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Review -- Chapter 9 Marine Environment: A Treasure Trove of Natural Polymers for Tissue Engineering -- Chapter 10 Exploration of Bioactive Functional Molecules from Marine Algae: Challenges and Applications in Nutraceuticals -- Chapter 11 Properties of Violacein: A Promising Natural Pharmaceutical Secondary Metabolite from Marine Environment with Emphasis on its Anticancer activity -- Chapter 12 Exploitation of Marine-Derived Multifunctional Biomaterials in Biomedical Engineering and Drug Delivery -- Chapter 13 Marine Phytoplankton: Bioactive Compounds and Their Applications in Medicine -- Chapter 14 Neuroactive Peptides and Neuroprotective Molecules from Marine Sponges and Associated Bacteria: An Untapped Resource for Systemic Drug Development.

Sommario/riassunto

This book explores cutting-edge research on the discovery and application of marine bioactive molecules for biomedical and pharmacotherapeutic purposes. The book begins by delving into the bioprospection of marine sponge microbiomes for bioactive metabolites using advanced metagenomics tools. It then explores metagenome mining approaches for the discovery of marine microbial natural products. The use of marine-derived fungi as a source of anticancer secondary metabolites is also discussed. The book then turns to the biomedical applications of marine-derived biomaterials, including marine biopolymers in tissue engineering and regenerative medicine. Marine-derived pharmaceuticals and polymeric nanostructures for cancer treatment are also examined. Next, the book looks at the use of marine microbial sources for the synthesis of metallic nanomaterials, prospects, current development, and challenges in nanomedicine. The book continues by exploring the treasure trove of natural polymers for tissue engineering in the marine environment. It also discusses the immunomodulatory and therapeutic potential of marine-derived astaxanthin, current developments, and prospects. Finally, the book concludes by exploring the recent progress in marine-derived nutraceuticals and marine phytoplankton bioactive compounds and their applications in medicine.