
Preface

Marine glycobiology is the study of carbohydrate and carbohydrate with molecules (protein, lipids, enzymes, or small molecules). Glycoconjugates are glycan linked with other biological molecules. The study and research on marine glycobiology is less well-known. However, the recent development on analytical instruments and chemical characterizations increases the research on glycoconjugates. The knowledge gained of the exact chemical structure of marine glycoconjugates increases its use in biological and biomedical applications.

This book contains 38 chapters under different sections.

1. Section I—Chapter 1 provides a general introduction to the topics covered in this book.
2. Section II—marine glycoconjugates of reproduction and chemical communications (Chapters 3 and 4) are described.
3. Section III—Bioactivity, principles, and applications of marine glycans (Chapters 5 through 7) are explored.
4. Section IV—marine glycoproteins (Chapters 8 through 13)—deals with biomedical benefits of algal glycoproteins, marine source collagen, and detoxification in the marine environment.
5. Section V—marine glycoenzymes (Chapter 14)—discusses the sialyltransferases from the marine environment and their applications.
6. Section VI—marine carbohydrates (Chapters 15 through 29)—discusses several marine carbohydrates and their glycobiology. Marine bacterial exopolysaccharides, agar, chitin and chitosan,

sulfated polysaccharides, carbohydrates from marine microbes, algal polysaccharides, and mangroves are discussed in detail. In addition, the use of these polysaccharides in pharmaceutical applications, plant growth, and various biological activities are also discussed.

7. Section VII and VIII—bioinformatics and biological role of glycoconjugates (Chapters 30 and 31)—describes glycan's predictive modeling using modern algorithms and glycoconjugated bioactivity compounds and biological applications.
8. Section IX—glycoconjugates as biomedicine (Chapters 32 through 38)—presents the application of glycoconjugates in biomedicine and their biotechnological applications.

I express my sincere thanks to all the authors who have contributed toward this book. Their relentless effort was the result of their strong inclination towards scientific research, and great perseverance descended from their experience. I am grateful to the experts who have contributed to this book.

I hope that fundamental as well as applied contributions to this book might serve as potential research and development leads for the benefit of humankind. Marine glycobiology will be the excellent field in the future towards the enrichment of targeted marine glycans, which further sets up a suitable for further applications. This book would be a reference book for students in academic and industrial research.

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