

PREVALENCE AND GENETIC VARIATIONS OF BOVINE AND BOVINE-LIKE ENTEROVIRUSES DETECTED IN CATTLE AND GOAT FECES AND IN WATER SOURCES SURROUNDING ANIMAL FARMS IN KANCHANABURI PROVINCE, THAILAND

Nicharee Income^{1,2}, Nathamon Kosoltanapiwat^{1*}, Sarawut Taksinoros²,
Thanyaporn Homat², Pornsawan Leungwutiwong¹, Pannamas Maneekarn³
and Irwin F. Chavez⁴

¹Department of Microbiology and Immunology, Faculty of Tropical Medicine, Mahidol University, Bangkok 10400, Thailand; ²Pasupalun Livestock and Wildlife Hospital, Faculty of Veterinary Science, Mahidol University, Kanchanaburi; ³Department of Tropical Hygiene, Faculty of Tropical Medicine, Mahidol University, Bangkok; ⁴Southeast Asian Ministers of Education, Tropical Medicine and Public Health Network, Bangkok, Thailand

Bovine enteroviruses (BEV), composing enterovirus (EV) species E and F, are non-enveloped RNA viruses of the genus *Enterovirus*, family Picornaviridae. They are commonly found in cattle and previously considered as non-pathogenic. Nevertheless, recent evidences suggest these viruses could be associate with disease in cattle. BEV-like enteroviruses have been increasingly isolated from a wide range of animals, such as deer, goat, goose, horse, possum, and sheep from many countries. There also were reports suggesting detection of BEV in water samples can be used as an indicator of animal fecal contamination to water source. In this study, molecular techniques and phylogenetic analysis were used to determine BEV and BEV-like virus prevalence and genetic variations in feces freshly collected from rectum of cattle and goats in Kanchanaburi province, Thailand. Presence of the virus in water and other animal feces collected around the cattle and goat farms was also determined to investigate possible virus contamination of the surrounding environment and other animals. RT-PCR revealed BEV or BEV-like viruses in 55/157 and 54/117 of cattle and goat fecal samples respectively. BEV sequences were detected in 6/17 water samples and a pool of chicken feces collected in cattle farm areas. Phylogenetic analysis demonstrated presence of EV-E and EV-F in cattle feces, EV-F and BEV-like viruses in goat feces, and EV-F in water and chicken feces. The detection of BEV in water and chicken feces indicates the viruses

*Corresponding author: E-mail: nathamon.kos@mahidol.ac.th

circulating in cattle can contaminate the surrounding environment and be taken up by animals living nearby. These findings suggest that a surveillance of BEV in animals and surrounding environment should be conducted in other regions of the country and an implementation should be put in place to control the spread of BEV among host animals and its contamination of the environment.