Isospora araponga sp. n. (Apicomplexa: Eimeriidae), a New Species of *Isospora* Schneider from a Bare-throated Bellbird, *Procnias nudicollis* (Vieillot, 1817) (Passeriformes: Cotingidae) from Brazil

Markéta Doležalová, Jordi Torres*, Hugo Fernández, David Modrý/***/+**

Department of Parasitology, University of Veterinary and Pharmaceutical Sciences, Palackého 1-3, Brno, 612 42 Czech Republic *Laboratori de Parasitologia, Facultat de Farmàcia, Universitat de Barcelona, Barcelona, España **Parc Zoològic de Barcelona, Barcelona, España ***Institute of Parasitology, Academy of Sciences of the Czech Republic, Èeské Budìjovice, Czech Republic

Faecal samples from a couple of bare-throated bellbirds Procnias nudicollis *imported from Brazil to Barcelona Zoo contained oocysts of* Isospora araponga *n. sp. Sporulated oocysts were subspherical to broadly ellipsoidal, 19.5 (17-22) × 15.5 (14-16.5) µm, shape index (length:width ratio) 1.26 (1.13-1.38) with smooth and colourless bilayered wall, about 1 µm thick, and with varying number (1-3) of polar granule, but without a micropyle or residuum. The sporocysts were ellipsoidal, slightly asymmetric, 12.5 (12-13) × 8.5 (7.5-9) µm with barely visible Stieda body and indistinguishable substieda body. Sporozoites were elongated, possessing smooth surface and two distinct refractile bodies.*

Key words: *Isospora araponga* n. sp. - *Procnias nudicollis* - Cotingidae - Brazil

Members of the Cotingidae are frugivorous or insectivorous passeriform birds inhabiting forests of subtropical and tropical America. So far, there were no species of coccidia reported from these hosts. The present study gives a description of a new species of *Isospora* from the bare throated bellbird *Procnias nudicollis*, species that is widely distributed from Brazil and Paraguay to Argentina.

MATERIALS AND METHODS

The faecal samples were collected during quarantine from a group of bare-throated bellbird, *Procnias nudicollis* (Vieillot, 1817), newly imported to Barcelona Zoo from Brazil. Exact locality of origin is unknown. Faecal material was kept at room temperature (at 19-21°C) in 2.5% potassium dichromate to complete the sporulation. Then, oocysts were examined microscopically after flotation in modified Sheather's sugar solution (s.g. = 1.3). The oocysts were measured with an ocular micrometer and photographed with Olympus AX 70 microscope. All measurements are in micrometers, as means followed by range in parentheses.

RESULTS

Isospora araponga n. sp.

Description - Oocysts are subspherical to broadly ellipsoidal, 19.5 (17-22) × 15.5 (14-16.5) (n = 30); shape index (SI, length: width ratio) 1.26 (1.13-1.38). Micropyle and oocyst residuum are absent, varying number (1-3) of polar granules present, usually slightly elongated, ~ 1 in diameter. Oocyst wall is bilayered, ~1.0 thick, smooth and colourless. Sporocysts are ellipsoidal, slightly asymmetric, 12.5 (12-13) × 8.5 (7.5-9), n = 30; sporocyst SI = 1.48 (1.33-1.67). Typically, the sporocyst tightly fits the internal diameter of the oocyst. Stieda body is barely visible, appearing as a slightly refractile fine plug, ~1 wide; substieda body is indistinguishable. Sporocyst residuum is present, usually as a cluster ~ 4 in diameter, consisting of numerous fine granules. Sporozoites are elongated, possessing smooth surface and two distinct refractile bodies, Anterior refractile body is spherical, ~ 2 in diameter, the posterior one is bean shaped, ~ 4 × 3.

Type host - *Procnias nudicollis* (Vieillot, 1817) (Aves: Passeriformes: Cotingidae), bare-throated bellbird.

Type locality - Material was isolated from faeces of captive birds imported to Barcelona from Brazil. Exact locality of origin is unknown.

Prevalence - Both *P. nudicollis* examined were infected.

Site of infection - Unknown, oocysts recovered from faeces.

Sporulation - Exogenous, 5 days at 19-21°C.

Type material - Photo-syntypes deposited under the collection nr R 73/2003 at Dept. of Parasitology, University of Veterinary and Pharmaceutical Sciences, Brno.

Etymology - The proposed specific epithet *araponga*, used herein as a noun in apposition, reflects the indigenous name of *P. nudicollis*.

