

TITLE: EVALUATION OF THE BACTERICIDAL POTENTIAL BY THE *COMMIPHORA MYRRHA* (MIRRA) ESSENTIAL OIL AND THE DETERMINATION OF THE MINIMUM INHIBITORY AND BACTERICIDAL CONCENTRATION.

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ABSTRACT

The resin obtained from *Commiphora myrrha* stem is usually used on preparations for medications because of its known antiseptics properties. However, the bactericidal potential of this substance may diverse, depending on the bacteria strain that is causing a disease on the animal system. Besides that, this study aims to conclude the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC) of the essential oil of *C. myrrha* on four bacterial strains assigned by Oswaldo Cruz foundation, Rio de Janeiro's Fiocruz. The experiment was performed on Federal University of Technology - Paraná in the microbiology multidisciplinary research laboratory. The strains that were used on this experiment are from clinical isolates and from the ambient: *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 25923), *Salmonella enterica* (ATCC 13076) and *Pseudomonas aeruginosa* (ATCC 15442). The microbiology analyses were achieve using standardized inoculum according to the 0.5 Mc Farland scale and the determination of the minimum inhibitory concentration and minimum bactericidal concentration of the essential oil were done by microdilution technique on broth according to the Clinical and Laboratory Standards Institute (CLSI, 2009). The mirra oil was extract by hydrodistillation of the *Commiphora myrrha* plant resin and, to assay the bactericidal activity, concentrations between 200 and 0,09 μ L/mL were tested. As a positive control, antibiotics such as Ampicillin and Gentamicin on a concentration between 50 and 0,02 μ g/mL were used. The obtain results shown that the *C. myrrah* essential oil was more effective against *S. aureus* with a MIC and MBC of just 3,12 μ L/mL. Others bacteria also shown sensibility by the essential oil, but with a higher MIC (25 μ L/mL). Were no diverge notice between MIC and MBC for all the remain bacterial strains tested. The *P. aeruginosa* strain shown resistance on the ampicillin antibiotic on all the tested concentrations, however, its manifested sensibility on the essential oil assayed. This attest the importance on studies of natural substances as an adjunct on diseases which are caused by known antibiotics resistant bacteria. Therefore, based on these results it may concluded that *C. myrrha* essential oil presents an excellent bactericidal potential against the tested strains.

Keywords: Pathogenic bacteria; natural antibiotics; plant secondary metabolites; bactericidal substances.

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