

Biotechnologies towards Sustainable Development in Malaysia

Zarina Zainuddin

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Chapter 22

Chitin and chitosan from potential shrimps and crabs of Malaysia

***Ahmed Jalal Khan Chowdhury, Suffi Nurul Husna, Deny Susanti, Akbar John and
Kamaruzzaman Yunus**

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Introduction

With better appreciation of biopolymers derived from marine organisms, there has been an increased interest in their biomedical and industrial applications. Some such important molecules are chitin, chitosan, oligosaccharides, and their derivatives, which have attracted significant interest in view of their broad range of applications, including in the biomedical, agricultural, food science, technological fields and in various industries. Chitin is a naturally abundant mucopolysaccharide, and is the second-most abundant natural biopolymer after cellulose. Nature produces approximately 10^{11} tons of chitin annually worldwide as a by-product, and industrial use has been estimated at 10,000 tons annually (Kurita, 2006). Chitin is a copolymer of N-acetyl-d-glucosamine and d-glucosamine units linked with β -(1-4) glycosidic bond, where N-acetyl-d-glucosamine units are predominant in the polymeric chain. The deacetylated form of chitin refers to chitosan. Chitin and chitosan can be found as supporting materials in many aquatic organisms, terrestrial organisms, and some microorganisms (Tokura and Tamura, 2007). Nowadays, commercially, chitins and chitosans are produced from bio-waste obtained from aquatic organisms. However, due to the industrial need of chitins and chitosans in massive quantity,