

Title: PERFORMANCE OF *Saccharomyces cerevisiae* STRAINS WIDELY USED FOR PRODUCTION OF FUEL-ETHANOL IN FERMENTATION MEDIUM.

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Abstract:

Global energy supply comes from commonly of using carbon fossil, however, it is necessary to rapidly reduce its consumption from the use of renewable energy sources with lower cost, such as ethanol, biofuel that have promoted secure and sustainable energy. Seeking for efficient methods for achieving bioethanol involves among other factors the selection of more efficient strains. For that reason, this study aim to investigate the performance of *Saccharomyces cerevisiae* strains commonly used for ethanol production. Thus, we used in all three strains of *S. cerevisiae* Catanduva 1, Pedra 2 (CAT-1 and EP-2) obtained from the Centro de tecnologia Canavieira, SP, and the baking strain (Fleischmann®). Yeasts were reactivated in Sabouraud agar plates by streaking method and incubated at room temperature for 48 h. After the growth period, the strains were subjected to morphological analysis under optical microscopy. To prepare the pre-inoculum we used 100 ml of fermentation medium (pH 5.0). Flasks containing the yeasts were incubated for 24 hours at 30° C to 200rpm. After growth time, 10 mL of pre-inoculate were transferred to 175ml of fermentation medium in a concentration of 80 g / L sucrose. Aliquots were collected every 6 hours for analysis of fermentation parameters such as biomass, residual sugar and ethanol. After fermentation, the following analytical tests were carried out: concentration of reducing sugars was determined by acid 3,5- dinitrosalicílico method (DNS). The ethanol analysis was transferred 80 mL fermented broth to a single distiller. Then, the measurement was performed in alcoholometer and determining the percentage of ethanol content (v / v) in the sample. As a result, all strains consumed most of the available sugars in the fermentation medium, however, PE-2 strain used approximately (43.5 g / L) of the medium sugars after 6 hours of fermentation whereas Fleischmann® strain consumed (22.5 g / L) in the same period. Ethanol production by strains PE-2, CAT-1 and Fleischmann was 4%, 3% and 3%, respectively. The PE-2 strain has a better performance compared to other strains analyzed due to it showed great productivity and efficiency.

Key words: strains, productivity, ethanol

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