

Research Note

A new species of *Dadayius* Fukui, 1929 (Digenea: Cladorchiidae), parasite of *Symphysodon aequifasciatus* Pellegrin, 1904 (Perciformes: Cichlidae) from the Purus River, Amazon, Brazil

L. P. C. LOPES^{1*}, L. C. KARLING¹, R. M. TAKEMOTO¹, F. ROSSONI², E. J. G. FERREIRA³, G. C. PAVANELLI¹

¹Laboratório de Ictioparasitologia, Universidade Estadual de Maringá, Av. Colombo, 5790 – PEA – Bloco G90, Sala 11, CEP 87.020-900 – Maringá, PR, Brazil, E-mail: lpclopes@hotmail.com; ²Instituto Piagacu, Rua U/Z, número 8, Quadra Z, Conjunto Morada do Sol Aleixo, cep: 69060-095, Manaus, AM, Brazil, ³Instituto Nacional de Pesquisas da Amazônia – INPA, Coordenação de Pesquisas em Biologia Aquática – CPBA, Cx. Postal 478, 69011-970, Manaus, AM, Brazil

Summary

The present paper describes a new species of *Dadayius* Fukui, 1929 (Trematoda, Digenea), parasite of *Symphysodon aequifasciatus* Pellegrin, 1904, a freshwater fish. The fish were collected from the Purus River, Amazonas State, Brazil. This new species has a long body and, different from other species of the genus, an arch-shaped ovary and a sinuous oesophagus with an ovoid bulb. This is the first record of *Dadayius* in cichlid fish; to date *Dadayius* has only been found parasitizing characid fish.

Keywords: Amazon Basin; endoparasites; fish; acará-disco

Introduction

Symphysodon aequifasciatus Pellegrin, 1904, known locally as 'acará-disco' or discus, is a fish endemic to the Amazon basin that has great economic importance in the aquarium trade both regionally and internationally (Chao, 2001). *S. aequifasciatus* inhabits Amazon rivers in places where there are fallen branches. It is a small fish that does not present sexual dimorphism (Kullander, 2003), with a maximum total length of 17 cm. Although being an economically important fish, there are few studies related to its endoparasitic fauna (Crampton, 2008).

Dadayius Fukui, 1929 belongs to the family Cladorchiidae and is found parasitizing fish, reptiles, amphibians and mammals (Jones, 2001). Currently, this genus is represented by three species – *Dadayius marenzelleri* (Daday, 1970) Fujui, 1929, *D. pacuensis* Thatcher, Sey and Jégu, 1996 and *D. pacupeva* Lacerda, Takemoto and Pavanelli, 2003 - all parasitizing fishes of the family Characidae (Characiformes). The present study describes a new species of *Dadayius* parasitizing a different family, Cichlidae, and order Perciformes.

Materials and methods

Sixty-three specimens of *S. aequifasciatus* were collected in September 2008 and October 2009 from the Ayapuá Lake, Piagaçu-Purus Sustainable Development Reserve (PP-SDR), lower Purus River, in the Brazilian Amazon (4° 53' S; 62° 59' W). Fish hosts were fixed and analysed according to the methodology used by Eiras *et al.* (2006). Trematodes that were found in the intestine were stained with acetic carmine and cleared with beechwood creosote. Permanent slide preparations used Canada balsam. Using a drawing tube and a NIKON YS2 microscope, an illustration was drawn. Measurements were taken in millimeters and expressed as the mean, followed by range and the number of specimens measured (Jones, 2001; Thatcher, 2006).

Results

Description

Cladorchiidae Southwell & Kirshner, 1937

Dadayius Fukui, 1929

Dadayius puruensis n.sp.

Description: (based on nine specimens). Body cylindrical, slightly flattened, 0.62 (0.40 – 0.74; n = 9) long and 0.31 (0.21 – 0.37; n = 9) wide. Oral sucker terminal, 0.07 (0.04 – 0.08; n = 3) long and 0.05 (0.04 – 0.07; n = 3) wide, with diverticula 0.14 (0.09 – 0.15; n = 5) long and 0.12 (0.09 – 0.19; n = 5) wide. Esophagus sinuous with an ovoid bulb, 0.15 (0.14 – 0.16; n = 2) mm long. Caeca 0.18 (0.14 – 0.24; n = 6) long and 0.06 (0.04 – 0.08; n = 6) wide, always reaching the acetabulum. Acetabulum terminal, 0.26 (0.17 – 0.37; n = 7) long and 0.27 (0.16 – 0.34; n = 7) wide, without transverse lines in the internal tegument.

