MÉMOIRES ORIGINAUX

TRYPANOSOMES OF BRAZILIAN FISHES.

III. *TRYPANOSOMA DOMINGUESI* SP. N.

FROM ARMORED CATFISH *HYPOSTOMUS ALATUS* CASTELNAU 1855 (PISCES, LORICARIIDAE)

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SUMMARY. *Trypanosoma dominguesi* sp. n. is described from the blood of the armored catfish *Hypostomus alatus* Castelnau 1855 (Pisces, Loricariidae).

Key-words: *Trypanosoma dominguesi*. *Hypostomus alatus*. Armored catfish.

Trypanosomes de poissons brésiliens. III. *Trypanosoma dominguesi* n. sp. parasite du cascudo *Hypostomus alatus* Castelnau 1855 (Pisces, Loricariidae).

RÉSUMÉ. L'auteur décrit une nouvelle espèce de trypanosome, *Trypanosoma dominguesi*, provenant du sang du poisson *Hypostomus alatus* Castelnau 1855 (Pisces, Loricariidae).

Mots-clés : *Trypanosoma dominguesi*. *Hypostomus alatus*. Cascudo. Poisson.

Introduction

Trypanosome of freshwater fish have been widely recorded from several continents particularly Europe, Asia, Africa and South America.

On Brazil the most common hosts have been species of genus *Hypostomus*. In Brazilian *Hypostomus* fishes there are 11 nominal species of trypanosomes (Splendore 1910, Horta and Machado 1911, Fonseca and Vaz 1928, Froes *et al.* 1978 and 1979, and Lopes *et al.* 1988). The aim of this study was to identify and morphologically characterize the new trypanosome in *Hypostomus alatus*.

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Material and methods

Examining fishes from Sao Francisco river basin, in the municipality of Brasi-landia, State of Minas Gerais, Brazil, for research on *Trypanosoma* species, several specimens of the cascudo (armored catfish) *Hypostomas alatus* were found infected with a flagellate protozoan with characteristics different from those previously describe on genus *Hypostomus*.

Blood smears were prepared from blood samples obtained by means of a heparinized needle and syringe from the heart, air-dried, and stained with Leishman stain. Each smear was examined using an oil immersion objective, and the trypanosome photographed. 15 trypanosomes were drawn with a slide projector (10,000 $\times$) and measured with a curvimeter. Morphometrics of parasites followed the methodology proposed by Hoare (1972). In addition, the larger and smaller diameters were measured in drawings of nuclei and kinetoplast for calculation the nuclear and kinetoplast volumes by the formula proposed by Valeri *et al.* (1967).

$$V = \frac{\pi}{6} \cdot D_1 \cdot D_2 \cdot \sqrt{D_1 \cdot D_2}$$

where D_1 and D_2 represent the diameters.

Results

a — SPECIE DESCRIPTION

Trypanosoma Gruby 1843.

Trypanosoma domingeusi sp. nov. (Figs 1 and 2).

Type host: *Hypostomus alatus* (Castelnau 1855) (Fam. Loricariidae).

Site: blood.

Type locality: Paracatu river (Sao Francisco river basin), municipality of Brasi-landia, State of Minas Gerais, Brasil.

Date of collection: October 1986.

Number of specimens: 15 specimens from 8 hosts out of 8 examined.

Vector: unknown but possibly the leech.

Type specimens: deposited in the Laboratory of Parasitology, Department of Health Sciences, Faculty of Pharmaceutical Sciences, University of Sao Paulo.

b — SPECIFIC DIAGNOSIS

Monomorphic; body long (mean about 31.47 μm), narrow (mean about 2.13 μm) attenuated at both end; cytoplasm stained uniformly. The oval nucleus lies in the middle of the body, occupying or not the entire width of body; nucleoli not observed.

FIG. 1. — *Trypanosoma dominguesi* n. sp. from armored catfish *Hypostomus alatus*.
Leishman stain.

FIG. 2. — *Trypanosoma dominguesi* n. sp. drawings of 15 bloodstream forms from armored catfish *Hypostomus alatus*.

The kinetoplast occupies a terminal position, it is subterminal in 3 specimens; is large relation to the width of the posterior end of the body. The undulating membrane is slightly developed, its outer margin forming a few convolutions. The flagellum is absent in 4 specimens and, when present, varies in length from a mere stub (0.6-1.0 μm) to a short whip (mean about 9.42 μm). Average dimension in microns (15 specimens):

Total length excluding flagellum: 25.5 (20.6-34.5).

Free flagellum:

- absent (4 specimens),
- 0.8 (0.6-1.0) (3 specimens),
- 9.4 (4.0-14.3) (8 specimens).

Posterior end to nucleus	13.7 (7.9-19.0)
Nucleus to anterior end	12.3 (6.1-17.9)
Width at widest point	2.1(1.6-2.7)
Kinetoplast width	0.7 (0.5-0.8)
Nuclear width	1.4 (1.0-1.7)
Nuclear length	3.9 (2.3-6.0)
Nuclear index	1.1 (0.8-2.1)
Nuclear volume	7.29 μm^3 (2.89-14.56)
Kinetoplast volume	0.18 μm^3 (0.05-0.32)

c — ETYMOLOGY

This new species of fish trypanosoma is named *Trypanosoma dominguesi* n. sp. in honour of the parasitologist Prof. Dr. Rosa Domingues Ribeiro.

Comments

11 species are known in the genus *Trypanosoma* Gruby 1843 from brazilian armored catfish genus *Hypostomus*: *T. hypostomi* Splendore 1910; *T. chagasi* Horta and Machado 1911; *T. strigaticeps* Fonseca and Vaz 1928; *T. margaritifera* Fonseca and Vaz 1928; *T. plecostomi* Fonseca and Vaz 1928; *T. albopunctatus* Fonseca and Vaz 1928; *T. regani* Fonseca and Vaz 1928; *T. guaibensis* Froes *et al.* 1978; *T. venustissimus* Froes *et al.* 1979; *T. commersoni* Froes *et al.* 1979 and *T. barreto* Lopes *et al.* 1988.

The morphology of bloodstream forms of trypanosomes is the most important criterion for species identification. *T. dominguesi* differs in structure as well as in hosts from the 11 trypanosomes originally described from brazilian armored catfish genus *Hypostomus*. Its measurements and structural characters do not closely resemble those of any of the previous described trypanosomes from brazilian armored catfish. *T. dominguesi* is longer than *T. strigaticeps* only and is shorter than that of any of the other described brazilian armored catfish trypanosome.

The width of *T. dominguesi* is lesser than that of the other trypanosome described, except *T. guaibensis*. Its other diagnostic features are the small Kinetoplast of terminal or subterminal position, and its lesser nuclear and Kinetoplast volumes than *T. barrettoii*. In addition *T. dominguesi* is monomorphic.

That *T. dominguesi* is a valid species is also manifest from its geographic occurrence and the distribution of its teleost host and potential vector. Geographic occurrence is considered of importance in modern systematics in relation to isolation and evolution (Huxley 1940, Mayr 1963). The *H. alatus* hosts of *T. dominguesi* are endemic to the Sao Francisco river basin. Populations of *H. alatus* still occur in Parana river basin, but show evidence of differentiation and are placed in separate species by some authors.

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page 156