

TITLE: CULTIVATION OF *GEOTRICHUM SP.* IN THE PRESENCE OF FURFURAL

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ABSTRACT: The Furfural is a molecule generated mainly by the oxidation of pentoses, commonly found in hemicellulosic hydrolysates (HH) as a function of the pre-treatments used for saccharification. In fermentation processes of HH, they act as inhibitor of microbial growth, and studies that aim the development of processes to remove these compounds, become an interesting alternative, which can benefit the fermentation and food industries. The yeast *Geotrichum sp.* VT01, isolated from the intestinal contents of the *Veturiustransversus* beetle, has demonstrated in previous tests to be able to consume microbial growth inhibitors generated during pre-treatment, mainly furfural (98,78%). The objective of this work was to characterize the growth kinetics of *Geotrichum sp.* VT01 in the presence of different concentrations of furfural. The yeast preserved by the Castellani method was reactivated by culturing in Petri dishes containing Sabouraud Agar (Yeast extract 10 g/L, Dextrose 40g/L, Agar 20g/L), incubated at 28°C for 48 hours. Next, the cultures were transferred to Erlenmeyer flasks containing YD (Yeast Extract 30 g/L and Dextrose 20 g/L) and incubated at 28°C for 48 hours, producing biomass to be used as inoculum in the biodetoxification assays. For characterization of growth kinetics in the presence of furfural, *Geotrichum sp.* VT01 was cultivated in erlenmeyer flasks containing YD added furfural at concentrations of 1g/L, 2g/L, 3g/L and 4g/L, as well as the control group (YD only). The assays were performed in triplicate. At every 12 hours, a 200µl aliquot was collected and diluted in distilled water ratio 10-1, cell growth was measured by optical density at 600nm (OD₆₀₀). The control group exhibited exponential cell growth after 24 hours, entering the stationary phase after 72 hours. The tests in which furfural was added, only the concentration of 1g/L presented cell growth, with log phase between 36 and 84 hours, but with absorbance values considerably lower than those observed in the control group. The yeast *Geotrichum sp.* VT01 was able to grow in the presence of furfural at a concentration of 1 g/L, indicating that the previously identified potential was not preserved until the present moment. Subsequent efforts should focus on the activation of these yeast properties in question.

Keywords: *Geotrichum sp.*, Furfural, cell growth, consumption

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