

Title: IDENTIFICATION OF YEAST ISOLATED FROM ITS SPOILED PEACH PUREE AND EVALUATION OF YEAST GROWTH POTENTIAL IN BATCH CULTIVE FOR INVERTASE PRODUCTION

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Summary:

The microbial invertases are known and have been studied for a long time, including the yeasts *Saccharomyces cerevisiae* and others. In peaches, more than 160 types of microorganisms have already been identified at different stages of peach puree processing, particularly the species *Bacillus badius*, *Penicillium sp.*, and *S. cerevisiae*. The fructofuranoside fructohydrolases (EC 3.2.2.26), known as invertase, catalyses the sucrose hydrolysis, producing a mixture of glucose and fructose named inverted sugar, used on food processing. However, no report was found on the identification of yeasts isolated from peach puree obtained from a Brazilian cultivar aiming at invertase production. The first objective of this work was to investigate the yeast species isolated from spoiled peach (Jubileu) puree using commercial identification method (API 20 C AUX). A second objective was to study the yeast growth potential in two treatments (TA= 10 g and TB= 20 g stock culture) in batch culture for invertase production. The parameters selected were: number of yeast at time t (N), reducing sugars (RS), free invertase activity, and linked invertase activity. The experiment was conducted at the laboratory of Food Technology Department of IFSUL–Pelotas–RS. The microorganisms used throughout this investigation were isolated from peach at 22° Brix. Stock cultures were maintained on potato dextrose agar (PDA) slants at 4 °C and pH 5 for later use for yeasts growth in batch culture using shaken Erlenmeyer flasks (150 rpm) at 30 °C for 24 hs, and stored at 4 °C until enzyme extraction. The enzymatic extracts were obtained using sodium bicarbonate. Invertase activity was determined by measuring the increase in absorbance at 490 nm by colorimetry using glucose-DNS. The yeast identified was *Saccharomyces cerevisiae* (2040032) with 95,2% of accuracy. The results showed a curve of the growth to yeast that began to reproduce quickly for the 18 hs, lag phase. After, the yeast showed a stationary phase for 17 days of storage followed by a mortality phase for both treatments. The RS values decreased with a conversion reaction superior to 98% at the end of the phase lag. The free invertase was more active than that linked invertase in the lag and mortality phase. In a general way, the free invertase inversely correlated with linked invertase and RS, and not with number of yeasts for both treatments. Finally, it was concluded that TA was more effective than TB for production of invertase.

Keywords: invertase, *Saccharomyces cerevisiae*, autolysis

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