

Efficacy of crop Residue for the Production of Xylanase Enzyme under Solid State Fermentation

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Lignocelluloses in the crop residues were disposed by mechanically or most frequently by burning, causing not only in the loss of valuable resources but also critical factor for global warming. In the present study, Aspergillus oryzae was used for the xylanase production under solid-state fermentation. Among various tested crop residues, wheat bran was found an excellent carbon source for the enhanced production of xylanase up to 1133 IU/gds. It was found that cultivation temperature 30°C and incubation period of 48 hrs also required for the highest production of xylanase by Aspergillus oryzae. In addition, unbleached pulp was pre-treated with crude xylanase at 20, 25 and 30 IU/gds resulting into the lowering of the residual lignin (Kappa No.) by 2.12, 3.72 and 4.78% respectively. This study highlights the utilization of wheat bran for the production of industrial important, xylanase enzyme as well as its application in paper making processes with a eco-friendly approach.

Keywords: *Aspergillus oryzae, Xylanase, Wheat bran, Residual lignin.*

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