

## **Production of Cellulases and Hemicellulases by Three Isolated of *Penicillium expansum* from Different Lignocellulosic Biomasses**

Rodrigues, R. S., Queiroz, L. N., Ladeira, R. I. S., Caneschi, A. L., Tormen, L.,  
Guimarães, V.M, Tavares, S. R.

Departamento de Bioquímica e Biologia Molecular, Universidade Federal de Viçosa,  
Minas Gerais, Brazil.

In recent years the interest in cellulases and hemicellulases has increased due to your great importance in the bioethanol production from lignocellulosic biomasses, the most promising biofuel from renewable resources. Like this, in this work, three isolated of *Penicillium expansum* (UFV, LABQ and LTB) was isolated and used for the production of FPases, endoglucanases, cellobiases,  $\alpha$ -galactosidases,  $\beta$ -xylosidases,  $\alpha$ -arabinofuranosidases and xylanases, when cultivated in liquid medium (0,2% yeast extract, 0,3% NaNO<sub>3</sub>, 0,05% KCl, 0,05% MgSO<sub>4</sub>.7H<sub>2</sub>O, 0,01% FeSO<sub>4</sub>.7H<sub>2</sub>O and 0,1% K<sub>2</sub>HPO<sub>4</sub>) containing as carbon sources two different lignocellulosics biomasses: silvergrass and wheat bran. The cultures were incubated at 28°C and 180 rpm. Daily aliquots were analyzed in relation to the enzymatic activity for 15 days. The silvergrass induced a larger production of xylanase in the three isolated, and the maximum activity obtained for the *P. expansum* UFV, *P. expansum* LABQ and *P. expansum* LTB was of, respectively, 6.97, 14.6 and 11.69 U/mL. In the three isolated of the fungus so much the silvergrass as the wheat bran didn't induce the production of endoglucanase and  $\alpha$ -arabinofuranosidase. Already for the other analyzed enzymes, the production was higher when used the wheat bran; however, these were not produced in great amounts. Therefore, it can be concluded that the wheat bran induced a larger production of FPases, cellobiases,  $\alpha$ -galactosidases,  $\beta$ -xylosidases in the three isolated of the fungus *P. expansum*, except for the xylanase, that was produced in higher amount when the silvergrass was used as carbon source.

Support financial: FAPEMIG.

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