

Contents

Preface.....	ix
Editor.....	xi
Contributors.....	xiii

PART I Synthesis and Characterization of Chitin and Chitosan Derivatives

Chapter 1 Chitin and Chitosan Derivatives.....	3
<i>Se-Ewon Kim and Jayachandran Venkatesan</i>	
Chapter 2 Synthesis, Characterization, and Biomedical Applications of Chitosan and Its Derivatives.....	15
<i>Hans E. Junginer and Assal M. M. Sadeghi</i>	
Chapter 3 Utilization of Silyl Ethers and Other Protection Groups in the Synthesis of Chitosan Derivatives.....	69
<i>Vivek S. Gaware, Berglind Eva Benediktsdóttir, and Már Másson</i>	
Chapter 4 Chemical Aspects of Chitin and Chitosan Derivatives.....	93
<i>Hiroshi Sashiwa</i>	
Chapter 5 Preparation of Chitin and Chitosan Derivatives Having Mercapto Groups.....	113
<i>Mónica Perez, Juan Alfonso Redondo, Alberto Gallardo, and Inmaculada Aranaz</i>	
Chapter 6 Thiolated Chitosan: Preparation, Properties, and Applications.....	121
<i>Nayana N. Inamdar and Vishnukant Mourya</i>	
Chapter 7 Graft Copolymerization of Acrylic Monomers on Chitosan and Its Derivatives: Recent Developments and Applications.....	151
<i>M. Prabaharan</i>	
Chapter 8 Preparation of Chitin Nanofibers for Biomedical Application.....	169
<i>Shinsuke Ifuku, Hiroyuki Saimoto, Kazuo Azuma, Tomohiro Osaki, and Saburo Minami</i>	

PART II Biological Activities of Chitin and Chitosan Derivatives

Chapter 9	Anticancer Effects of Chitin and Chitosan Derivatives	183
	<i>Mustafa Zafer Karagozlu, Fatih Karadeniz, and Se-Kwon Kim</i>	
Chapter 10	Antidiabetic Applications of Chitosan and Its Derivatives	191
	<i>Fatih Karadeniz and Se-Kwon Kim</i>	
Chapter 11	Antioxidant, Antimicrobial Properties of Chitin, Chitosan, and Their Derivatives	201
	<i>Dai-Nghiep Ngo and Se-Kwon Kim</i>	
Chapter 12	Role of Chitosan and Its Derivatives in Cardiovascular Health	213
	<i>Dai-Hung Ngo and Se-Kwon Kim</i>	
Chapter 13	Biological Applications of Chitin, Chitosan, Oligosaccharides, and Their Derivatives	223
	<i>Panchanathan Manivasagan, Kalimuthu Senthilkumar, Jayachandran Venkatesan, and Se-Kwon Kim</i>	
Chapter 14	Chitin and Chitosan Derivatives for Wound-Healing Applications	243
	<i>Willi Paul, R. Deepa, T. V. Anilkumar, and Chandra P. Sharma</i>	

PART III Biomedical Applications of Chitin and Chitosan Derivatives

Chapter 15	Chitosan: Amazing Controlled Delivery System	261
	<i>Maher Z. Elsabee and Rania E. Morsi</i>	
Chapter 16	Modifications of Chitosan for Gene Delivery	303
	<i>Bijay Singh, Sushila Maharjan, Sang-Ki Kang, Yun-Jaie Choi, Myung-Haing Cho, and Chong-Su Cho</i>	
Chapter 17	Prospective Corollary of Ophthalmic Nanomedicine: A Concept Shift toward Chitosan-Based Mucoadhesive Nanomedicine	317
	<i>Farhan Jalees Ahmad, Sohail Akhter, Mohammad Zaki Ahmad, Farshad Ramazani, Mohammad Samim, Musarrat Husain Warsi, Mohammad Anwar, and Ziyaar Rahman</i>	

Chapter 18	Biomedical Applications of Chitin and Chitosan Derivatives	337
	<i>Souparna Jana, Arijit Gandhi, Kalyan Kumar Sen, and Sanat Kumar Basu</i>	
Chapter 19	Chitosan Derivatives for Oral Delivery of Insulin.....	361
	<i>Anumita Chaudhary and Surajit Das</i>	
Chapter 20	Chitosan and Chitosan Derivatives for Mucosal Delivery of Biopharmaceutical Drugs.....	377
	<i>Fernanda Andrade, Francisca Araújo, and Bruno Sarmento</i>	
Chapter 21	Chitosans as Delivery Vectors in Biomedical Applications.....	393
	<i>Wendiane Patrucco and Swati Vyas</i>	
Chapter 22	Chitosan as Coating Material for Titanium Implants	423
	<i>Ramona Lieder and Olafur E. Sigurjonsson</i>	
Chapter 23	Current Scenario and Future Prospects of Chitosan in Dentistry.....	439
	<i>Manal Farea, Ahmad Sukari Halim, and Nor Shamsuria Omar</i>	
Chapter 24	Bionanocomposites of Chitosan for Multitissue Engineering Applications	451
	<i>P. M. Sudha, S. Aiswerya, Maximas H. Rose, Jayachandran Venkatesan, and Se-Kwon Kim</i>	
Chapter 25	Recent Advancements in Research on Chitin and Chitosan Derivatives for Drug Delivery Application	463
	<i>P. M. Sudha, T. Gomathi, K. Nasreen, Jayachandran Venkatesan, and Se-Kwon Kim</i>	
Chapter 26	Chitosan and Chitosan Derivatives as Potential Adjuvants for Influenza Vaccine	481
	<i>Nguyen Anh Dung</i>	
Index.....		493