

TITLE: EVALUATION OF THE ANTIMICROBIAL ACTION OF THE METABOLITES OF *STREPTOMYCES* SPP. AGAINST *Pseudomonas aeruginosa* ATCC 0026

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ABSTRACT:

Actinomycetes are gram-positive bacteria that present filamentous growth, possessing great diversity of habitats, among them the soil. These bacteria are notable for the varied production of secondary metabolites, mainly due to their antimicrobial action and are widely used in the pharmaceutical industry for the production of antibiotics, especially the *Streptomyces* species, in order to combat pathogens, bacteria and fungi. In this way, the objective of this work is to evaluate the inhibition of pathogenic bacteria from the metabolites produced by actinomycetes isolated from the soil of the Balsas region, in the state of Maranhão. Research has shown that the control of microorganisms by actinomycetes occurs due to several mechanisms, such as competition for space, injury or death of the pathogen, degrading enzymes of the cell wall, among others. *Pseudomonas aeruginosa* is an opportunistic pathogen that mainly affects immunosuppressed individuals. For the analysis of the action of actinobacteria, the isolation, purification and identification of species through the microculture, and later, the sensitivity and inhibition concentration tests were carried out on bacterial samples, *Pseudomonas aeruginosa* ATCC 0026. It was first diluted to 0.5 on McFarland 10⁶ scale and previously inoculated onto plates containing Muller Hinton medium. Then, the technique was performed on diffusion agar, consisting of spherical cuts in triplicate in the pathogen-containing plates, and added to the wells 50 ul of the metabolites produced by the actinomycetes and placed in a suitable incubation. In order to verify the Minimum Inhibitory Concentration (MIC), extracts were prepared from the actinomycete metabolites and ethyl acetate, after initiation of the technique, the samples were stored, adding resazurin dye. After the techniques, the inhibition halo formation of the first test, measured in diameter, was observed indicating a possible antimicrobial action. MIC had potential inhibition at 1000 ug / ml concentration. Therefore, the metabolites presented antimicrobial action for *Pseudomonas aeruginosa*.

Keywords: Actinomycetes, secondary metabolites, bioprospecting.