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Trypanosoma (Megatrypanum) samueli n. sp., a Trypanosomatidae isolated from *Monodelphis domesticus* (Wagner, 1842) (Marsupiala) *

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Summary.

In the present paper the description of a new Trypanosome species of the subgenus *Megatrypanum* is presented. The proposed name is *Trypanosoma* (*Megatrypanum*) *samueli.*

Résumé

***Trypanosoma* (*Megatrypanum*) *samueli*, une nouvelle espèce de Trypanosomatidae.**
L'auteur décrit une nouvelle espèce de Trypanosomatidae, *T.* (*Megatrypanum*) *samueli,* provenant du sang d'un *Monodelphis domesticus* (Marsupialia).

Introduction

Several species of Trypanosomatidae of the *Megatrypanum* subgenus have been detected in a series of animals representing practically all mammalian orders (Hoare, 1972).

On the American continent the most common hosts have been species of Chiropterans. (Deane et. al. 1963). *Trypanosoma* (*M.*) *freitasi* is the only species found in the marsupial *Didelphis azarae.* (Rêgo et. al. 1957, Deane 1964 and Rocha e Silva et. al. 1976).

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In the present paper, the description of a new Trypanosoma species of the subgenus *Megatrypanum* is presented. The proposed name is *Trypanosoma (Megatrypanum) samueli* in honor of the eminent Brazilian parasitologist. Professor Samuel Barnsley Pessoa, recently deceased.

Material and methods

Examining small mammals from a wooded area, in northern Formosa County Goiás State, Brazil, for research on *Trypanosoma cruzi* reservoirs, a specimen of the marsupial *Monodelphis domesticus* was found infected with a flagellate protozoan with characteristics different from those previously described (Rêgo et. al. 1957, Deane 1961 and 1964, Hoare, 1972 and Rocha e Silva et. al. 1976). The infected marsupial was captured on July 16th, 1976 and examined the following day. Stained blood smears were made using the Giemsa-Romanovsky method, xenodiagnosis was made with fifth instar nymphs of *Rhodnius neglectus* and *Panstrongylus megistus,* and infected blood (about 0,1 ml) was inoculated into 5 albino mice and 5, 15 day old laboratory reared, *Calomys expulsus.* The blood of these animals was examined from the 5th day after inoculation, and from then on alternate days to the 30th day.

As is routinely done in laboratory examinations of wild animals, fragments of heart, thigh muscle, esophagus and colon from both the inoculated animals (sacrificed 90 days after inoculation) and the captured *M. domesticus* itself were fixed in 10 % formaldehyde for histological sections stained with haemotoxylin and eosin.

Drawings, photographs and measurements of 20 parasites found in the blood slides stained with Giemsa-Romanovsky were made with a camara lucida at a magnification of 1.250 x.

Results

Through direct microscope examination of the infected animal blood, an intense parasitemia of trypomastigote forms with active flagella was observed. It was concluded that the trypomastigote forms, belong to the subgenus *Megatrypanum,* characterized by the kinetoplast typically situated very close to the nucleus. The slides with infected material used for description, photographs and drawings were filed in the personal collection of the author of this paper.

The morphological description of this Trypanosome follows:

The Trypanosomes in the stained blood smears are generally found in the shape of the letter "C". The anterior and posterior extremities are sharply pointed. Violet-blue granulations are found in the cytoplasm, concentrated mainly in the portion situated between the nucleus and the posterior End. In the region anterior to the nucleus these granulations are dispersed, with broad transparent areas between them, and

concentrated at some points in a straight line near the membrane of the parasite body. The kinetoplast, situated near the nucleus, is rod-shaped and surounded by a transparent circular halo.

The undulating membrane has 4-6 clear waves. The nucleus is ovoid, often occupying the width of the parasite and shows a compact granulation, of a dark violet blue colour.

