

TITLE: ANALYSIS OF GRAM-NEGATIVE BACTERIA RESISTOME IN AFLUENTS OF THE GUAMÁ RIVER IN THE CITY OF CAPITÃO POÇO - PA

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ABSTRACT:

The indiscriminate use of antibiotics (ATB) has triggered serious health problems due to the resistance caused by it. Unnecessary prescription of ATB, incorrect administration and disposal are the main routes of induction of mutations and propagation of resistance genes through horizontal gene transfer. Consequently, the accumulation and exposure of ATB has caused the environment and living beings that interact with these ATBs in resistance in bacteria as never before. The impact of antibiotic resistance on human, animal and environmental health is of the utmost importance considering the One-Health perspective, since research related to this area can guide solutions that help solve problems related to bacterial resistance. In order to carry out this work, the water samples were collected in four points, two of pristine areas and two of anthropological impact areas in a affluent of the Guamá River in Capitão Poço / PA. The bacteria obtained were cultured in MacConkey agar medium with imipinem or cefotaxime. The ATB resistance profile was verify through the antibiogram with the diffusion disc method in the Müeller-Hinton medium with 15 ATB. Preliminary results verified multiresistance to the 15 ATB of 14 isolates of the Guamá River. The presence of these multiresistant bacteria to the ATB of hospital controled use at the points collected with direct and indirect anthropogenic impact is alarming. The feedback of contamination with factors that induce mutations and selection of ATB resistance in the environment and exposure to living beings causes impacts beyond human health, and it is not possible to have an exact notion of how the presence of these resistance genes in these environments modifies the dynamics of these ecosystems. Antibiotic molecules can induce different bacterial responses by altering the pattern of gene expression in some bacterial species, which reinforces the importance for studies of antimicrobial resistance in environmental bacteria from a One-Health perspective.

Keywords: bacteria, antibiotic resistance, environmental, one-health.

Development agencies: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).