

Production of Extracellular Chitinase from *B. cereus* and its Application

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Abstract—Chitinases (E.C. 3.2.1.14) are glycosyl hydrolases, responsible for degradation of chitin. Chitin is a β -(1,4)- linked GlcNAc polymer and the second most abundant carbon source after cellulose in nature.. Despite its huge availability, the utilization of chitin has been restricted by its complexity and insolubility. This study focuses on a biological approach for degradation of chitin by using the extracellular enzyme chitinase from different bacterial species. Three different species of *Bacillus* and other bacterial species from natural sources were screened for the presence of chitinolytic activity by plate well method on colloidal chitin agar media. Chitinolytic activity was shown by *B. cereus* MTCC NO.9817 and a naturally isolated bacteria with zone of clearance of 2mm and 2.5 mm respectively after incubation of 48 hours at 30°C. It was monitored upto 10 days and was found to increase to 28 mm and 20 mm respectively. In broth medium, chitinolytic activity was found as 11.2 U/mg of protein by *B. cereus* and 10 U/mg of protein by the naturally isolated species. This study have immense application of chitinase and derivatives of chitin in the field of pharmaceuticals and agriculture as well as marine waste treatment.

Keywords: *Bacillus cereus*, Chitin, Chitinase, GlcNAc.