

TITLE: TEST OF FERMENTATION AND ASSIMILATION IN DIFFERENT SUBSTRATES OF ISOLATED SUGAR CANE JUICE.

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ABSTRACT: Bioethanol is one of the main products of the sugarcane industry, being obtain through fermentation of the sugars presents in the sugarcane juice performed by yeast. The industries use commercial yeasts in which they are mostly *Saccharomyces cerevisiae*, however, it is essential to bioprospect new strains capable of fermenting other types of sugars, such as xylose, a sugar in which *Saccharomyces cerevisiae* is not able of fermenting. Therefore, this work aimed to evaluate the fermentative potential of eight isolates with different carbon sources (glucose, sucrose, fructose and xylose) using the biochemical method. The isolates were obtain from sugar cane juice fermented from a sugar-alcohol industry located in Dourados-MS. Serial dilution of the sample was performed in saline solution up to concentration 10^8 and 0.1 mL of the 10^8 , 10^7 and 10^6 dilutions were inoculated into the petri dishes containing YEPD culture (10 g L⁻¹ yeasts extract, 20 g L⁻¹ peptone, 20 g L⁻¹ D-Glucose, 20 g L⁻¹ agar) then the plates were hatch for 48 hours at 30°C. For the fermentation and assimilation tests, two measure of platinum handle of the isolates of the isolates were added in tubes containing liquid YEPD and hatch at 30°C for 24 hours, then 1 mL of the inoculum was dropped into test tubes containing 10 mL of basal solution pH 5,4: 0,5% de (NH₄)₂SO₄, 0,1% de NaH₂PO₄, 0,05% de MgSO₄, 2% D-Glucose, and incubated at 30°C, 35°C, 40°C and 45°C. In each test tube an inverted Durham tube was immersed and all the air was withdrawn from inside. Twenty-four-hour analysis of the bubble formation in the Durhan tubes, the main characteristic of the fermentation and the formation of the biomass for a period of 120 hours were performed. Eight yeast strains were isolated, in which they were name MSF1, MSF2, MSF3, MSF4, MSF7, MSF10, MSF11 and MSF13. In the fermentation using glucose and sucrose, only the MSF10 isolate showed no bubble formation at the end of fermentation, in the fermentation using fructose only MSF11 isolate did not present bubble formation at the end of fermentation, in fermentation using xylose as main sugar only the isolates MSF1 and MSF2 presented formation of bubbles at the end of fermentation. Therefore, the isolates MSF1 and MSF2 were shown to be promising. Besides presenting fermentative characteristics in the fermentations with glucose, fructose and sucrose, these sugars presented xylose fermentation, since few microorganisms have the capacity to ferment this sugar.

Key words: xylose, yeast, bioethanol, bioprospecting.