

TITLE: DETERMINATION OF MINIMUM INHIBITORY CONCENTRATION (MIC) OF JUÇARA AÇAÍ (*Euterpe edulis* mart.) OPTIMIZED EXTRACT

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ABSTRACT:

The Juçara Açaí (*Euterpe edulis* Mart.) from Juçara palm tree, has a high amount of anthocyanins, which gives the purple color and great antioxidant activity. These compounds are responsible for inhibiting reactions generated by free radicals on the organism, preventing diseases resultants from oxidative stress, such as Alzheimer, Parkinson, cancer and others. The aim of this study was to evaluate the efficacy of the extract of açai from Juçara palm tree against three pathogenic microorganism *Staphylococcus aureus*, *Salmonella bongori* and *Escherichia coli* by mean of the broth microdilution method. The fruits were collected in the coastal regions of Santa Catarina states, Brazil. The açai extracts were optimized through 2³ factorial design by response surface method, varying the solvent (ethanol: water 80:20 v/v and acetone: water 80:20 v/v), time (30 and 60 minutes) and temperature (30 and 50 °C) to determinate the antioxidant activity (AA), total phenolic compounds (TPC) and total anthocyanin (TA). The TPC amount was determined through the spectrophotometric method with the use of Folin Cicalteou reagent and the TA by the pH-differential method, while the AA was definite by the DPPH (2,2-difenil-1-picril-hidrazil) radical scavenging method. The extract with the best condition of TPC, TA and AA was used for the minimum inhibitory concentration (MIC) assay in 96 wells plate against *Staphylococcus aureus* ATCC 25923, *Salmonella bongori* ATCC 43975 and *Escherichia coli* ATCC 25922. The extract was diluted in concentrations ranging from 0.15 to 5.0 mg.mL⁻¹. The extract that presented the best amounts of TPC (49.94 mg of galic acid/ g), AA (148.27 mmol of Trolox/g) and TA (265.26 mg/100g) was produced with solvent water: acetone 20: 80 v/v, during 30 minutes extraction at 50°C. On the MIC determination, the results for both bacteria were negative, showing that the açai from Juçara palm tree does not inhibit the growing of the tested bacteria on the used conditions.

Keywords: Antibacterial activity, antioxidant, optimization, açai.

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