

## **Bioremediation of Sea Food Waste in Solid State Fermentation along with Production of Bioactive Agents**

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**Abstract :** Seafood processing generates large volumes of waste products such as skin, heads, tails, shells, scales, backbones, etc. Pollution due to conventional methods of seafood waste disposal causes negative implications on the environment, aquatic life, and human health. Moreover, these waste products can be used for the production of high-value products which are still untapped due to inappropriate management. *Paenibacillus* sp. AD is known to act on chitinolytic and proteinaceous waste and was explored for its potential to degrade various types of seafood waste in solid-state fermentation. Effective degradation of seafood waste generated from a variety of sources such as fish scales, crab shells, prawn shells, and a mixture of such wastes was observed. 30 to 40 percent degradation in terms of decrease in the mass was achieved. Along with the degradation, chitinolytic and proteolytic enzymes were produced, which can have various biotechnological applications. Apart from this, value-added products such as chitin oligosaccharides and peptides of various degrees of polymerization were also produced, which can be used for various therapeutic purposes. Results indicated that *Paenibacillus* sp. AD can be used for the development of a process for the infield degradation of seafood waste.

**Keywords :** chitin, chitin-oligosaccharides, chitinase, protease, biodegradation, crab shells, prawn shells, fish scales

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