CHITOSAN: AS HIGHLY POTENTIAL BIOPOLYMER OBTAINABLE IN SEVERAL ADVANCE DRUG DELIVERY SYSTEMS INCLUDING BIOMEDICAL APPLICATIONS

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Abstract:

Chitosan, a biomaterial, has shown potential in developing innovative drug delivery systems (NDDS) and has various biomedical uses. Chitosan is a polysaccharide originating from chitin and is both biocompatible and biodegradable. A biopolymer known as chitosan is extracted from chitin, which is a natural polymer present in the exoskeleton of crustaceans like lobster, shrimp, and crab, as well as in the cell walls of fungi. In the past few years, there has been significant research conducted on Chitosan due to its vast range of possible uses in fields such as agriculture, cosmetics, food, and medicine. The various innovative drug transportation techniques utilizing chitosan have been developed for a range of routes including topical, oral, ophthalmic, transdermal, and nasal administration methods. Chitosan has the capability to create hydrogels when exposed to alterations in pH or ionic strength. This review article provides the sourcing or origin of chitosan, including the biomedical activities of chitosan. Chitosan plays role in various applications in innovative drug delivery systems including advance drug delivery systems, TDDs and Nasal drug delivery as well as included bone regeneration and wound healing. Lastly, the crucial role of chitosan derived from chitin extensive operations in vaccination and cosmetics products.

Keywords: Chitin, Chitosan, Advance novel drug delivery system (NDDS), Wound healing, Cosmeceuticals.

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