

CHITIN and CHITOSAN DERIVATIVES

Advances in Drug Discovery and Developments

A natural long-chain polymer, chitin is the main component of the cell walls of fungi, the exoskeletons of arthropods (including crustaceans and insects), the radulas of mollusks, and the beaks and internal shells of cephalopods. However, marine crustacean shells are the primary sources of the chitin derivative chitosan. Chitin and chitosan are useful for various biological and biomedical applications, although they have been limited by poor solubility in the past. Current research focuses on increasing their solubility and bioactivity through molecular modifications. The resulting derivatives are receiving much attention for interesting properties, such as biocompatibility, biodegradability, and nontoxicity, that make them suitable for use in the biomedical field.

Chitin and Chitosan Derivatives: Advances in Drug Discovery and Developments presents current research trends in the synthesis of chitin and chitosan derivatives, their biological activities, and their biomedical applications. Part I discusses basic information about the synthesis and characterization of a variety of derivatives, including the preparation of chitin nanofibers. Part II covers chitin and chitosan modifications as the basis for biological applications. It describes antioxidant, anti-inflammatory, anticancer, antiviral, anticoagulant, and antimicrobial activities. Part III addresses chemically modified and composite materials of chitin and chitosan derivatives for biomedical applications, such as tissue engineering, nanomedicine, drug delivery, and wound dressing.

A must-have reference for novices and experts in biotechnology, natural products, materials science, nutraceuticals, and biomedical engineering, this book presents a wide range of biological and biomedical applications of chitin and chitosan derivatives for drug discovery and development.

K16275

 **CRC Press**
Taylor & Francis Group
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