

TITLE: ANTIMICROBIAL CAPACITY OF COPAÍBA OIL (*COPAIFERA LANGSDORFFII*) ON *ESCHERICHIA COLI*, *KLEBSIELLA PNEUMONIAE* AND *STAPHYLOCOCCUS AUREUS*

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ABSTRACT:

The use of natural compounds, such as the *Copaifera langsdorffii* (copaibeira) tree oil, is an usual Latin American Indians practice in popular and forestry traditional medicine since the 16th century. The use of copaiba oil began after the Indians believed in its efficiency as an anti-inflammatory and healing, as they observed that the animals healed their wounds when rubbing on copaiba tree trunks. Bacteria are microorganisms that cause diseases and infections. They are present and dispersed in various parts of the planet and have become resistant to antibiotics by the development of mechanisms for survival. Natural products for therapeutic purposes are an alternative treatment option for the use of antibiotics. The objective of this work was to conduct a study on the antimicrobial action of copaiba oil against Gram-positive (*Staphylococcus aureus*) and Gram-negative bacteria (*Escherichia coli*, *Klebsiella pneumoniae*). The technique used was disc-diffusion in agar, according to the methodology described by the National Committee for Clinical Laboratory Standards. Four different commercial brands of copaiba oil were tested. The determination of the oil inhibition potential was evaluated by the size of the halos formed, obtained in two steps, after 24 hours and 48 hours of incubation. For the positive control, sterile disc impregnated with a dilution of Ciprofloxacin at the final concentration of 10µL was used. For the negative control, a disc impregnated with 10µL of absolute methyl alcohol was assigned. The results were interpreted according to the categories of Clinical and Laboratory Standards Institute (CLSI) in sensitive, intermediate or resistant. The bacterium *Escherichia coli* was resistant in all tests performed with copaiba oil. *Klebsiella pneumoniae* showed to be resistant against three oil marks, being classified as intermediate in one of them. Growth of *Staphylococcus aureus* was inhibited, except in one of the brands where it was intermediate. The results obtained with the trademarks of copaiba oil are not indicated against Gram-negative bacteria, but oil is a natural product capable of causing inhibition of bacterial growth. The use of the oil against Gram-positive *Staphylococcus aureus* can be justified as healing and anti-inflammatory.

Keywords: antibiogram, antimicrobial action, bacteria, herbal medicine, medicinal plants