep root, straight shaft, curved elongate point; base 21 (13-25; n = 11) wide (Figure 1B). Dorsal anchor 40 (30-53; n = 10) long, elongate superficial root and little deep root, straight shaft, curved elongate point; base 22 (18-25; n = 10) wide; presents among the roots a groove in triangle-shaped (Figure 1C). Ventral bar 49 (40-55; n = 8) long, robust, broadly V-shaped, with postero-medial triangular thick process, with two concavities on inferior surface (Figure 1D). Dorsal bar 50 (43-55; n = 10) long, broadly V-shaped, with narrowed bulbous ends, and medial little projection on inferior surface, in ventral view (Figure 1E); central portion more enlarged and with two concavities in dorsal view (Figure 1F). Hooks 13 (12-14; n = 11) long, protruding thumb, delicate point, fine shank; filament hook (FH) loop about 2/3 shank length (Figure 1G). Male copulatory organ (MCO) a counterclockwise coil of 1 ring, 74 (63-91; n = 8) long, ring diameter 11 (7-17; n = 8). Accessory piece 52 (35-70; n = 12) long, sinuous (Figure 1H). Testis elongate, ovate, 108 (75-138; n = 15) long, 51 (38-63; n = 15) wide; seminal vesicle distinct, ovate, lying to left of MCO; prostatic reservoir not observed. Germarium 55 (43-88; n = 12) long, 41 (30-50; n = 12) wide, ovate. Vagina a diagonal tube extending to left body margin, vaginal aperture simple; seminal receptacle small (Figure 1A). Oviduct, ootype, uterus, and eggs not observed.

Type-host: *Rhamdia quelen* (Quoy et Gaimard, 1824), Heptapteridae.

Site of infection: Gills.

Type-locality: Paraibuna River (21°41'20"S, 43°20'40"W), Juiz de Fora, Minas Gerais State, Brazil.

Prevalence: 100%.

Mean intensity: 71.4 ± 64.5.

Type-specimens: Holotype CHIOC N° 37175a; four paratypes CHIOC N°37175b, c, d, e.

Etymology: The specific name refers to the type-locality.

Remarks: *Aphanoblastella juizforense* sp. nov. differs from all congeners by the presence of sinuous, slightly spiraled accessory piece; one-ring male copulatory organ and robust ventral bar. The new species resembles *A. mastigatus* in the body size but differs in the number of rings of male copulatory organ, and by have a smaller accessory piece. *Aphanoblastella juizforense* sp. nov. differs from *A. travassosi* and *A. robustus* by having a larger male copulatory organ and accessory piece.

Acknowledgements

To José C. de Oliveira (Universidade Federal de Juiz de Fora) for host identification. Adriano R. de Carvalho was supported by a student fellowship from CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico,

Brazil); Luiz E. R. Tavares was supported by a Junior Posdoctoral Fellowship from CNPq, and José L. Luque was supported by a Research fellowship from CNPq.

References

BOEGER, W. A.; VIANNA, R. T.; THATCHER, V. E. Neotropical Monogenoidea. In: THATCHER, V. E. (Ed.). **Amazon fish parasites**. Pensoft: Sofia, 2006. p. 42-116.

BUSH, A. O.; LAFFERTY, K. D.; LOTZ, J. M.; SHOSTAK, A. W. Parasitology meets ecology on its own terms: Margolis et al. revisited. **Journal of Parasitology**, v. 83, n. 4, p. 575-583, 1997.

KRITSKY, D. C.; MENDOZA-FRANCO, E. F.; SCHOLZ, T. Neotropical Monogenoidea. 36. Dactylogyrids from the Gills of *Rhamdia guatemalensis* (Siluriformes: Pimelodidae) from cenotes of the Yucatan Peninsula, Mexico, with proposal of *Ameloblastella* gen. n. and *Aphanoblastella* gen. n. (Dactylogyridae: Ancyrocephalinae). **Comparative Parasitology**, v. 67, n. 1, p. 76-84, 2000.

PEREIRA JUNIOR, J.; VIANNA, R. T.; MORAES, N. C. M. Revisão comentada dos parasitos associados a *Rhamdia*. In: SILVA-SOUZA, A. T. (Ed.). **Sanidade de organismos aquáticos no Brasil**. Maringá: Abrapoa, 2006. p. 271-295.

Received on September 4, 2008.
Accepted on December 16, 2008.