

TITLE: SHIGA TOXIN-PRODUCING *Escherichia coli* ISOLATED FROM *Musca domestica* COLLECTED IN DAIRY FARM

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ABSTRACT:

Musca domestica species (Linnaeus, 1758) are known for their pronounced synanthropic behavior, being able to transit between contaminated (feces and garbage) and uncontaminated (food) sources, acting as vectors of several pathogens in the environment. Since healthy cattle is the main STEC reservoir, this study sought to investigate the presence of such strains in flies developing close to calves. *Escherichia coli* strains were isolated from the external surface of flies collected nearby the calves from a dairy farm in the city region of Botucatu, SP, Brazil, using a sweep net. The virulence factors *stx1*, *stx2*, *eae*, *hlyA*, K99 (F5), LT2 and STa were searched by PCR assay and the *stx1* and/or *stx2* positive strains were selected for the *in vitro* cytotoxicity assay in Vero cells. The antimicrobial susceptibility was determined by disk diffusion. Of 57 flies, 35.1% (20/57) were identified as *Musca domestica* and 64.9% (37/57) as other species of the Muscidae, Fanniidae, Calliphoridae, Chloropidae and Acalyprtratae family. In total, 135 *E. coli* strains isolated, with 7/135 (5.2%) of strains from *M. domestica* showing a positive genotype for *stx1* and cytotoxic effect in Vero cells but not the *eae* gene. The relative frequencies of the other virulence factors tested were LT2 (14.1%), *hlyA* (8.1%), K99 and STa (3.7%) and *eae* (2.9%). None isolate was positive for *stx2*. One STEC strain showed multidrug resistance (β -lactam, sulphonamide + folate pathway inhibitor, and tetracycline). Considering that *M. domestica* exhibits a transiting behavior between contaminated and uncontaminated environments, as well as the importance of STEC infection in humans, usually linked to contaminated food, the results indicate that *M. domestica* can carry strains of STEC in the environment, probably from cattle, and contribute to STEC transmission.

Keywords: flies, STEC, mechanical vectors, calves

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