Record Nr. UNINA9910141812403321 Biopolymer nanocomposites [[electronic resource]]: processing, **Titolo** properties, and applications / / edited by Alain Dufresne, Sabu Thomas, Laly A. Pothan Hoboken, NJ,: John Wiley and Sons, Inc., c2013 Pubbl/distr/stampa **ISBN** 1-118-60990-5 1-118-60995-6 1-118-60987-5 Descrizione fisica 1 online resource (698 p.) Wiley Series on Polymer Engineering and Technology Collana TEC009010 Classificazione Altri autori (Persone) DufresneAlain <1962-> **ThomasSabu** PothanLaly A Disciplina 572 Soggetti **Biopolymers** Nanocomposites (Materials) Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Includes index. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Cover; Title page; Copyright page; Contents; Foreword; Contributors; CHAPTER 1: Bionanocomposites: State of the Art, Challenges, and Opportunities: 1.1 Introduction: 1.2 Nanocrystalline Cellulose: References: CHAPTER 2: Preparation of Chitin Nanofibers and Their Composites; 2.1 Introduction; 2.2 Isolation of Chitin Nanofibers from Different Sources: 2.2.1 Processing of Chitin Nanofibers from Crab Shells; 2.2.2 Chitin Nanofibers from Prawn Shells; 2.2.3 Facile Preparation of Chitin Nanofibers from Dry Chitin 2.3 Characterization of Chitin Nanofibers Obtained from Crab, Prawn, and Dry Chitin Powder2.4 Preparation of Chitin Nanofibers from Edible Mushrooms; 2.5 Preparation of Chitin Nanofiber Nanocomposites; 2.6 Acetylation of Chitin Nanofibers; 2.6.1 Study of Degree of Substitution; 2.6.2 SEM Images of Substituted Chitin Nanofibers; 2.6.3 Acetylated Chitin Nanofiber Composites; 2.7 Conclusion; References; CHAPTER 3: Chemical Modification of Chitosan and Its Biomedical Application; 3.1

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## Sommario/riassunto

"The book is an attempt to introduce various biopolymers and bionanocomposites to a student of material sciences. Going beyond mere introduction, the book delves deep into the characteristics of various biopolymers and bionanocomposites and discuses, the nuances of their preparation with a view to help researchers to find out newer and novel applications. Chapter 2 of the book, for instance, describes the preparation of Chitin Nanofibers and their Composites and goes even to the basics like isolation of CNFs from different sources. Chapter 3 is on Chemical Modification of Chitosan and its Biomedical Application. While, Biometric lessons for processing chitin based composites are provided in Chapter 4, the next chapter deals with Morphological and Thermal Investigations of Chitin-based Nanocomposites. Mechanical properties of chitin-based nanocomposites are discussed in Chapter 6 and Preparation and Applications of Chitin Nanofibers/Nanowhiskers is the topic of Chapter 7. Thus, Chapters 2 to 7 are allotted to Chitin and related topics"--