

4th International Conference and Exhibition on

Food Processing & Technology

August 10-12, 2015 London, UK

Hydrolytic enzymes production by solid state fermentation of nopal with *Trichoderma harzianum* and *Trametes polyzona*

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Agricultural crop residues of nopal are rich in cellulose, hemicellulose and lignin given its composition can be used as substrates in a process of solid state fermentation (SSF) with filamentous fungi (Ascomycetes and Basidiomycetes) in order to produce extracellular enzymes with hydrolytic activities of commercial interest. The main aim of this research was to describe the production of cellulase and xylanase enzymes by *Trichoderma harzianum* (Ascomycete) and *Trametes polyzona* (Basidiomycete) by solid state fermentation using vegetable nopal paddle and prickly pear paddle as substrates. An indirect measure of enzyme production was determined the total protein content (Bradford method) and the enzyme activities by the DNS method every 24 hours during 8 days by *Trichoderma harzianum* and 10 days by *Trametes polyzona*. For *Trichoderma harzianum* the activity of xylanase enzyme increased on vegetable nopal paddle with 2.34 U/gdm (gram of dry matter) on the 5th day of fermentation while the prickly pear paddle turned out to be a better substrate for the cellulase activity with 0.57 U/gdm the 3rd day. For *Trametes polyzona*, the activity of both enzymes increased and the highest activity was yield on the 5th day of fermentation on vegetable nopal paddle obtaining values of 4.38 U/gdm for xylanase and 1.00 U/gdm for cellulase. The highest activity of both enzymes was observed with *Trametes polyzona* using vegetable nopal paddle as substrate then it is possible to use this fungi in order to hydrolyze residues of nopal by solid state fermentation.

Biography

Jimenez Sanchez M is currently from Tecnológico de Monterrey Estado de Mexico.

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