

Lactic acid production from hemicellulosic fraction of sorghum bagasse by *Lactobacillus pentosus*

and

Federal University of Rio de Janeiro, Brazil

Among the various renewable feedstocks available for bioproducts synthesis, the sweet sorghum stands out as one of the most promising due to its wide adaptability to different types of climate and soil. Furthermore, it is the only crop that provides stalks and grains which can be used in the food industry, and the exceedance biomass can be used such as second generation organic acids. Most organic acids on the market are produced via chemical synthesis with high levels of pollution. The production of organic acids of second generation is inserted in the biorefinery context, advancing towards emerging future technologies. In this context, lactic acid is considered a commodity with multiple industry applications, as well the polylactic acid (PLA) synthesis. The aim of this work was the preliminary study of the lactic acid production from hemicellulosic fraction of sorghum bagasse by *Lactobacillus pentosus*. Initially, the bagasse was submitted to a pretreatment with diluted acid to fractionate and extract the hemicellulose component from the solid residue named cellulignin. Batch fermentation experiments were performed under the principles of the statistical methodology of response surfaces to define the optimum process conditions- inoculum, xylose and KH_2PO_4 concentrations- under the 37°C, 120 rpm. The experiments were performed until a statistical model to study the effect of several variables and to seek optimum conditions for a multivariable system. The *Lactobacillus pentosus* strains exhibited increased ability to uptake and ferment xylose, reaching until 20 g/L lactic acid production.

Biography

Danielle da Silveira dos Santos Martins has completed her PhD in Sciences from the Post-graduation Program on Technology in Biochemical and Chemical

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