Title: BIOSYNTHESIS THE SECOND GENERATION ETHANOL WITH *Saccharomyces cerevisiae* FROM ACID HYDROLYZED LIGNOCELLULOSIC

Authors: Braz, A.C.S. [1], Resende, F. M. [2]

Institution: [1] UFPB - Federal University of Paraíba (Avenue of the Boy Scouts, s / nº, Industrial District VII Mangabeira Mangabeira, João Pessoa - PB.) [2] UFPB - Federal University of Paraíba (Avenue of the Boy Scouts, s / nº, Mangabeira VII . Industrial District Mangabeira, João Pessoa - PB)

ABSTRACT

In recent decades, the search and the development of efficient and cost effective in view of the production of bioethanol is constant. The use of hydrolysis for conversion of the carbohydrates present in lignocellulosic materials is an alternative for obtaining such product. This process is more difficult than the conventional methods, since it is necessary to produce the sugar via hydrolysis of the raw material, and the need for a physical or chemical pretreatment to prepare the biomass, making it accessible for chemical biological step or later. This work aims to study second-generation ethanol biosynthesis routes from sugarcane bagasse. The acid hydrolysis step of the pomace was performed with sulfuric acid 10% w / v, under stirring 450 rpm and temperature 80 ° C. Before proceeding to the second step of the process, the hydrolyzate was added sodium hydroxide so that the pH would stay at 4.5, making the medium itself to inoculate yeast interest in the hirolisado was then vacuum filtered to obtain phase liquid (wort) which was subjected to alcoholic fermentation with a yeast selected LNF CA-11 (source of *Saccharomyces cerevisiae*) which was activated with aeration for 1h. To the stage of fermentation used two fermentation musts, where it was determined the pH, and Brix ART and where one of them was subjected to aeration after inoculation and the other not. At the beginning of the fermentation musts showed an average of the values of 4.5 g L^{-1} ART. The concentration of ART was determined before and after the step before the fermentation by the DNS method. The results show that the fermentation was aerated wort which had an average efficiency was 33.7%, which is being studied in a fed-batch fermentation inoculum of *Saccharomyces cerevisiae*. For future work, with the aim of helping and best results of efficiency, we intend to use a yeast capable of fermenting xylose also (C5 sugars).

Key words: Bioethanol, lignocellulosic, hydrolysis, 2G ethanol.

Development agency: CNPq