

**TITLE:** STUDY OF THE ANTIBACTERIAL ACTIVITY OF CRUDE EXTRACTS PRODUCED BY ACTINOBACTERIA.

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**ABSTRACT:**

Actinobacteria are prolific producers of secondary metabolites with application in several areas, including farming. Bovine mastitis is an inflammation in the mammary gland of the cow caused mainly by bacteria like *Staphylococcus aureus* and *Streptococcus uberis*, and is currently the costliest disease in the dairy industry. Therefore, there is a need for searches for new antibiotics with different mechanisms of action, effective and economically viable that control bovine mastitis. In this work, 50 actinobacteria isolated from the Caatinga and mangrove biomes were analyzed, and the PA P26-15 strain isolated from the mangrove biome (Santarém/PA), was the most active against main bacteria caused bovine mastitis. The crude ethyl acetate extract, from the PD medium showed a bacterial inhibition potential against the targets *Pseudomonas aeruginosa* ATCC 27.859, *Staphylococcus aureus*, *Streptococcus agalactiae* and *Streptococcus uberis*. The extract was subjected to fractionation using HPLC and all fractions obtained were tested by disk-diffusion agar assay. The fraction 27 exhibited inhibitory activity against targets and was analyzed by LC-DAD-MS indicating maximum absorption of UV-vis at 224.8 nm, ion of  $m/z$  261.3, which was associate to the protonate molecule  $[M + H]^+$ , the ions of  $m/z$  243.3  $[M+H - 18]^+$ ,  $m/z$  283.3  $[M+Na]^+$  and  $m/z$  324.3  $[M+Na+ACN]^+$ . Based on the Dictionary of Natural Products database using mass 260 Da and UV 224 nm as parameters, it was possible to attribute the antibacterial activity of crude extract PA P26-15 to the presence of the compound Elaiomycin F. In conclusion, that the actinobacteria studied produced a metabolite identified as Elaiomycin F, a compound already known with cytotoxic and antiviral activity, and now has antibacterial activity against the pathogens causing bovine mastitis.

**Keywords:** actinobacteria, mastitis, mass spectrometry, Elaiomycin.

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