➔DOI : 10.15740/HAS/AJBS/13.1/16-20
e ISSN-0976-8343 | ■ Visit us : *www.researchjournal.co.in*
ASIAN JOURNAL OF BIO SCIENCE
Volume **13** | Issue 1 | Apr., 2018 | 16-20

RESEARCH **P**APER

Production and optimization of cellulase enzyme using cheap substrates by A*spergillus niger isolated* from soil

N.C. Tharavathy

Department of Studies and Research in Biosciences, Mangalore University, Mangalore (Karnataka) India

Article Info : Received : 20.12.2017; Revised : 05.03.2018; Accepted : 19.03.2018

Studies were conducted on the production and optimization of cellulase enzyme using cheap substrates namely saw dust, sugarcane waste, coconut coir waste and newspaper waste by *Aspergillus niger*. *A. niger* was isolated from soil, cultured and sub-cultured in the laboratory to obtain pure culture. Cellulase production was done by solid state fermentation using four substrates separately. The isolate *Aspergillus niger* was studied for its growth kinetics, cellulose enzyme production, optimum pH and temperature, and time profile. Growth kinetics of *Aspergillus niger* showed that the stationary phase reached between day 4 and 6. *A. niger* reported growth and enzyme production in all the four substrates but among the four, coconut coir showed maximum cellulase enzyme activity (3.0±0.10 U/g) followed by sugarcane waste (2.8±0.12 U/g), newspaper waste (2.4±0.15 U/g) and saw dust (2.0±0.12 U/g). The optimal pH and temperature for the maximum biosynthesis of cellulase by *A. niger* were reported as 6.2±0.15 and 28±0.5ºC, respectively. The production of cellulase was noticed after 96 h of incubation but maximum production of cellulose enzyme was reported in 120 hours.

Key words : Cellulase, *Aspergillus niger*, Saw dust, Sugarcane waste, Coconut coir waste, Newspaper waste

How to cite this paper : Tharavathy, N.C. (2018). Production and optimization of cellulase enzyme using cheap substrates by A*spergillus niger isolated* from soil. *Asian J. Bio. Sci.*, **13** (1) : 16-20.**DOI : 10.15740/HAS/AJBS/13.1/16-20.**