



Exploring the presence of human-related microsporidian spores in lizards from Bombali District, Sierra Leone

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INTRODUCTION & AIMS

Human-related microsporidia have been detected in a wide range of vertebrates, however their zoonotic potential is not well understood.

Aims to determine the presence of *Enterocytozoon bienewsi* and *Encephalitozoon* spp. [*E. intestinalis*, *E. hellem* and *E. cuniculi*] in lizard faeces from different urban and rural areas from Bombali District, Sierra Leone.

RESULTS

None of the samples monitored were positive for any of the four human-related microsporidia species studied, suggesting a minimal presence and circulation of these species in lizards in the monitored areas.

A literature review has shown that spores related to *Encephalitozoon* spp. were observed in 3% of twenty-nine stool smears from lizards examined in Baltimore Zoo (US).

CONCLUSIONS

Although our results would suggest a minimal risk for humans derived from direct/indirect exposure to microsporidia potentially present in lizards' faeces, further molecular analysis for the detection of other important microsporidian species (e.g. *Pleistophora* spp., which has been reported in reptiles and affect human skeletal muscle; Graczyk & Cranfield, 2000) that could affect humans would be required to be performed in these samples to eliminate any potential risks for human health, as lizards are very common in Sierra Leone, such as *Tarentola parvicarinata* (Sierra Leone wall gecko), which is readily found in indoor built environments.



MATERIALS & METHODS

DNA was extracted from nineteen lizard (from different species, data still unknown) faecal droppings collected in 2019 from different locations, including different recreational areas in urban and rural environments across Bombali (9 Club House Garden State, 5 Roland Beach, 4 Conteh U and one from St Francis Field), using Fast-Prep for Soil® kit (Fig. 1) after appropriate pre-concentration.

A SYBR Green real-time polymerase chain reaction technique was used for simultaneous detection of these microsporidian species (Polley et al., 2011). Organic matter content (OM), pH, electric conductivity (EC) and the texture (percentages of sand, clay and silt) were determined in soil samples using previously described methods.

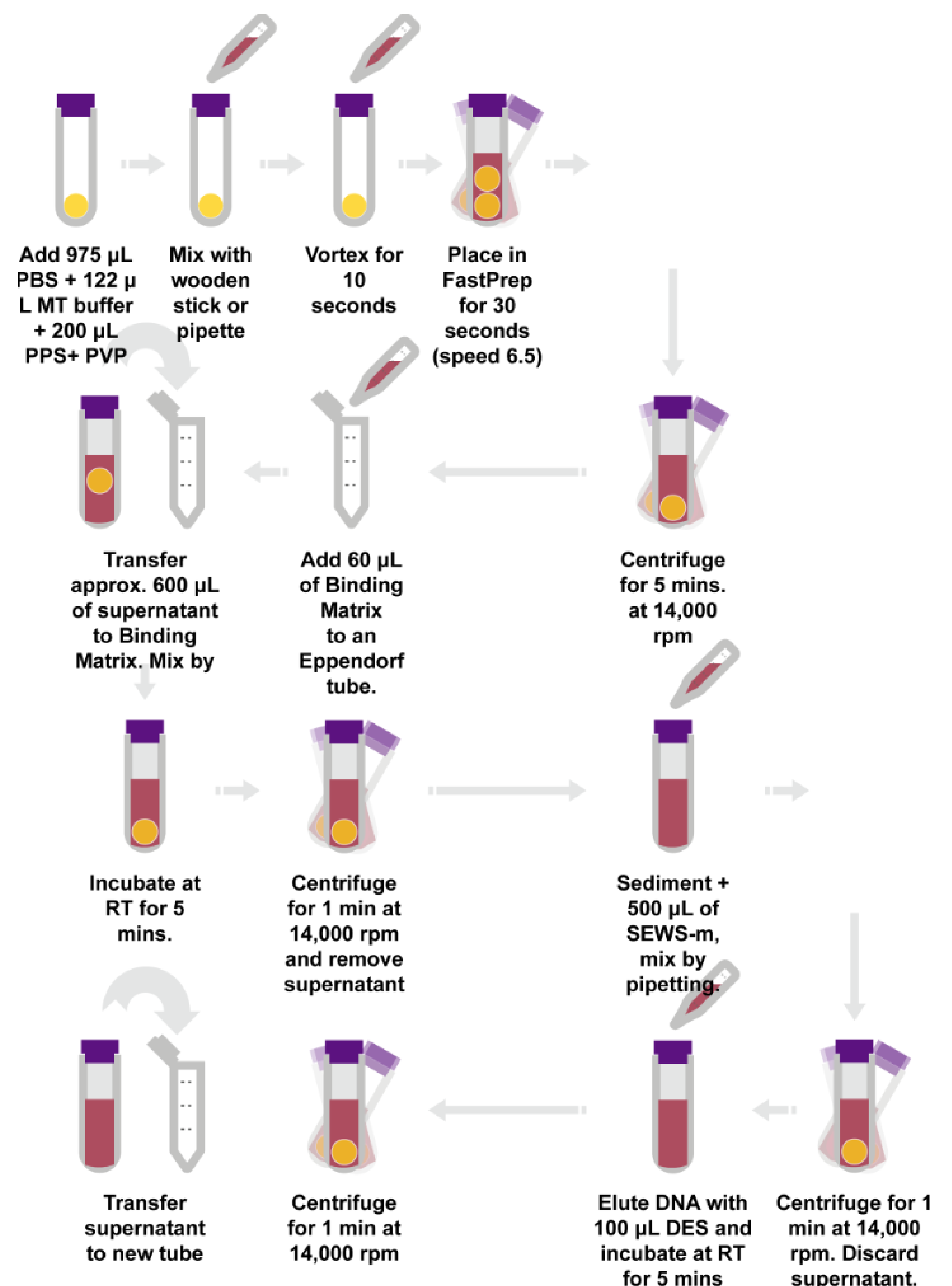


Figure 1. Extraction of DNA using the Fast-Prep for Soil® kit following the methodology previously described by Galván-Díaz et al. (2014).

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