

The ruby-crowned tanager *Tachyphonus coronatus* Vieillot (Passeriformes: Thraupidae): a new host for *Isoospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009 (Apicomplexa: Eimeriidae)

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Abstract Lopes BB, Berto BP, Luz HR, Galvão GS, Lopes CWG. 2013. **The ruby-crowned tanager *Tachyphonus coronatus* Vieillot (Passeriformes: Thraupidae): a new host for *Isoospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009 (Apicomplexa: Eimeriidae).** [O tiê-preto *Tachyphonus coronatus* Vieillot (Passeriformes: Thraupidae): Um novo hospedeiro para *Isoospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009 (Apicomplexa: Eimeriidae)] *Coccidia* 1, 2-5. Departamento de Biologia Animal, Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro. BR-465 km 7, 23897-970 Seropédica, RJ, Brasil. E-mail: bertobp@ufrj.br

This study report ruby-crowned tanagers *Tachyphonus coronatus* Vieillot parasitized by *Isoospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009. This coccidium was originally described parasitizing the Brazilian tanager *Ramphocelus bresilius dorsalis* Sclater and thereafter from the palm tanager *Thraupis palmarum* Wied; however it has never been described in other hosts. Its oocysts are spherical to subspherical, $21.0 \times 20.6 \mu\text{m}$, with a smooth, bilayered wall. Micropyle, oocyst residuum and polar granule were absent. The sporocysts are ellipsoidal, $15.2 \times 9.3 \mu\text{m}$. The Stieda body is flattened and the substieda body is small and delicate. The sporocyst residuum is composed of scattered granules, which sometimes, turns into a ring form. The sporozoites are vermiform, with a robust and elongate posterior refractile body.

Keywords Morphology, sporulated oocysts, Coccidia, Thraupidae, Passeriformes, Marambaia Island.

Resumo Este estudo relata tiês-pretos *Tachyphonus coronatus* Vieillot parasitados por *Isoospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009. Este coccídeo foi originalmente descrita parasitando o tiê-sangue *Ramphocelus bresilius dorsalis* Sclater e, posteriormente, o sanhaço-do-coqueiro *Thraupis palmarum* Wied, no entanto, nunca foi descrito em outros hospedeiros. Seus oocistos são esféricos a sub-esféricos, $21.0 \times 20.6 \mu\text{m}$, com parede dupla e lisa. Micrópila, resíduo e grânulo polar estão ausentes. Os esporocistos são elipsoidais, $15.2 \times 9.3 \mu\text{m}$. O corpo de Stieda é achatado e o corpo substieda é pequeno e delicado. O resíduo do esporocisto é composto de grânulos dispersos, que, algumas vezes, formam um anel. Os esporozoítos são vermiformes, com corpo refrátil posterior robusto

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e alongado.

Palavras-chave Morfologia, oocistos esporulados, Coccidia, Thraupidae, Passeriformes, Ilha da Marambaia.

Introduction

The ruby-crowned tanager *Tachyphonus coronatus* Vieillot is an endemic thraupid bird from South America. It habits in Argentina, Brazil and Paraguay. Its distribution and ecological niches are similar to the others tanagers, as the Brazilian tanager *Ramphocelus bresilius dorsalis* Sclater and the palm tanager *Thraupis palmarum* Wied (Sick 1997, CBRO 2011, IUCN 2013).

Recently, some coccidian parasites were reported from birds on the Marambaia island. From thraupids, six *Isospora* Schneider, 1881 were recorded: (1) *Isospora tiesanguui* Berto, Flausino, Luz, Ferreira, Lopes, 2008; (2) *Isospora marambaiensis* Berto, Flausino, Luz, Ferreira, Lopes, 2008; (3) *Isospora sepetibensis* Berto, Flausino, Luz, Ferreira, Lopes, 2008; (4) *Isospora cadimi* Berto, Flausino, Luz, Ferreira, Lopes, 2009; (5) *Isospora navarroi* Berto, Flausino, Luz, Ferreira, Lopes, 2009 and (6) *Isospora ramphoceli* Berto, Flausino, Luz, Ferreira, Lopes, 2010. All these species were described from the Brazilian tanager *R.b. dorsalis* (Berto et al. 2008, 2009, 2010a); however, *I. tiesanguui* was reported from the palm tanager *T. palmarum* and blue dacnis *Dacnis cayana* Linnaeus and *I. navarroi* was reported from the palm tanager *T. palmarum* (Berto et al. 2010b, 2011b).

The aim of this study was to report one more host for *I. tiesanguui* in Marambaia Island: the ruby-crowned tanager *T. coronatus*.

