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TRYPANOSOMA TANDONI SP. NOV. (PROTOZOA) FROM FRESHWATER SHARK *WALLAGO ATIU* (SCHN.)

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ABSTRACT

Trypanosoma tandoni sp. nov. is described from a freshwater shark, *Wallago attu* (Schn.) from Champahati, West Bengal, India. It is monomorphic, measuring 38.00 µm in total length. Volutin granules present in the cytoplasm. Nucleus sansage-shaped situated almost at the middle. Flagellum very long and sharp, distinctly visible with Leishman's stain. Its affinities with the allied species are incorporated in this paper.

INTRODUCTION

The present communication is the fourth instalment of the series and deals with the haematozoa of some fishes of commercial importance. A new species of trypanosome has been described herein after obtaining the specimens from two examples of a freshwater shark, *Wallago attu* out of 80 examined during the year 1975-1977.

The type specimens are deposited in the National Collection of the Zoological Survey of India, Calcutta.

MATERIAL AND METHODS

The fishes were procured from different fish markets of Calcutta and brought to the Laboratory for examination. The blood smears are generally taken by puncturing the bronchial blood vessels. Wright, Leishman and Giemsa's stain were used for staining. Some organ smears from the infected hosts were made and examined after necessary staining. Except in the peripheral blood nowhere the trypanosomes were possible to detect. The figures were drawn with the help of camera lucida and the measurements were taken by placing a thread along the middle of the parasite. About 10 to 50 trypanosomes were counted in a film positive for the parasite.

Trypanosoma tandoni sp. nov.

(Fig. 1A-G)

Description : The trypanosomes are monomorphic, elongated and attenuated at both ends. The configuration generally restricted to an 'S'. Length of the cell body 23.5 µm (range 20.5 µm) ; length of the free-flagellum 14.5 µm (range 11.5-18.5 µm). distance from anterior end of the body to the anterior end of the nucleus 10.0 µm (range 9.00-11.00 µm) ; length of the nucleus 2.5 µm (range

2.25-3.00 µm) ; width of the nucleus 0.75 µm (range .5-1.00 µm) ; distance from posterior end of the nucleus to the kinetoplast 7.00 µm (range 6.00-8.5 µm) ; length of the kinetoplast 1.5 µm (range 1.00-1.75) ; width of the kinetoplast 0.76 (range 0.5-1.00 µm) ; distance from kinetoplast to the posterior tip 1.5µm (range .5-2.00 µm) ; width of the undulating membrane 0.6 µm (range 0.3-95 µm) ; maximum width of the cell body 1.5 µm (range 1.3-1.8 µm). No polymorphism was noted and no divisional stages were found in the blood or any organ smear preparations.

Cytoplasm : The cytoplasm stains faint blue with Giemsa. Numerous granules are localized in the cytoplasm, deeply concentrated at the border opposite to the undulating membrane in a linear fashion. Sometimes few small vacuoles (2.5 in numbers) are found in the cytoplasmic area anterior to the nucleus.

Nucleus : The nucleus is sausage-shaped, placed almost at the middle of the body. Sometimes shifted a little towards the posterior end. It stains deep blue but does not occupy the entire width of the body. The nucleun materials lie in a uniform manner and do not form a karyhsomal mass in side.

