

TITLE: DETECTION OF POSITIVE *ENTEROCOCCUS FAECALIS vanB* IN SYNANTHROPIC FLIES

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ABSTRACT:

Bacterial resistance is a problem all over the world and muscoid dipterans can disseminate, and also act as indicators of environmental contamination by antimicrobial resistance. The main objective of the study was to prospect for antibiotic resistant bacteria in flies captured in an area close to a poultry factory and investigate the presence of antibiotic resistance genes in this sample.

The collections of flies were carried out in Rio de Janeiro city (22°57'4.48''S 43°20'48.41''W), with PET bottle traps containing putrefied ground meat. Bacteria were identified by MALDITOF MicroflexLT (BrukerDaltonics) and dipterans by dichotomous key. Phenotypic sensitivity of resistance (TSA), was performed by disk-diffusion and the genotypic detection of the *vanA*, *vanB*, *van C1* and *C2* genes, which confer resistance to vancomycin, was performed by PCR. The interpretation of the TSA was based on the recommendations of the Brazilian Committee on Antimicrobial Susceptibility Testing (BrCast, 2019). As a result, 55 flies identified as Muscidae or Fannidae were captured. From these, 44 bacteria were isolated. 19 strains were identified as *Enterococcus faecalis*: three resistant to tetracycline, chloramphenicol, teicoplanin and ciprofloxacin, and two were classified as multiresistant. Four strains of *E.faecalis* were positive for the *vanB* gene.

Although *E. faecalis* is commonly isolated from insects, this is the first report of the presence of *vanB* in a bacterial sample present in muscoid dipteran. This species is an opportunistic pathogen and fits into the group of the acronym ESKAPE, in addition to being able to acquire and donate resistance genes. The *vanB* gene, present more frequently in the chromosome, confers resistance to vancomycin and can be transferred through the acquisition and/or exchange of transposons. The emergence of VRE's (vancomycin resistant *Enterococcus*) in different regions may be the result of a possible route of infection between animals and humans, and in this context, having the muscoid dipterans as an amplifying and dispersing agent of these bacteria.

Keywords: antibiotics; bacteria; muscoid dipterans; diversity; resistance

Development agency: Coordination for the Improvement of Higher Education Personnel - CAPES