Drawings and photographs of various parasites in a thin blood smear are given in *figures 1* and *2* respectively. *Table 1* shows the measurements taken from 20 parasites compared with *T. freitasi.*

M. domesticus was found dead, after being kept in the laboratory for 8 days. Before death the animal was cachectic and trembling, in spite of having received adequate food (banana and eggs). Histology results were negative for the presence of any parasite or tissue reaction. Xenodiagnosis results were all negative.

None of the animals inoculated with the infected blood of *M. domesticus* showed any circulating forms in the blood.

Comments

Only two species of Trypanosomes of the subgenus *Megatrypanum* have been described to date for mammals of the order Marsupialia (Hoare, 1972). One of them is restricted to Australia and the other to Brazil.

The species described for Brazil, *T. (M.) freitasi,* was also found by Rêgo et al. (1957) and more recently by Rocha e Silva et al. (1976) in São Paulo State, and by Deane (1964) in Parã State.

Although the measurements given for *T. (M.) freitasi* by its authors cannot be statistically compared with those found for the new species studied in this paper, the following morphological differences should be pointed out (*table I*):

1. Total length, distance from final posterior portion to the middle of nucleus and the free flagellum are much smaller in *T. (M.) samueli.*

2. *T. (M.) samueli* is evidently much more slender than *T. (M.) freitasi.*

From a biological point of view, it was observed that the animals infected with *T. (M.) freitasi* always presented a low parasitemia (Rêgo et al., 1957, Deane, 1964 and Rocha e Silva et al., 1976). In the present paper, the only animal found infected and which survived in the laboratory for 8 days, showed a very high parasitemia.

The results found for xenodiagnosis infection of rodents in the laboratory, and the research on lesions or parasites in tissues studied agree with those reported by Rêgo et al. (1957), Deane (1964) and Rocha e Silva et al. (1976).

Considering the morphological aspects presented in the description of *T. (M.) freitasi,* we concluded that the differences between that species and the one studied here are sufficient to separate them.

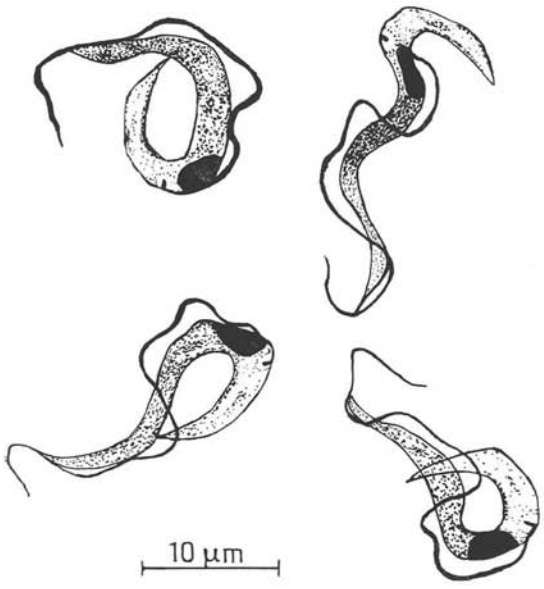

FIG. 1. — Drawing of *T.* (*M.*) *samueli* from blood smears, stained with Giemsa-Romanovsky, made in camera lucida (1,250 x).

FIG. 2. — Microphotograph of *T.* (*M.*) *samueli* from blood smears, stained with Giemsa-Romanovsky, made incamera lucida (1,250 x).

TABLE 1. — Comparative measurements of *T. (M.) samueli* n. sp., and *T. (M.) freitasi.*

Measurements	Trypanosomes species (um) *T. samueli* n. sp.	*T. freitasi* (from Rêgo et al., 1957)
Total length	42.4 (± 2.44)	49 -51.5
Distance posterior end to kinetoplaste	12.4 (± 0.99)	9.5-12.5
Distance posterior end to middle of nucleus	14.8 (± 1.29)	19.5-20.0
Distance from nucleus to anterior end	21.5 (± 1.24)	16.5-20.5
Free flagellum	7.2 (± 0.52)	11.0-13.0
Nuclear length	3.3 (± 0.4)	-
Breadth	3.1 (± 0.2)	7.5-10.0
Nuclear index	0.68	

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