

Optimization of cellulase production from *Aspergillus fumigatus* using alkaline pre-treated rice and wheat straw under submerged fermentation

¹*Paramjeet Saroj, ²Manasa P and ¹Korrapati Narasimhulu

¹Department of Biotechnology, National Institute of Technology Warangal Telangana 506004

²Department of Biotechnology, National Institute of Technology Andhra Pradesh, Tadepalligudem, 534101

*Corresponding author

ABSTRACT

Cellulolytic enzymes play a significant role in bioconversion of lignocellulosic biomass into reducing sugars. Due to the complex structure of lignocellulosic materials, developing robust processes for high titer production is a major challenge. The present study was investigated on cellulase producing fungal strain *Aspergillus* sp. isolated from wood chips and identified by 18rRNA sequencing. Alkaline pre-treated agriculture residue rice straw and wheat straw used for microbial fermentation. The biomass characterized by SEM, XRD, and FTIR to determine impact after hydrolysis. The experimental results of optimized process variables showed 55.6 U/mL activity at 40 °C, pH 5 after 7 days of incubation. Thus, this study showed that the combination of agriculture residue could enhance cellulolytic enzyme production and further used as value-added products.

Keywords: Cellulolytic enzymes; lignocellulosic biomass; microbial fermentation; value-added products.

