

Título: Muscoid Dipterans as carriers of drug resistant bacteria in urban areas of Rio de Janeiro

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Resumo

A serious public health problem is the spread of antibiotic-resistant bacteria. Among resistance mechanisms is the production of enzymes which hydrolyze antibiotics. Among them we can highlight the β -lactamases which confers resistance to β -lactam antibiotics, some of the most widely used antibiotics in clinical practice. It is well known that multiresistant bacteria are not just a hospital issue but also there are several routes of pathogens spread in the environment. Muscoid dipterans are of health importance as they are mechanical vectors of pathogens. The aim of this study is to detect the presence of bacteria resistant to β -lactam and its β -lactamases in these dipterans. Flies were collected in a dumpster and around a hospital in Rio de Janeiro with the aid of bait or dip net. Flies of F7 generation from laboratory were used as a negative control. The flies were soaked in saline solution and suspensions were diluted to 10^{-4} and plated in medium containing ceftriaxone 0,5 mg/L. Different colonial morphotypes were isolated and stored in BHI with glycerol 20%. Antimicrobial susceptibility test was done by disk diffusion method on Müller-Hinton agar to imipenem, meropenem, ceftazidime and cefepime (Sensifar). Samples with intermediate or resistant profiles were separated for identification by VITEK[®] 2 ID, Matrix Associated Laser Desorption-Ionization Mass Spectrometry (MALDI-TOF MS) (VITEK[®] MS RUO), both from Biomerieux, and sequencing of 16S rDNA. Ten collections were performed and flies of the species *Chrysomia megacephala*, *Chrysomia putoria*, *Musca domestica*, *Fannia* sp. and individuals of Sarcophagidae family were identified. Pupae of *Lucilia eximia* species collected in Amazon were also investigated. From these flies 69 strains were isolated, 14 of them had intermediate or resistant phenotypes for cephalosporins and/or carbapenems. All these samples are being investigated for 14 β -lactamases genes by PCR. The preliminary results of sequencing of 16S rDNA and MALDI-TOF (MS) identified *Myroides* sp., *Proteus* sp., *Bacillus cereus* group, *Lactococcus lactis*, *Acinetobacter* sp. and *Staphylococcus sciuri*. These results suggest the potential of muscoid dipterans in the dissemination of antibiotic resistance.

Palavras-chaves: antibiotic-resistant bacteria, β -lactamases, MALDI-TOF, muscoid dipterans, 16SrDNA

Agência de fomento: Fiocruz/IOC and CNPq