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***Trypanosoma naviformis* sp. nov. (Kinetoplastida: Trypanosomatidae)
from widespread African songbirds, the Olive sunbird (*Cyanomitra olivacea*)
and Yellow-whiskered greenbul (*Andropadus latirostris*)**

RAVINDER N. M. SEHGAL^{1,3}, TATJANA A. IEZHOVA²,
TIMOTHY MARZEC¹ & GEDIMINAS VALKIŪNAS²

¹Department of Biology, San Francisco State University, 1600 Holloway Ave., San Francisco, California, 94132.

E-mail: sehgal@sfsu.edu, timothymarzec@gmail.com

²Nature Research Centre, Institute of Ecology, Akademijos 2, LT-08412, Vilnius, Lithuania. E-mail: tatjana@ekoi.lt, gedvalk@ekoi.lt

³Corresponding author. E-mail: sehgal@sfsu.edu

Abstract

Trypanosoma naviformis n. sp. is described from the African olive sunbird *Cyanomitra olivacea* in Ghana based on the morphology of its hematozoic trypomastigotes and partial sequences of the small subunit ribosomal RNA gene. This parasite belongs to the group of small non-striated avian trypanosomes (< 30 µm in length in average) with the kinetoplast situated close to the posterior end of the body. *Trypanosoma naviformis* can be distinguished from other small avian trypanosomes due to its poorly visible flagellum, central position of its nucleus, and the symmetrically (in relation to the nucleus) narrowing of both ends of the hematozoic trypomastigotes, which are boat-like in shape. Illustrations of trypomastigotes of the new species are given, and SSU rDNA lineages associated with this parasite are documented. This parasite has been reported in Ghana and Cameroon and was also found in the yellow-whiskered greenbul, *Andropadus latirostris* in these countries. It appears to be widespread in its range given the distribution of these bird species in Africa.

Key words: *Trypanosoma*, bar coding, African birds, *Cyanomitra olivacea*, *Andropadus latirostris*

Introduction

Avian *Trypanosoma* parasites are cosmopolitan and some species have been reported to cause morbidity in birds (Baker, 1976; Molyneux *et al.*, 1983). Experimental studies (Fallis, *et al.*, 1973; Molyneux and Gordon, 1975) indicate that many morphotypes of bird trypanosomes can be readily distinguished in peripheral blood using morphological and morphometric characters, even during co-infections. These experimental studies indicate that the main morphological features of certain species remain constant during their development in different experimentally infected avian hosts. For example, hematozoic trypomastigotes of *Trypanosoma avium* never assume morphologies typical of *Trypanosoma everetti* or *Trypanosoma bouffardi* during single and simultaneous experimental infections, and they remain distinguishable. These experiments show that, despite some morphometric variations during development of the same *Trypanosoma* strains in different avian hosts, and marked variation of their morphology in vectors and in vitro cultures (Molyneux, 1977; Zidková *et al.*, 2012), the gross-morphological features of hematozoic trypomastigotes in the bloodstream are relatively stable. Thus, they can be used to identify new readily distinguishable morphotypes, as well as new parasite species or groups of species (Valkiūnas *et al.*, 2011). Identification of such readily distinguishable complexes of species is an important step in furthering the taxonomy of avian trypanosomes. *Trypanosoma everetti* is a well-known example of a species that was described solely based on morphological and morphometric characters (Molyneux, 1973).

During studies on the effects of deforestation on the prevalence of blood pathogens in African rainforest birds, large numbers of blood samples were collected from over 200 species of birds (Bonneaud *et al.*, 2009; Chasar *et al.*, 2009; Loiseau *et al.*, 2010; Sehgal *et al.*, 2011). The overall prevalence of trypanosomes exceeded 30% after