

Production of Cellulases and Hemicellulases by *Aspergillus niger* LTB from Different Lignocellulosic Biomasses

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In recent years the interest in cellulases and hemicellulases has increased due to the many potential applications of these enzymes, such as in the textile industry and in the pulp and paper industry. The growing concerns about shortage of fossil fuels, the emission of green house gasses and air pollution has also resulted in an increased focus on production of bioethanol from lignocellulosics, and especially the possibility to use cellulases and hemicellulases to perform hydrolysis of the lignocellulosic material. Like this, in this work the species *Aspergillus niger* LTB was isolated and used for the production of FPases, endoglucanases, cellobiases, α -galactosidases, β -xylosidases, α -arabinofuranosidases and xylanases. The microorganism was cultivated in liquid medium containing two different carbon sources: the lignocellulosic biomasses silvergrass and sugarcane bagasse. The cultures were incubated at 28°C and 180 rpm. Daily aliquots were analyzed in relation to the enzymatic activity for 15 days. There was production of the tested enzymes when the fungus was cultivated in the medium containing silvergrass, presenting considerable activity of xylanase (80 U/mL), FPase (0.73 U/mL) and cellobiase (5.65 U/mL). On the other hand, in the medium with sugarcane bagasse there was not production of the enzyme α -arabinofuranosidase, and there was a little production of the tested enzymes, since they presented low enzymatic activities. Therefore, it can be concluded that the silvergrass used as carbon source, in comparison with the sugarcane bagasse, induced higher production of cellulases and hemicellulases, specially xylanase and cellobiase.

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Key words: Bioethanol, sugarcane bagasse, silvergrass, cellulases and hemicellulases.