

Abstract

This study is a descriptive cross sectional study to identify fungi and viruses in bat guano found in the Botanical Gardens, Peradeniya, Sri Lanka.

Objectives

The objectives of this study were to isolate and identify some viruses and fungi from bat guano samples found in Botanical Gardens Peradeniya.

Methodology

January to March 2013 and January 2014 sampling for fungal isolations.

April to June 2014 for coronavirus detection.

Sampling method and sample processing for mycology

About 1g of fresh bat guano was collected into sterile containers from sites where bats roost after laying clean polythene sheets under the trees. For fungal isolation, samples were suspended in normal saline with antibiotic (Penicillin and Gentamicin) solution and homogenized samples were inoculated onto Sabouraud Dextrose Agar plates with chloramphenicol and Bird Seed agar and incubated at 27°C and at 37°C until colonies could be seen.

Fungal isolation and characterization

Isolation of *Cryptococcus neoformans* was based on standard colony morphology on Sabouraud Dextrose agar (SDA) and Bird Seed agar, microscopic appearance, enzymatic (urease) activity, and sugar (inositol, dulcitol and lactose) assimilation. *Histoplasma capsulatum* culture identification was based on colony morphology on SDA, microscopic appearance and conversion of the mould form to yeast phase at 37°C on Brain Heart Infusion agar.

Virus detection

For viral detection, samples were collected into viral transport media to be tested for the presence of corona viruses using polymerase chain reaction techniques. Extraction of RNA was done from these samples by using the QUIAGEN kit and cDNA was made from the extracts by RT PCR and then a nested PCR was done for corona virus detection with positive and negative controls.

Results

Eight of 50 bat guano samples were positive for corona virus. *C. neoformans* and *H. capsulatum* were not isolated from any of the samples.

Conclusions

Sri Lankan flying foxes (*Pteropus giganteus*) are a possible source of zoonotic coronavirus.

The bats which roost on tree-tops in the National Botanical Gardens did not excrete *Histoplasma* or *Cryptococcus* species in their guano during the study period.