Detection of Bovine Enterovirus Carried by Yellow Dung Fly in Yak Farms in Xining City of Qinghai Province, China

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Abstract

The yellow dung fly Scathophaga stercoraria (L.) (Diptera: Scathophagidae) is one of most common fly species in animal farm. This species has been listed as a standard test organism for evaluating toxic effects of veterinary pharmaceuticals in livestock dung, and used extensively to investigate questions in animal ecology and evolution. However, no viral infection studies have ever been performed on the yellow dung fly and the relationships within diarrhea disease of animals remain unclear. Flies were sampled using dung-baited pitfall traps from Xining yak breeding farms in Qinghai Province, A fragment of the mitochondrial gene COI (subunit I of the cytochrome oxidase gene) in flies, and the 3D genes of bovine enterovirus in Scathophaga were amplified by PCR. It was found that the relatedness of the COI gene of Scathophaga in this study with Tibet's (specimen voucher: CSU201222XHF3) was 99.36%, confirming that they were belong to the same species. The bovine enterovirus were detected in Scathophaga in this investigation, with a total positive rate of 4.8%. After sequence alignment and splicing, the 3D gene regions have a close genetic evolutionary relationship with Sichuan Yak enterovirus SWUN-AB001 strain, belong to the Yak enterovirus like evolutionary branch, with a homology of 87.39%. The research showed that the yellow dung flies have potential transmission risks, and this study provides a reference for the prevention and control of gastrointestinal diseases in yak farms and public health.

Keywords

Diptera, Scathophaga Stercoraria, Mitochondrial Gene, Yak, Bovine Enterovirus

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