TITLE: SCREENING OF POLYMYXIN-RESISTANT *Escherichia coli* ISOLATED FROM FLIES COLLECTED IN DAIRY FARMS

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ABSTRACT:
Polymyxin has been used in veterinary medicine for decades. Recently, the discovery of plasmid-mediated polymyxin resistance in several countries has appointed to the emergence and spread of the polymyxin resistance genes in rural and urban environments. The importance of animal husbandry for polymyxin resistance context has been investigated widely. Therefore, in this study, we investigated the occurrence of polymyxin-resistant *Escherichia coli in* strains isolated from the external surface of the flies. The flies were collected with an entomological net in two dairy farms (Botucatu, SP, Brazil). For *E. coli* isolates we transfer the flies to *Escherichia coli* broth medium. After, the culture was placed onto MacConkey and identified by biochemical tests. Screening for polymyxin was assayed using MacConkey agar with polymyxin B (2µg/mL) and *mcr1, mcr2*, *mcr3*, *mcr4*, and *mcr5* genes were investigated by multiplex PCR. We isolate 198 *E. coli* from 96 flies of these, 65 showed growth on MacConkey with polymyxin B. Multiplex PCR was assayed for 65 polymyxin resistant *E. coli*, but none strain showed *mcr* genes. Polymyxin resistance in Enterobacteriaceae can be due to a mutation in LPS gene encoded by chromosome similarly to intrinsic resistance of *Proteus mirabilis* and *Serratia marcescens*. Four strains polymyxin-resistant from flies have been analyzed in a previous study and this strains harbored class 1 integron. Integrons are genetic elements associated with transposons can to mediate excision and integration of antimicrobial resistance genes in chromosomal DNA or plasmids. Concentrations of polymyxin B used (2µg/mL) have selected intrinsic resistance and plasmid-mediated. Our findings of *E. coli* polymixin-resistant no mediated by *mcr* genes within plasmids infer chromosomal resistance or another variant gene. Integron presence simultaneously alarms to the potential mobilization of the gene in accordance with the evolution course of antimicrobial resistance in strains from animals and humans.

Keywords: calves, integron, plasmids
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