

Recycling and Waste Management

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Production and Characterization of cellulase from indigenous fungal strain NSF-2 using agro industrial waste and its use in waste paper recycling

Namita Singh and Anita Devi

Jambheshwar University of Science and Technology, India

The study, present the production of cellulase using agro-industrial waste, its purification and characterization. A fungal strain NSF-2 isolated from the plant litter produce high amount of cellulase. 15.59 fold purified enzyme achieved specific activity 71.421 U/mg. Under the optimum condition, V_{max} and K_m for the enzyme were 1.5 mg/ml/min and 3.2 mg/ml respectively. Purified cellulase stable in non-ionic surfactant like TWEEN -20, Triton X-100 on the other hand salt like urea, EDTA and SDS inhibited the enzyme activity up to 65%, 50% and 55% respectively. The study also reveals that Hg²⁺ is a non-competitive inhibitor of cellulase. The V_{max} was decreasing with increasing concentration of metal inhibitor. The purified and crude cellulase produce by NSF-2 strain is well suitable in industrial application such as pulp and paper for waste paper recycling which also reduces the use of chemical thus help in waste water management also.

Speaker Biography

Namita Singh completed her Masters and Doctorate degree in Microbial Biotechnology from Institute of Microbial Biotechnology, Barkatullah University, Bhopal (India) in collaboration with Ben- Gurian University,

Israel. She is presently working as Professor at the Department of Bio and Nano Technology, Guru Jambheshwar university of Science and Technology, Hisar, Haryana, India. She has over 22 years of research and 17 years of PG teaching experience. She has guided 15 Ph.D., 96 M.Sc., 4 M.Tech. and 2 M.Phil. students till so far. Presently, 6 Ph.D. scholars and 9 M.Sc. students are pursuing research under her guidance. She had received various prestigious fellowships such as UNESCO-American Society For Microbiology, PDF by Jacob Bluestein Institute for Deserts Ben-Gurion University of Negev sde Boker Campus, ISRAEL. She had received EP Odum Gold Medal from International Society for ecological communication in June 2009. She is a widely travelled person. She had done several international academic visits in various countries such as Israel, Japan, Germany, Canada, England, Dubai, Ukraine & Ethiopia. She is also the member of various National and International scientific societies of repute. She had coordinated over 30 national/ international conference/ workshop/ seminars/ training programs. She has published 40 national and 60 international publications, 1 book, 3 manual, 123 sequence published on NCBI & 1 Patent. She is the Deputy Coordinator of SAP DRS I & II at Department of Bio and Nano Technology, GJUS&T, Hisar. She has completed eighteen national projects successfully and currently working on 03 national and 01 international Project. She has received several grants from national and international funding agencies like DST, UGC, DBT, HSCST, MOEF Haryana etc. to support her research activities.

e: namitasingh71@gmail.com

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