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Production and Characterisation of Extracellular Chitinase from a Novel Isolate *Chitinophaga* sp. S167

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Chitinases cleave β-1,4 N acetyl glucosamine linkages and thus have the ability to degrade chitin in cell wall of fungi and exoskeleton of insects. They are potential antifungal, insecticidal and nematacidal agents. Chitinases have been isolated from bacteria, fungi, plants, insects, crustaceans, animals and humans. Based on the site of action on the substrate, they are classified as exochitinases or endochitinases. An isolate S167 (GeneBank Acc. No. KP017541) showing 98.62%, 98.47 and 97.78% 16S rDNA similarity to *Chitinophaga ginsengisoli, C. filiformis and C. pinensis* respectively, on EzTaxon was isolated from soil rich in organic decaying matter. *Chitinophaga* sp. S167 shows chitinolytic activity and produces extracellular chitinase. The chitinase from *Chitonophaga* sp. S167 inhibited *Cladosporium* sp., *Alternaria* sp. *and Fusarium* sp. The enzyme was found to be optimally active at 40°C and pH 6. The chitinase was maximally induced at 72 hours by 1.5% swollen chitin when incubated in the medium of pH 8 at 35°C. The enzyme was purified using ion exchange and hydrophobic interaction chromatography. The purity of the enzyme was checked by SDS-PAGE which showed a band with an apparent molecular weight of 50 kDa and its activity was confirmed by zymography. Further studies are being carried out to characterize the enzyme and determine its substrate specificity.

Biography:

Sonia Sharma is pursuing Ph.D. in the field of Microbial Biotechnology from Guru Nanak Dev University Amritsar, India. She is interested in exploring potential chitinases from soil microbial diversity that can be employed for industrial, biomedical and environmental purposes. To enhance her skills, she has attended various short term courses and national and international conferences. Recently her work on chitinases was appreciated and got the best poster award at Him Science Congress, an international conference held in India. Currently, she is using structure biology tools to study novel chitinases from *Chitinophaga* spp. with an emphasis on bio-extraction of chitin from chitinous biowaste.