USE OF LIGNOCELLULOSIC WASTES AS SUBSTRATE FOR CELLULASE AND XYLANASE BY *Chaetomium sp.* N13

Zanchetta, A.[1]; Bocchini-Martins, D. A.[2]; Da Silva, R.[1], Gomes, E.[1]

1 - Laboratory of Biochemistry and Microbiology, IBILCE / UNESP- São José do Rio Preto, Brazil. 2 - Department of Biochemistry and Chemical Technology, IQ / UNESP- Araraquara, Brazil.

The use of lignocellulosic agricultural wastes for production of enzymes, in submerged fermentation (SmF) and solid-state (SSF) has been very attractive. Cellulose is the most abundant material of these polymers and can be hydrolyzed by cellulase to glucose, directed to ethanol production. In this work, the fungus *Chaetomium sp* N13 was grown in mixtures of sugarcane bagasse and wheat bran (1SB:1WB) and (9SB:1WB), wheat bran and sugarcane bagasse (9WB:1SB), corn straw and wheat bran (9CS:1WB), corn straw and barley (9CS:1B), barley and wheat bran (9B:1WB), and only wheat bran (WB). The production profile of xylanase, CMCase, avicelase and β-glucosidase were evaluated. The highest enzyme yields observed SSF were: xylanase (78.5U/mL and 74.2U/mL) at 240h and 192h of cultivation in (1SB:1WB) and (9B:1WB) , respectively; CMCase (9.6U/mL and 7.3U/mL) at 192h and 288h of cultivation in the same media; avicelase (0.6U/mL) 144h in culture in (9CS:1WB), β-glucosidase (0.7U/mL) after 240h cultivation in (9WB:1SB). In SmF it was observed the activity: xylanase (35.4U/mL and 35.0U/mL) at 96h and 120h of cultivation in (9CS:1B) and (9CS:1WB), respectively; CMCase (5.4U/mL) at 96h cultivation in (9SB:1WB); avicelase (0.7U/mL) at 48h of cultivation in (9CS:1B), β-glucosidase (0.1U/mL) in 120 h of cultivation in (1SB:1WB) and (9SB:1WB). The good production of these enzymes in the lignocellulose material encourages studies followed.

Keywords: Chaetomium, cellulose, xylanase, agricultural wastes, bioethanol.