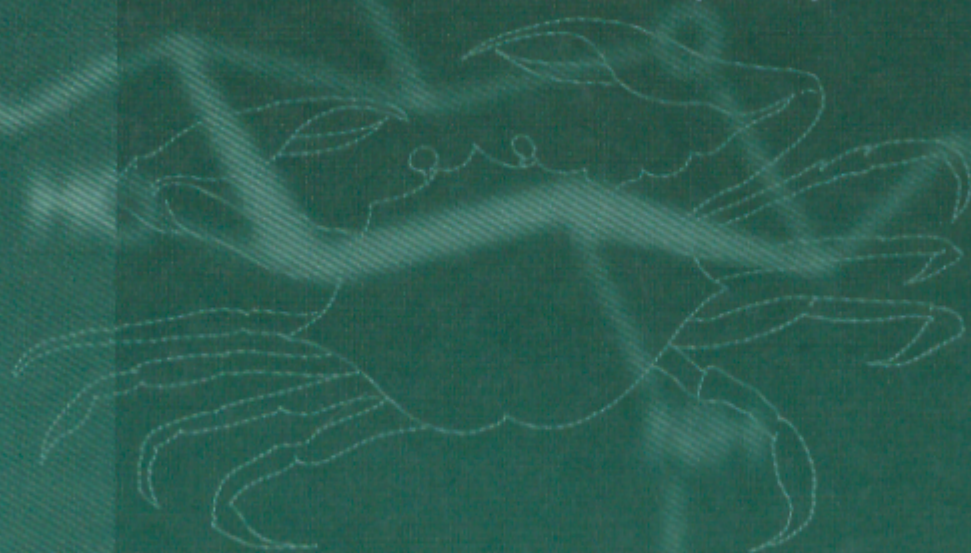


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Material Science of Chitin and Chitosan

Fundamental and applied research on chitin and chitosan is growing worldwide. This monograph is a comprehensive introduction to the science and practical applications of chitin and chitosan and their derivatives. They possess numerous properties that can be applied in the resource and energy sectors as well as in environmental and life sciences. Specialists in the field have contributed on topics including the fundamental structure and properties of chitin and chitosan, chemical modifications for developing new materials, the enzymes responsible for the biosynthesis and decomposition of chitin and chitosan as well as the mechanisms and applications in a variety of fields. Separation materials such as adsorbents, coagulants, and membranes from chitin and chitosan and their derivatives are also reviewed, including discussions on the separation mechanisms and applications. Their immunological properties and drug delivery systems for pharmaceutical applications are described. The biocompatibility, biodegradability, biological activity and applications of biomaterials derived from them are reviewed using examples. Their role in the regeneration of tissues *in vitro* and *in vivo* is reported. Other applications in the cosmetic, food, agricultural and water purification industries are discussed. The prospects for future uses of chitin and chitosan are also presented.

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