

**Title: THE USE OF DEFATTED RICE BRAN AS A CULTURE MEDIUM TO *Saccharomyces cerevisiae* YEAST**

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**Abstract:**

The rice bran is a sub-product of rice processing, which have a great levels of proteins and nitrogen compounds, vitamins, minerals, carbohydrates, phospholipids and essential fatty acids. The defatted rice bran could be a complex and rich culture medium to improve the growth of various yeast strains, mainly, *Saccharomyces cerevisiae*. In this manner, from a technological point of view, the use of defatted rice bran to the culture medium can stimulate the growth of yeasts, facilitating their use in industrial and biotechnological process. The effect of defatted rice bran on medium was tested using a culture medium composed only with different concentrations of rice bran (from 5 to 15%) mixed with deionized water. The medium supplementation with glucose (10 g/L) also was evaluated. The YPD broth (2% of glucose, 1% of peptone and 0.5% of yeast extract) was used as growth control medium. To the cultivations, was used a 48 hours pre-culture with *S. cerevisiae* ATCC 9763, at 28 °C under 150 rpm agitation. The inoculum was standardized (optical density at 600 nm of 1.0) and 1 mL was added in 50 mL of YPD broth in 250 mL Erlenmeyer flasks. To verify the growth kinetic, the samples were collected every 24 hours, during 144 hours of cultivation. In all samples, was realized a counting of viable cells (method of counting in plates with YPD solid medium) and reducing sugar metabolization (DNS method). All experiments were done in triplicate. The results shows that the substrate containing defatted rice bran proved to be a good medium for *S. cerevisiae* ATCC 9763 growth. By the obtained data, a rapid degradation of reducing sugars and increasing formation of biomass (viable cells counting) was showed. The 15% of defatted rice bran was discarded, since its viscosity was too high to liquid cultures experiments. Comparing with the control, it was possible to verify that the growth rate was similar in all tested culture conditions (5% and 10% of defatted rice bran on culture medium). Nevertheless, the medium supplementation with glucose was not efficient to improve the level of biomass accumulation at final cultivation time (144 hours). Interestingly, the biomass produced after cultivation with 5% and 10% of rice bran, did not showed a proportional increase in the amount of accumulated cells with the increasing of rice bran level in the culture medium.

**Keywords:** rice bran; *Saccharomyces cerevisiae*; fermentation; kinetic growth; reducing sugars

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