



INVERTASE ACTIVITY PRODUCED BY *Pleurotus ostreatus* GROWN ON WHEAT STRAW

Pedro Cervantes-Muñoz^{1,2}, Maura Téllez-Téllez¹, Carmen Sánchez¹, Rubén Díaz¹, Gerardo Díaz-Godínez¹.

¹Laboratorio de Biotecnología, Centro de Investigación en Ciencias Biológicas, Universidad Autónoma de Tlaxcala, Tlaxcala, México C.P. 90000.

² Maestría en Ciencias Biológicas, UAT, Tlaxcala, México.

diazgdo@hotmail.com

Key words: invertase, sucrose, biomass

Introduction. Invertase, also known as β -fructofuranosidase is an enzyme that catalyzes the hydrolysis of sucrose to glucose and fructose, is one of the widely used enzymes in the pharmaceutical and food industry, mainly in the manufacture of confectionery (1). The production of this enzyme has been reported in *Saccharomyces cerevisiae*, *Candida utilis*, (2) and filamentous fungi of the genus *Aspergillus*, *Aureobasidium* and *Penicillium*. *Aspergillus niger* and *Aureobasidium pullulans* are used for industrial production of invertase. (3). There are few reports on invertase activity in other fungi, such as *Pleurotus ostreatus*, which has great economic, ecological and nutritional value, however, this mushroom is not widely studied for invertase production. The aim of this study was to quantify the production of intra and extracellular invertase of *P. ostreatus* grown on wheat straw.

Methods. *P. ostreatus* (ATCC-32783) was used in this study. Mycelium developed on wheat for 10 days at 25 ° C was used as inoculum. Wheat straw bags were inoculated and incubated in the dark until the total invasion. Intracellular extracts were obtained by lysis of the mycelium and extracellular extracts were taken by leaching the crop. Invertase activity was determined by the DNS method (4).

Results. Se obtuvo 0.285 U/gx de actividad intracelular, sin embargo la actividad extracelulares fue de 26.80 U/L (Fig.1), obteniéndose hasta 10 veces más actividad extracelular que intracelular.

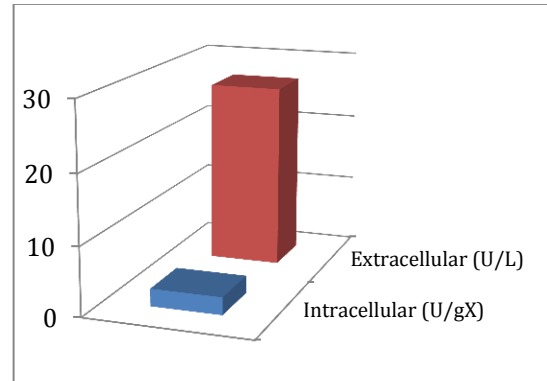


Fig.1 Invertase activity of intra and extracellular of *Pleurotus ostreatus* grown on wheat straw

Conclusions. *P. ostreatus* presented intracellular and extracellular invertase activity. This enzymatic activity could be increased adding inductor or changing the fungus growth conditions.

Acknowledgements. We wish to thank the Mexican Council of Science and Technology (CONACyT) for supporting this research (Project No. 156406). P Cervantes-Muñoz was supported by a CONACyT scholarship (No. 419660).

References.

1. Ashokkumar B., Kayalvizhi N. y Gunasekaran. (2001). *Process Biochem* 37: 331-338.
2. Reddy PP, Reddy GSN, Sulochana MB. (2010). *Asian J Biotechnol* 2: 86-98.
3. Cuervo-Fernández R, Ottoni CA, da Silva ES, Saito MRM, Carter JM, Magossi LR, Alves WMA, de Andrade RMF, Guilarte MB, Maiorano AE. (2007). *Appl Microbiol Biotechnol* 75: 87-93.
4. Miller GL. (1959). *Anal. Chem* 31: 426-428.