

Preliminary identification of coronaviruses in selected locations of Sri Lanka

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Introduction: Bats for centuries have been known to harbour viruses asymptotically, passing viruses, including coronaviruses (CoV), from one to another in their compact living patterns, and providing opportunities for genetic changes that may lead to a spill-over to other animals or human hosts. The emergence of SARS-CoV-2 in 2019 was also traced to bats identified as the native host to the virus. Based on phylogenetic analysis, SARS-CoV-2 shares very high genetic identity to a bat CoV strain.

Objective: The aim of this study was to identify CoV in bats in selected environments in the Central province of Sri Lanka between June to October 2022.

Methods: Fresh bat guano was collected in selected locations (Royal Botanical Gardens, Peradeniya, Wildlife Centre in Randenigala, and a cave in Minipe) in the Central Province of Sri Lanka. A total of 48 guano were collected and each of the guano was mixed with 1mL of Phosphate Buffered Saline separately for viral RNA extraction. The guano were then transported on ice to the Department of Microbiology, Faculty of Medicine, University of Peradeniya and stored at -80 °C. Viral RNA was extracted using a commercial viral nucleic acid extraction kit (ADT Biotech, Malaysia) as per manufacturer instructions. RNA extracts were subjected to a conventional PanCoV nested RT-PCR, which is designed to target RNA-dependent RNA polymerase gene with a 442 base pair fragment, a conserved segment in the *Orthocoronavirinae* family.

Results: Of the 48-bat guano tested, 23(48%) were positive for CoV by nested RT-PCR (detailed results given in Table). Partial sequencing of randomly selected PCR products demonstrates the presence of both alpha and beta CoV in the tested bat guano.

Table:CoV positivity bat guano in selected locations in the Central Province of Sri Lanka.

Location	Bat species	CoV positivity	
		n	%
Royal Botanical Gardens	<i>Pteropus giganteus</i>	8/18	44
Wildlife Centre, Randenigala	unknown <i>Hipposideros spp.</i>	5/14	36
A cave in Minipe	unknown <i>Hipposideros spp.</i>	10/16	63
Total		23/48	48

Conclusions: Alpha and beta CoV were detected in bat guano collected from the Central Province of Sri Lanka. Sequencing work is in progress to identify the details of these CoVs.


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