Quantitative analysis of ligninases produced with sugar cane bagasse from of fungi of the Amazon


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Concern for the environment has stimulated the use of agroindustrial waste through the use of lignocellulosic materials as substrates for the production of bioethanol and composting, by the action of ligninases (enzymes capable of degrading the lignin) and cellulases. The aim of this study was to produce ligninases (Manganese peroxidase, lignin peroxidase and laccase) for the production of bioethanol and composting from fungi using the substrate sugarcane bagasse. Plants, basidiomycetes and soil were collected in four municipalities in the State of Amazonas (Manaus, Manacapuru, Maués and Barcelos) and packaged in sterile containers under-cooling, until the time of isolation of fungi, which were purified and preserved by appropriate techniques for each taxonomic group. Six fungi, four basidiomycetes and two deuteric micetos (Colletotricum sp.) were inoculated in liquid culture media (GLBN 0 and GLBN 0) appropriate for the production of ligninases, containing 1% sugarcane bagasse in static culture for five days at 28 °C and evaluated for the production of these enzymes using quantitative analysis by UV spectrophotometry. All fungi grew in both culture media. There was no production of Manganese Peroxidase and Lignin Peroxidase, but all the fungi produced Laccase. The basidiomycete “B01 control” was the best producer of laccase, 75.4370 IU/L in the middle GLBN 40 and 61.0111 UIL in the middle GLBN 0. The production of laccase shows that the continuity of this research may enable the achievement of economically viable fungi to contribute to the production of compost and biofuel in Brazil.

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