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Nota di contenuto	Part 1 General insights on the chemistry and analysis of biotoxins -- Chapter 1 Chemistry of biotoxins and mode of action/antidotes -- Chapter 2 Biosensors for the detection of emerging toxins in fish -- Chapter 3 Nanomaterials, magnetic beads and microfluidics systems for detecting emerging biotoxins -- Part 2 Data on biotoxins from different sources Chapter 4 Bacterial toxins -- Chapter 5 Cyanotoxins -- Chapter 6 Phycotoxins -- Chapter 7 Phytotoxins – Terrestrial plant sources -- Chapter 8 Phytotoxins - Aquatic plant sources -- Chapter 9

Insect toxins -- Chapter 10 Natural toxins in diverse food stuff and foodomics -- Chapter 11 Trace elements as toxins and tonics for human from edible and healing plants -- Chapter 12 Toxic and antinutritional characters in traditional food plants -- Part 3 Biotoxins classified by their mode of action -- Chapter 13 Biotoxins and their conjugates for use in targeted medicinal applications with focus on eye diseases -- Chapter 14 Neurotoxins of natural origin -- Chapter 15 Toxic effects of estrogenic biomolecules and recommendations -- Part 4 New applications of biotoxins -- Chapter 16 Harnessing Nature's Weapons: Biotechnological Marvels and Therapeutic Treasures of Biotoxins -- Chapter 17 Military potential of biological toxins -- Chapter 18 Microbial Biotoxins in Biotechnological Applications for Plant Disease and Pest Management -- Chapter 19 Biocative metabolites produced by microorganisms and plants with potential application in agriculture and/or medicine -- Chapter 20 Toxins of pharmacological importance -- Chapter 21 Saxitoxin from saxitoxin compounds- An omics understanding with future ocular applications -- Chapter 22 Cytotoxicity and medicinal applications of plant lectins.

Sommario/riassunto

This book covers biologically produced toxins, their chemistry, mode of action, and potential therapeutic applications. In the first part of the book, readers are introduced to the fundamental chemistry of biotoxins, their mechanisms of action, and possible antidotes, paving the way for a deeper understanding of their therapeutic potential. Subsequent chapters outline different types of biotoxins and their impact on food quality and safety, and their potential applications in agriculture and medicine. Particular attention is given to terrestrial and aquatic phytotoxins, bioactive metabolites produced by microorganisms and plants, mycotoxins, phycotoxins, cyanotoxins, neurotoxins of natural origin, bacterial toxins, insect toxins and marine toxins. An authoritative perspective on topics like bioterrorism and the military potential of biological toxins is also offered in this book. The second part of the book presents an overview of cutting-edge detection techniques to identify emerging biotoxins in several matrices. Readers will find an authoritative overview of the recent developments in nanotechnology and microfluidics (nanomaterial-based systems), and biosensors (immunosensors, receptor-based biosensors, and cell-based biosensors). The book also covers other detection techniques applied to food such as fluorescent, colourimetric, electrochemical, photoelectrochemical, and electrochemiluminescent techniques. Given its breadth, the book appeals to researchers, academics, and students interested in biotoxins, their pharmacological importance and their impact on agriculture and human health.