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***Litopenaeus Vannamei*)**

Authors

Sandip P. Gondake

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Santosh R. Kshirsagar

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Sagar I. Shinde

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Chapter - 5

Antioxidant, Antibacterial and Shelf-Life Extension of Chitosan Extracted from the Shells of Shrimp (*Fenneropenaeus Indicus* and *Litopenaeus Vannamei*)

Sandip P. Gondake, Santosh R. Kshirsagar and Sagar I. Shinde

Abstract

The present study aimed to show antioxidant, antibacterial and shelf life extension of chitosan of chitosan extracted from the shrimp (*Fenneropenaeus indicus* and *Litopenaeus vannamei*) shells. Additionally, Chitosan coating was evaluated in vegetables. It has been found that the antibacterial action of the chitosan coating solutions against gut pathogens is successful. From the results obtained, the operation of chitosan 2, isolated from the shells of *Litopenaeus vannamei*, was found to be more successful than that of *Fenneropenaeus indicus* chitosan. It should also be proposed for the pharmaceutical industry.

Introduction

Owing to biochemical, microbiological or physical modifications during post-mortem preparation, shrimp are extremely perishable, resulting in short commodity shelf life ^[1]. Common shrimp preserving strategies, such as cold drying, freezing and chilling, do not efficiently suppress spoilage. In addition, to increase the shelf life of foods, industrial preservatives such as antioxidants, chelating agents and antimicrobial compounds can be applied ^[2]. Researchers have been working on different natural products due to consumer appetite for preservative-free foods. Recently, there has been a growing interest in creating film-forming materials with antimicrobial properties that lead to enhancing food safety and shelf life. Edible coatings can increase the consistency of food products by avoiding lipid degradation, loss of protein functionality, odour removal, discoloration and lack of moisture. Chitosan is a polysaccharide and is the key ingredient of the crustacean exoskeletons produced by deacetylation of chitin. Chitosan has many benefits over other polymers, such as biocompatibility, biodegradability and non-toxicity ^[3].