

Morphological and molecular characterization of *Isospora elliotae* n. sp. (Apicomplexa: Eimeriidae) from the Australian magpie *Gymnorhina tibicen* (Latham, 1801) (Passeriformes: Artamidae) in Western Australia

Rongchang Yang¹, Siobhon Egan¹, Huimin Gao², Belinda Brice³, and Bruno Berto⁴

¹Murdoch University

²Hebei Academy of Agriculture and Forestry Sciences

³Kanyana Wildlife Rehabilitation Centre

⁴Universidade Federal Rural do Rio de Janeiro

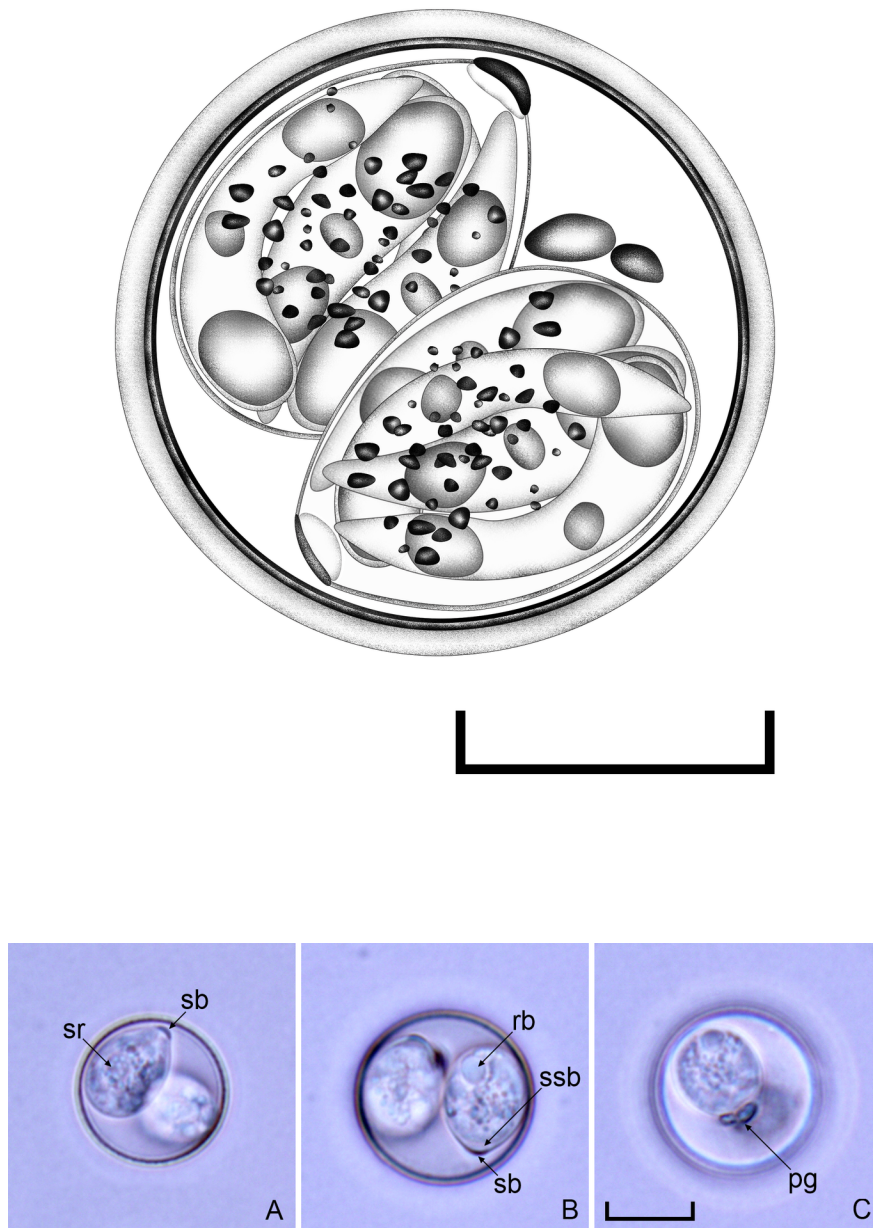
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Abstract

A new coccidian species, *Isospora elliotae* n. sp., from the Australian magpie *Gymnorhina tibicen* (Latham, 1801) in Western Australia is described and characterised morphologically and molecularly. Microscopic analysis of a faecal sample identified subspheroidal oocysts (n = 20), 20–22 × 18–20 (20.7 × 18.7); length/width (L/W) ratio 1.05–1.14 (1.10). Wall bi-layered, 1.0–1.3 (1.2) thick, outer layer smooth, c.2/3 of total thickness. Micropyle and oocyst residuum absent, but usually two polar granules are present. Sporocysts (n = 28) ovoidal, 12–13 × 9–11 (12.6 × 9.7); L/W ratio 1.22–1.35 (1.30). Stieda body present, flattened to half-moon-shaped, c. 0.5 deep × 2.0 wide; sub-Stieda indistinct or barely discernible, c. 1.0 deep × 2.5 wide; para-Stieda body absent; sporocyst residuum present, composed of granules dispersed among the sporozoites. Sporozoites vermiform, with anterior and posterior refractile bodies and nucleus. Segments of three gene loci (18S rRNA, 28S rRNA and COI) were sequenced and *I. elliotae* n. sp. exhibited 99.8% genetic similarity to *Isospora* sp. MAH-2013a (KF648870) followed by 99.7% genetic similarity to *Isospora neochmiae* Yang, Brice & Ryan, 2016 (KT224380) at the 18S rRNA gene locus. It shared 97.0% genetic similarity with an unnamed *Isospora* sp. (AY283852) at the 28S rRNA gene locus and it also shared the highest genetic similarity of 99.8% with the unnamed *Isospora* sp. from an American crow (OL999120) at the COI gene locus. Based on morphological and molecular data, this isolate is a new species named as *I. elliotae* n. sp.

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A new species of *Isospora* from the Australian magpie_12Jun2023.docx available at <https://authorea.com/users/301525/articles/648721-morphological-and-molecular-characterization-of-isospora-elliotae-n-sp-apicomplexa-eimeriidae-from-the-australian-magpie-gymnorhina-tibicen-latham-1801-passeriformes-artamidae-in-western-australia>



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Fig. 3.pptx available at <https://authorea.com/users/301525/articles/648721-morphological-and-molecular-characterization-of-isospora-elliotaen-sp-apicomplexa-eimeriidae-from-the-australian-magpie-gymnorhina-tibicen-latham-1801-passeriformes-artamidae-in-western-australia>

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