DISCUSSION

I. araponga n. sp. is the first coccidian species reported to date from any member of the Cotingidae. So far, there are around 50 species of *Isopora* described from passeriform birds resident to Latin America or migrating through this subcontitent (Pellérdy 1974, McQuistion & Wilson 1988, 1989, McQuistion 1990, McQuistion & Capparella 1992, 1994, 1997, McQuistion et al. 1996, 1997, 1999, http://biology.unm.edu/biology/coccidia/table.html). The species described herein as a new species differs

+Corresponding author. Fax: +4205.4156.2266. E-mail: modryd@vfu.cz
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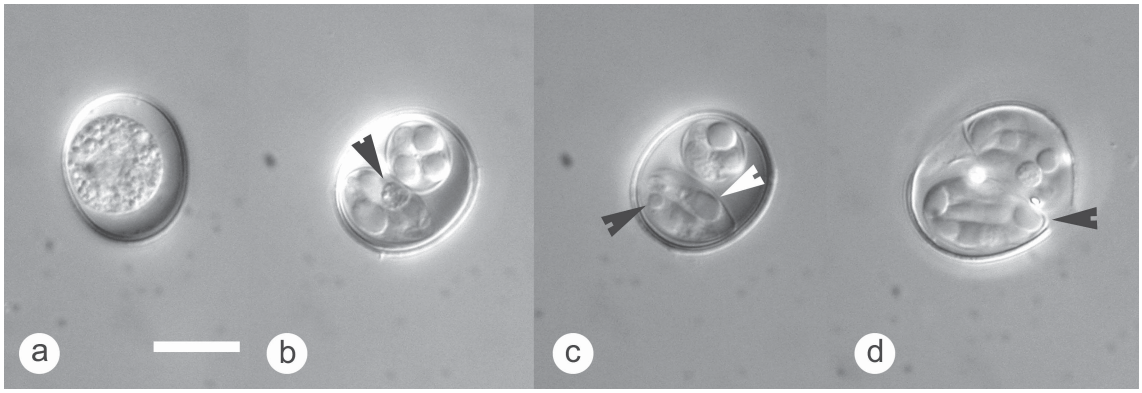

Fig. 1: Nomarski interference contrast (NIC) photographs of oocysts of *Isospora araponga* n.sp., all in the same scale, showing unsporulated (a) and sporulated oocysts (b-d), scale bar =10 µm. Note compact sporocyst residuum (b, black arrowhead), anterior (c, black arrowhead), and posterior (c, white arrowhead) refractile bodies and fine Stieda body (d, black arrowhead).

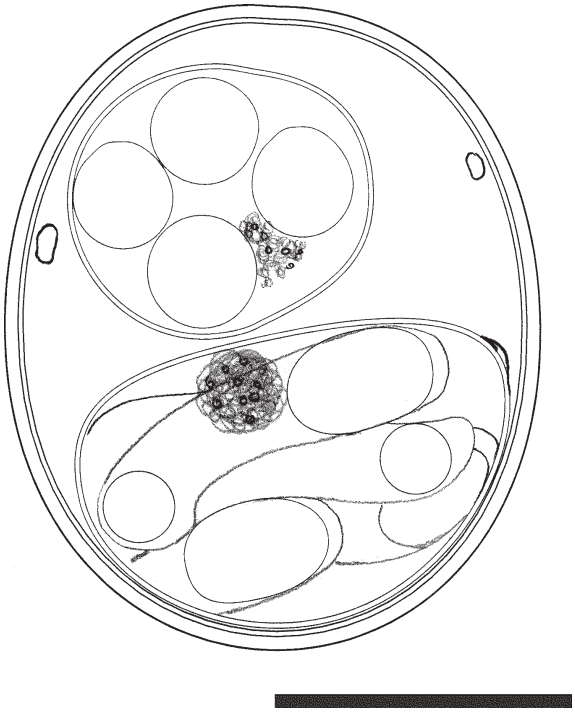

Fig. 2: composite line drawings of sporulated oocyst of *Isospora araponga* n.sp., scale bar = 10 µm.

from all previously described isosporans from Latin America. The species most closely resembling *I. araponga* n. sp. are *I. geospizae* McQuistion and Wilson 1989 from *Geospiza* spp. from Galapagos and *I. automoli* Mc Quistion, Barber and Capparella 1999 from *Automolus* spp. from continental Ecuador (McQuistion & Wilson 1989, McQuistion et al. 1999). However, *I. araponga* n.sp. differs from *I. geospizae* in oocyst morphology, being larger (17-22 × 14-16.5 vs. 17 × 13), and having much thicker oocyst wall. In contrast, oocysts of *I. automoli* are distinctly larger (17-24 × 18-28) than those of *I. araponga* n.sp. and possess only a single refractile body in each sporozoite. All above mentioned morphological traits, together with host's systematics and distribution justify the description of *I. araponga* as a new species.

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