ANTIMICROBIAL PROPERTY OF PROPOLIS EXTRACT ON ETHANOLIC FERMENTATION CONTAMINANTS BACTERIA

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The Brazilian industrial processes of ethanol production reuse the yeast in fermentation cycles, with this, the consecutive contaminating micro-organisms fermentation are recycled together. With the goal of examining the antimicrobial activity of the propolis ethanolic extract of (EEP) against the Lactobacillus fermentum and Bacillus subtilis, contaminants of the alcoholic fermentation. Ethanol concentration, time and reaction temperature were varied between 70-99.5%, 10-60 minutes and 50-90°C, respectively, using a response surface experimental design. The total phenolic compounds (TPC) varied from the 29.44 mg.g⁻¹ to 68.95 mg.g⁻¹. In this study, the temperature was the most important variable, as evidenced in the difference between assay 1 and 20; where it was used the concentration of solvent (76%) and extraction time (50 minutes), however, the assay 20, with the high temperature (85°C) may have affected the extraction process, obtaining an extract with 29.44 mg TPC g⁻¹. It was the lowest observed TPC concentration compared with the assay 1 (68.95 mg g⁻¹). The highest TPC was obtained using 76% ethanol, 58°C and 50 minutes; this extract, containing 68.9 mg CFT g⁻¹ induced a 6 and 5 mm of inhibition halo for B. subtilis and L. fermentum, respectively, in agar inhibition tests.