

Chitin Degradation in *Pseudomonas fluorescens*

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Abstract : Chitin, the second most abundant bio-polymer in nature after cellulose, composed of β (1 \rightarrow 4) linked N-acetylglucosamine (GlcNAc), is a major structural component in the cell walls of fungi and the shells of crustaceans. Chitin and its derivatives are gaining importance of economic value due to its biological activity and its industrial and biomedical applications. There are several methods to hydrolyze chitin to NAG, but they are typically expensive and environmentally unfriendly. Chitinase which catalyzes the breakdown of chitin to NAG has received much attention owing to its various applications in biotechnology. The presented research examines the ability of the versatile soil microbe, *Pseudomonas fluorescens* grown in chitin medium to produce chitinase and a variety of value-added products under abiotic stress. We have found that with high pH, *Pseudomonas fluorescens* enable to metabolize chitin more than with neutral pH and the overexpression of chitinase was also increased. P-dimethylaminobenzaldehyde (DMAB) assay for NAG production will be monitored and a combination of sodium dodecyl polyacrylamide gels will be used to monitor the proteomic and metabolomic changes as a result of the abiotic stress. The bioreactor of chitinase will also be utilized.

Keywords : *Pseudomonas fluorescens*, chitin, DMAB, chitinase

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