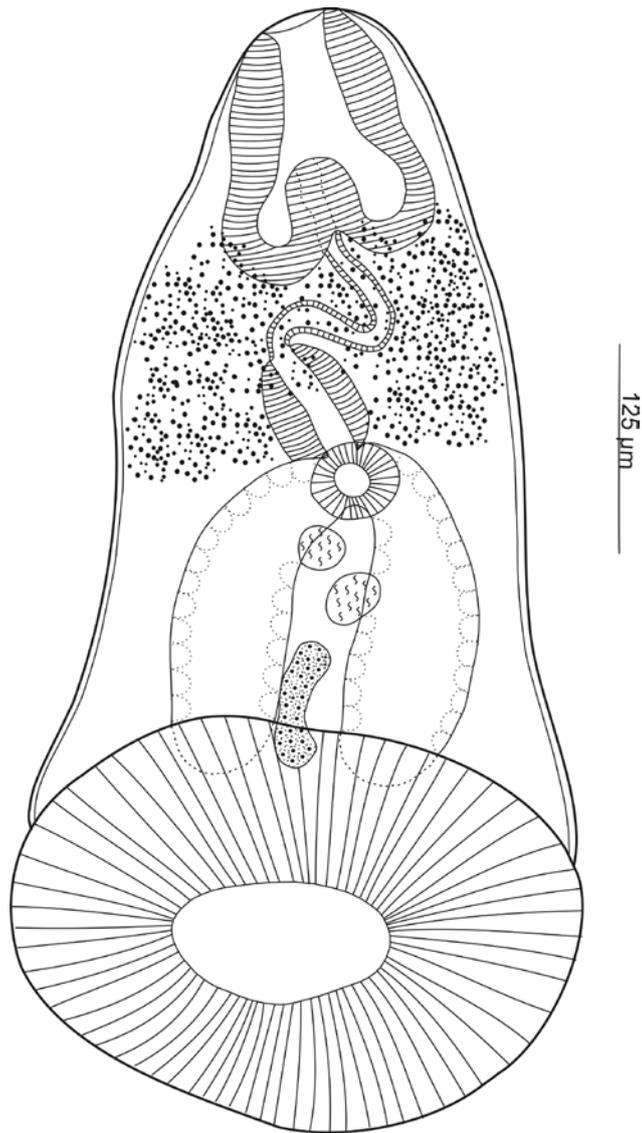


Fig. 1. *Dadayus puruensis* n.sp. - ventral view

Testis almost spherical, entire, tandem, intracaecal in the middle third of the body, and non-lobate. The anterior testis 0.03 (0.02 – 0.04; n = 2) long and 0.03 (0.02 – 0.04; n = 2) wide, posterior testis 0.03 (0.01 – 0.04; n = 2) long and 0.04 (0.02 – 0.06; n = 2) wide. Cirrus sac absent or not observed. Genital sucker 0.04 (n = 1) long and 0.04 (n = 1) wide, with strong muscular wall located above the bifurcation of caeca. Ovary longer 0.06 (0.04 – 0.08; n = 2) than wide 0.02 (0.01 – 0.02; n = 2), located in the region of the caeca, near the acetabulum, arch-shaped ovary. Vitellaria occupying a transversal zone between diverticula and the bulb. Uterus and eggs were not observed (Fig. 1).

Type host: *Symphysodon aequifasciatus*, Pellegrin 1904
Perciformes: Cichlidae

Type locality: Ayapuá Lake, Piagaçu-Purus Sustainable

Development Reserve (PP-SDR), lower Purus River, in the Brazilian Amazon (4°53'S; 62° 59' W).

Site of infection: intestinal tract.

Specimens deposited: The holotype and paratypes were deposited in Collection of Invertebrates at INPA, Brazil.

Holotype, INPA 595; paratypes.596 a-c
Prevalence: 34.9 % (examined 63, infested 22)

Mean intensity: 2.6 parasites per host

Specimens studied: 63

Etymology: The specific name refers to the river where the fish host was collected.

Discussion

As with the other species of the genus *Dadayius*, *D. puruensis* n.sp. has a small and conical body, long and wide acetabulum, bifurcal genital pore and tandem testis. However, *D. puruensis* n.sp. differs from all other species of *Dadayius* in having a half moon-shaped ovary, and a sinuous oesophagus, while all other species of the genus have a straight oesophagus. The position of the vitellaria is also different in this species because these are found in the upper portion of the body between the genital pore and the diverticula. This species resembles *D. marenzelleri* (Daday, 1970) Fukui, 1929 and *D. pacuensis*, described by Thatcher *et al.* (1996) because the caeca reach the acetabulum. The new species does not have transversal ridges in the interior of the acetabulum similar to *D. pacupeva*.

References

- CHAO, N. L. (2001) The Fishery, Diversity, and Conservation of Ornamental Fishes in the Rio Negro Basin, Brazil - A review of Project Piaba (1989 – 99). In: CHAO, N. L., PETRY, P., PRANG, G., L. SONNESCHIEN, TLUSTY, M. (Eds) *Conservation and management of ornamental fish resources of the Rio Negro Basin, Amazonia, Brazil*. Manaus, Amazonas, Brazil: Editora da Universidade do Amazonas (Project Piaba). pp. 43 – 73
- CRAMPTON, W. G. R. (2008) Ecology and life history of an Amazon floodplain cichlid: the discus fish *Symphysodon* (Perciformes: Cichlidae). *Neotrop. Ichthyol.*, 6, 599 – 612. DOI: 10.1590/S1679-62252008000400007
- EIRAS, J. E., TAKEMOTO, R. M., PAVANELLI, G. C. (2006). *Métodos de estudo e técnicas laboratoriais em parasitologia de peixes*. 2nd Edition, Maringá: EDUEM. 199 pp.
- JONES, A. (2001) Family Cladorchiidae Fiscoeder, 1901. In: JONES, A. BRAY, R. A., GIBSON, D. I. (Eds) *Keys to the Trematoda*. Volume 2. London, UK: CABI Publishing and The Natural History Museum. pp. 165, 257–318
- KULLANDER, S. O. (2003). Family Cichlidae. In: Reis, R. E., KULLANDER, S. O., FERRARIS, C. J. (Eds) *Check list of the freshwater fishes of South and Central America*. Porto Alegre: EDIPUCRS. pp. 605 – 656
- THATCHER, V. E. (2006). *Amazon fish parasite*. Sofia/Moscow: Pensoft Publishers. 508 pp.

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