

## A study on protease enzyme from halophylic microorganisms

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Studies carried out on halophilic and non-halophilic microorganisms, especially during the last decade, have increased our current knowledge about different aspects, such as their physiology, ecology, taxonomy or phylogenetic relationship with other microorganisms and, to a lesser extent to their genetics. Besides, there are several fields in which their industrial application are more promising as in the case of other extremophilic microorganisms and alkalophilic microorganisms they have an important biotechnological potential as a source of compatible, soluble enzyme and other compound of industrial interest. Moreover, moderately halophilic microorganisms constitute an excellent model for the study of osmoregulatory mechanism that permits them to grow in wide ranges of salt concentration. This aspect has very exciting potentialities such as, for instance, they can be used as an alternative for the chemical treatment, most of these extremophiles are able to produce high concentrations of enzyme at extreme conditions, which can be used for the degradation of xenobiotics, their possible application in the medical industry for the removal of blood stains and various surgical instruments. Also, potential application in silver stripping from used film and as a biocleaning agent in the detergent industry.

In the present study an effort is done to isolate and characterize the microorganisms from the halophilic soil sample. The enzyme produced by the organisms *Bacillus subtilis* and *Aspergillus flavus* were subjected for enzymatic studies. So it is indicated that the enzyme is thermo stable, halo tolerant and alkaline protease. The isolates had shown different enzyme activities with substrate casein and hair. The enzyme showed compatibility with detergent as a biocleaning agent and removal of blood stains from surgical instruments indicated great importance in the detergent industry and medical uses for sterilization.

**Keywords:** Proteases, Halophiles, Cleansing activity, Silver recovery.

### Biography

Annapurna S. Agasthya is working currently as Professor of Microbiology and Bioprocess engineering of Lovely Professional University and has worked at various capacities and the research interests include the Medical Microbiology, Immunology, Enzymology, Medical Mycology, Parasitology, Food and Environmental Microbiology. She has guided the students for B.Tech, M.Tech. and M.Phil Biotechnology and Post Graduate students for their dissertations. Presented the papers in various National and International conferences as well as published papers in various reputed journals.

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