Morphological and molecular data of a species of Schellackia (Apicomplexa: Schellackiidae) parasitizing the common River frog, Amietia delalandii, from the northern parts of South Africa

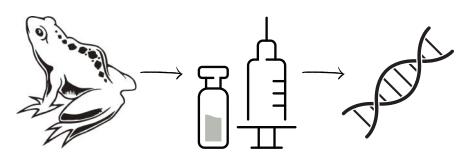


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BACKGROUND

- Haemococcidia are heteroxenous parasites.
- Transmission occurs through a mechanical or paratenic haematophagous invertebrate vector.
- Vertebrate hosts are infected during the feeding of or via ingestion of infected vectors.
- Schellackia is one of three genera of haemococcidia.
- Thirteen species of Schellackia have been described worldwide.
- It was believed that frog haemococcidia comprised only of species of Lankesterella and that species of Schellackia only infected reptiles.
- Only two species of *Schellackia* have been reported within the peripheral blood of frogs, with a third species found in an African frog (unpublished data).
- The undescribed *Schellackia* sp. in this study is the fourth species found to infect frogs and the second within African frogs.

MATERIALS AND METHODS



- Frog blood samples were collected and screened for blood parasites.
- Morphological and molecular characterization was used to estimate the phylogenetic placement of an undescribed haemococcidian.

RESULTS

MORPHOLOGICAL CHARACTERISTICS **MOLECULAR RESULTS** *Lankesterella sp. ex Bocage's Lizard Lankesterella papernai ex Spiny Reed Frog Lankesterella sonjae ex Pool Frog Parasite lying within Lankesterella minima ex American Bullfrog parasitophorous Lankesterella minima ex Pool Frog vacuole Lankesterella sp. ex Green Tree Frog Crescent shaped Lankesterella sp. ex Arabian toad parasite Lankesterella valsainensis ex Eurasian blue tit Enlarged Lankesterella sp. ex Snow bunting parasitophorous vacuole Lankesterella sp. ex Spotted Grass Frog **Immature** Lankesterella minima ex Bronze Frog sporozoites Lankesterella sp. ex Fan-Fingered Gecko White vacuole-like Mature sporozoites Lankesterella sp. ex Persia Rock Gecko appearance with dark Lankesterella sp. ex Hajar Mountains Half-toed Gecko purple stained Lankesterellidae Lankesterella sp. ex Painted Tree Iguana boarder Isospora spp. ex Geckos and Bearded Dragons Caryospora ernsti ex North American Green Anole Caryospora bigenetica Eimeriidae Schellackia sp. ex Plain Grass Frog (unpublished data) **CONCLUSION** Schellackia sp. ex Dwarf Puddle Frog (unpublished data) Schellackia sp. ex African Bullfrog (unpublished data) Cossidia sp. ex Spotted Grass Frog Schellackia sp. ex Common River Frog Schellackiidae Phylogenetic analysis shows species of *Eimeria* spp. ex Crane spp. Schellackia isolated from reptiles and Eimeria trichosuri ex Mountain brushtail possum Eimeriidae Eimeriidae sp. ex Leatherback sea turtle anurans, formed separate clades nested Schellackia sp. ex Viviparous Lizard Schellackia bolovari ex Fringe-fingered Lizard between clusters of species of Eimeria. Schellackia sp. ex Green Sea Turtle Based on morphological and molecular Schellackia orientalis ex Six-striped Long-tailed Grass Lizard Eimeria arnyi ex Ringneck Snake findings an unknown species of Schellackia sp. ex Caucusus Emerald Lizard Eimeria ranae ex European common frog Schellackia from a South African frog is Schellackia sp. ex Green belly Lizard Schellackia sp. ex Guadarrama Wall Lizard presented. Schellackia sp. ex Cyren's Rock Lizard Schellackia sp. ex Common Wall Lizard *Schellackia* sp. ex Large Psammodromus Schellackia sp. ex Iberian Emerald Lizard Schellackia sp. ex Iberian Emerald Lizard Schellackiidae Schellackia sp. ex Green Sea Turtle Goussia spp. ex frogs Eimeriidae Choleoeimeria sp. ex Royal Snake Toxoplasma gondii Outgroup



