



OPTIMIZATION OF EXTRACELLULAR GLUCANASE PRODUCTION FROM FUNGI ANTAGONISTIC TO PHYTOPATHOGEN *FUSARIUM OXYSPORUM* MTCC 4162 IN VITRO

FARHEEN FIRDOUS¹, NEELIMA RAIPURIA² & RAVI PRAKASH MISHRA³

^{1,2}Department of P.G. Studies and Research in Biological Sciences, Rani Durgavati University, Jabalpur (MP) India

³Department of Botany and Microbiology, Govt. Autonomous Science College, Jabalpur (MP) India

ABSTRACT

In order to find out the potential biological control fungal agent against *Fusarium oxysporum* MTCC 4162, various isolated fungal species from local rhizosphere showing antagonistic activity were optimized for extracellular glucanase production. The locally isolated antagonists included *Rhizopus oryzae*, *Penicillium notatum*, *Aspergillus fumigatus*, *Aspergillus flavus*, *Aspergillus niger*, *Mucor racemosus*, *Curvularia lunata*, *Alternaria alternata* and *Fusarium equiseti*. Results revealed that all tested fungal species except *Rhizopus oryzae* (pH 7.5) produces maximum glucanase at neutral pH (pH 7.0). Incubation temperature 25°C and 35°C were found optimum for production of glucanase enzyme. *A. alternata* showed maximum glucanase activity (112.22 $\mu\text{g glucose min}^{-1} \text{mg protein}^{-1}$) at 25°C followed by *A. flavus*. *Aspergillus niger* produced maximum glucanase enzyme in presence of starch (59.21 $\mu\text{g glucose min}^{-1} \text{mg protein}^{-1}$) followed by galactose (50.25 $\mu\text{g glucose min}^{-1} \text{mg protein}^{-1}$). *Alternaria alternata* produced maximum glucanase enzyme in presence of peptone (123.98 $\mu\text{g glucose min}^{-1} \text{mg protein}^{-1}$) followed by tryptone (63.90 $\mu\text{g glucose min}^{-1} \text{mg protein}^{-1}$). The study advocates that for effective biological control, optimization of fungal strains for glucanase must be performed to get better results.

KEYWORDS: Biological control, Phytopathogen, Antagonism, *Fusarium* & Glucanase