TITLE: IN VIVO ANTIBACTERIAL ACTIVITY OF *STREPTOMYCES sp.* AND *ASPERGILLUS sp.* ENDOPHYTIC VERSUS *PSEUDOMONAS aeruginosa*.

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ABSTRACT:

Bacterial evolution has generated a worrying resistance to the drugs most used for clinical treatments. With this, the scientific community has tested alternative compounds, aiming at solving this global problem. Among the promising microorganisms the endophytes are known for their ability to produce bioactive compounds with toxic potential and / or antibiotics. The objective of the present work was to evaluate the antibacterial action of two endophytic microorganisms belonging to the genera Aspergillus (PA2) and Streptomyces (PB3), against gram negative bacteria, Pseudomonas aeruginosas. For this purpose, the Minimum Inhibitory Concentration (MIC) determination was determined through the 96-well plate microdilution technique. Mueller Hinton broth, secondary metabolite (PA2 and PB3) at an initial concentration of 1000µg / ml, was serially diluted to a final concentration of 0.125µg / ml and standardized bacterial suspension spectrophotometrically at 3x105. The test was performed in triplicate and The plate was incubated at 37 ° C for 24 hours. With the result of the MIC, the infection model was used, where 40 larvae of Tenébrios molitor were used, of which 30 were infected with P. aeruginosa, after 2 hours, a group of 10 animals received 10 µl of the metabolite (PA2), others 10 received 10 µl of the metabolite (PB3), both standardized at a concentration of 500 µg / ml, the other 10 infected received no treatment for negative control and another 10 received only metabolite, in order to know whether dilution with PBS minimized the toxic effects of DMSO. The results showed that the minimum inhibitory concentration was 500 µg / ml. In the infection model it was observed that in 10 days, the animals treated with the metabolites had a rate of 100% survival, while those infected had a survival rate of 30%. The present study showed the ability of these metabolites to have a gram-negative bacterium such as P. aeruginosa, and it is evident the need to continue this study, aiming at the bioprospection of such secondary metabolites produced by endophytes of the genus Aspergillus and Streptomyces and their mechanisms of action.

Keywords: Bacterial resistance, Endophytics, Metabolites, Antibacterial action.

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