Materials and methods

Four ruby-crowned tanagers were captured using nets at Marambaia Island (23°04'S, 43°53'W) in the State of Rio de Janeiro. They were kept in individual cages, and feces were collected immediately after defecation. After identification, the birds were released and the fecal samples were placed in plastic vials containing 2.5% potassium dichromate solution (K₂Cr₂O₇) 1:6 (v/v). Samples were carried to the Laboratório de Coccídios e Coccidioses,

Universidade Federal do Rio de Janeiro. Samples were placed in a thin layer (c.5 mm) of K₂Cr₂O₇ 2.5% solution in Petri plates and incubated at 23-28°C for 10 days or until 70% of the oocysts were sporulated. Oocysts were recovered by flotation in Sheather's sugar solution (S.G. 1.20) and examined microscopically using the technique described by Duszynski & Wilber (1997). Morphological observations and measurements, given in micrometers (µm), were made using a Carl Zeiss binocular microscope with an apochromatic oil immersion objective lens and an ocular micrometer (K-15X PZO, Poland). Line drawings were prepared using a Wild M-20 binocular microscope with a drawing tube. Photomicrographs were taken using a digital camera (Sony CD Mavica MVC-CD250). Size ranges are shown in parenthesis followed by average and shape index (L/W ratio).

Results and discussion

Four ruby-crowned tanagers were examined; being that one was positive for coccidia. Initially, the oocysts were nonsporulated, while 70% sporulated by day three.

The identified oocysts (Fig. 1) were spherical to subspherical, 21.0 (20-22) × 20.6 (20-21) µm, with shape-index of 1.02. Oocyst wall bi-layered and smooth, 1.1µm. Micropyle, oocyst residuum and polar granule are absent. Sporocysts ellipsoidal, 15.2 (15-16) × 9.3 (9-10) µm, with shape-index of with 1.63. Stieda body flattened, 0.5 high × 1.5 wide. Substieda body small and delicate, 1.0 high × 2.5 wide. Parastieda body absent. Sporocyst residuum composed of scattered granules, which sometimes, turns into a ring form. Sporozoites vermiform, with a robust and elongate posterior refractile body.

These oocysts had the same characteristic features of the oocysts of *I. navarroi* described from *R.b. dorsalis* and *T. palmarum* on Marambaia Island. Therefore, in the current study, a new host for *I. navarroi* is recorded, once that feature-similar oocysts were recovered from the ruby-crowned tanager *T. coronatus*.

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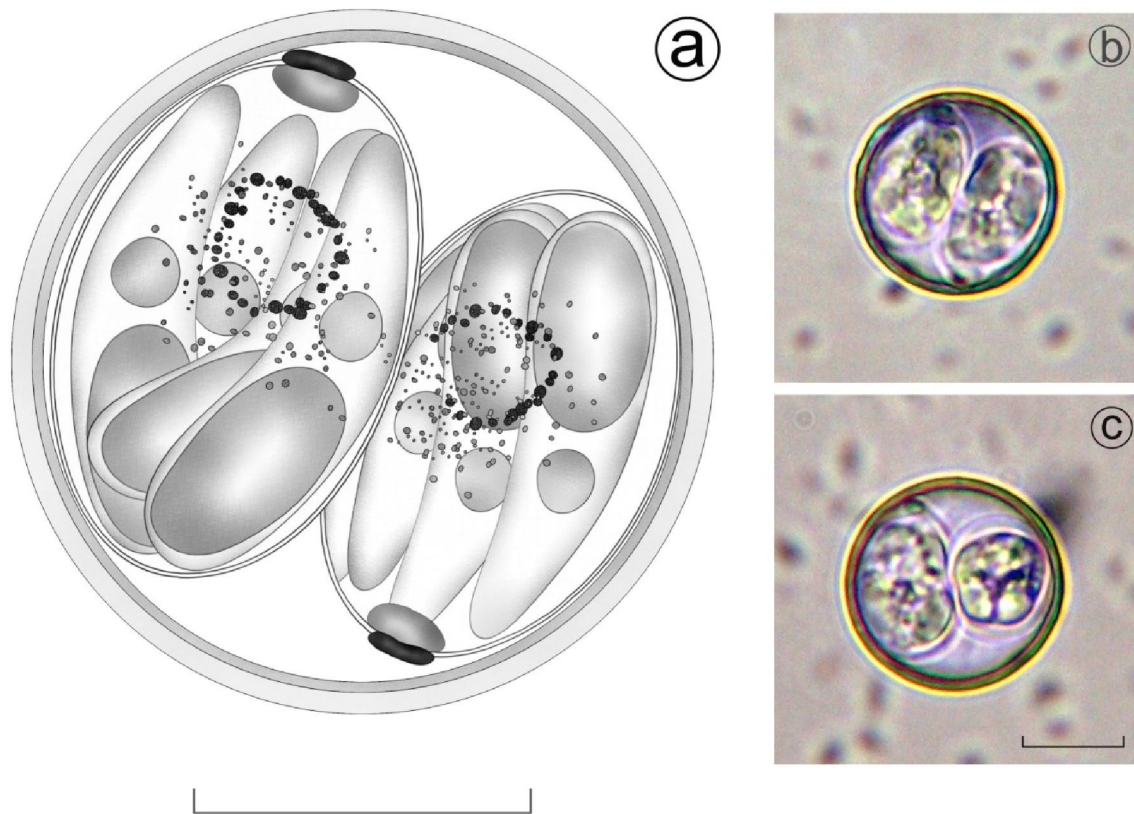


Fig. 1. Sporulated oocysts of *Isospora navarroi* recovered from ruby-crowned tanagers *Tachyphonus coronatus*: Composite line drawing (a) and photomicrographs. Scale-bar: 10 µm.

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