

TITLE: EVALUATION OF THE FERMENTATIVE CAPABILITY OF *Saccharomyces cerevisiae* L63 IN COCOA HONEY FOR ALCOHOLIC BEVERAGES PRODUCTION

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ABSTRACT:

Yeast strains of *Saccharomyces cerevisiae* are successfully established for fermentation processes such as the production of *cachaça* and other fruit spirits. Considering the sensorial properties of cocoa honey (CH) and the contrast between its technological potential and its low utilization - bearing in mind that it practically comes down to the preparation of jellies due to its high pectin content - this study aims to evaluate the growth and the fermentation capability of *S. cerevisiae* L63 in CH for the production of an alcoholic beverage. Therefore, preliminary fermentations were carried out, in which 4 strains of *Saccharomyces*, previously isolated from *cachaça* industries from Bahia (Brazil) and also good pectinase producers, were grown in a medium containing 2 % (w/v) of a commercial apple or citrus pectin and 10 % (w/v) of sugar, in order to mimic the composition of CH. Among these yeasts, two were selected and L63 was one of them - based on its cellular growth and flocculation characteristics - for fermentation in 150 mL of CH, with initial conditions of: pH = 3.40, 16.5 °Brix, inoculum of approximately 1.4×10^7 cells/mL and without shaking. The fermentation was conducted for 93 h at 32 °C and the collected samples were analyzed daily for: soluble solids content (°Brix), acidity (pH) and cell growth (absorbance at wavelength of 660 nm); the ethanol was only quantified at the end of the fermentation (fourth day). Until the second day of fermentation it was observed a significant decrease on the soluble solids content (down to 5.6 °Brix) and an increase on pH (up to 3.50). From the third day, °Brix and pH stabilized and the highest biomass value was obtained (2.9×10^8 cells/mL). At the fourth, the alcohol content was 8.6 % (v/v). A commercial *S. cerevisiae* strain for *cachaça* production was applied for comparison under the same conditions and it was obtained: 8.8 % (v/v) of ethanol, pH = 3.51, 5.9 °Brix and 1.2×10^8 cells/mL. With the results obtained so far, it is possible to conclude that *S. cerevisiae* L63 presents a promising fermentative capability for CH, and can be used to obtain an alcoholic beverage (such as a fruit spirit or a fruit wine). In order to seek for better results, the study proceeds with the investigation of parameters that may contribute to better yields, expressed by a better cellular growth associated to satisfactory alcohol content along with lower pectin contents.

Keywords: beverage technology, pectin, *Theobroma cacao*.

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