Kinetoplast : The Kinetoplast is almost

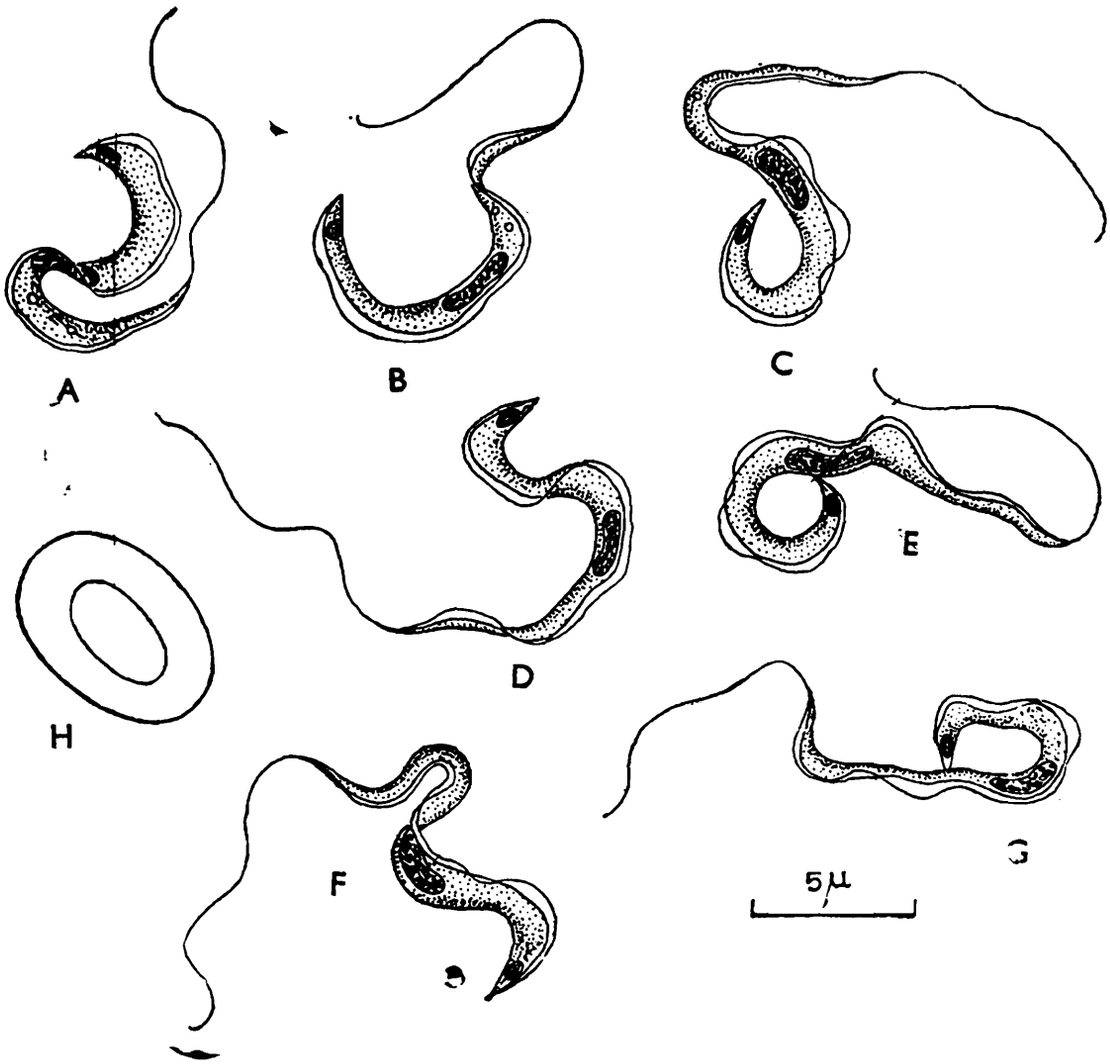

Fig. 1. (A—G). *Trypanosoma tandoni* sp. nov. (stained), H—Erythrocyte of host.

naviculoid in shape, sometimes oval forms have also been encountered in the preparation. It stains very deep with any stain and does not exceed the width of the cytoplasonic mass of the posterior end of the body where it is situated.

Flagellum and undulating membrane: The flagellum appears from the Kinetoplast and trails anteriorly bordering the undulating membrane. It extends beyond the body as a distinct large free flagellum and perform a clear lashing, movement when the organism is alive in citrate preparation. The undulating membrane stains very faint, having 5—9 folds and can easily be seperated from the body cytoplasm by its light colour bordered by thick flagellum.

Type host : Freshwater shark, *Wallago attu* (Schn.)

Site of infection : Blood.

Type specimens : Holotype Regd. No. 1937
paratype Regd. No. 1938
Locality : Champahati, 24-Parganas, West Bengal (India).

Vector and life cycle : Unknown.

Diagnosis of *Trypanosoma tandoni* sp. nov.

The trypanosome is monomorphic, measuring 38.00 μm in total length, with volutin granules in the cytoplasm, nucleus sausage-shaped situated almost at the middle but sometimes shifted a little towards the posterior end with uniform nucleolar mass. Kinetoplast naviculoid does not exceed the width of the body where it is situated. Undulating membrane prominent having 5-9 folds bordered by a distinct, elongated and thick flagellum.

REMARKS

The present species resembles *T. punctati* Hasan and Qasim (1962) *T. batrachi* Qadri (1962) *T. danilenskyi saccobranchi* Qadri (1962), *T. panchali* Mandal (1975) *T. anabasi* Mandal (1978), *J. cancili* Mandal (1978) and *T. chaudhury* Mandal (1976) due to monomorphic nature but differs from them for its enormous length of the free flagellum (14.5 μm) bordering the prominent undulating membrane of 5-9 folds. It also comes close to *T. chaudhuryi* Mandal in respect of the distribution of granules towards the border opposite to undulating membrane. But here the granules are uniformly distributed whereas in the *T. chaudhuryi* the granules are more towards portion anterior to the nucleus.

Therefore it is evident that due to the prominent and elongated flagellum with lashing movement when alive, and thicker concentration of granules towards the border opposite to undulating membrane are sufficient to seperate the present one from any of the known trypanosome described so far and designate as *Trypanosoma tandoni* sp. nov. The specific name is given after Dr. R. S. Tandon University of Lucknow, U. P. who reported the occurrence of trypanosome in *Wallago attu* for the first time. (*Vide* Tandon, 1977).

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