

1. Record Nr.	UNINA9910818105603321
Titolo	Natural products : discourse, diversity and design // editors, Anne Osbourn, Rebecca J. Goss, Guy T. Carter
Pubbl/distr/stampa	Ames, Iowa : , : Wiley-Blackwell, , 2014 ©2014
ISBN	1-118-79460-5 1-118-79462-1 1-118-79467-2
Descrizione fisica	1 online resource (565 p.)
Disciplina	547.7
Soggetti	Natural products Microbial metabolism
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Natural Products; Contents; Contributors; Section I Natural Products in the Natural World; Part 1 Role and Reason; 1 The Role of Phytochemicals in Relationships of Plants with Other Organisms; 1.1 Introduction; 1.2 Glucosinolates; 1.2.1 Glucosinolates Affect Insect-Plant Relationship; 1.2.2 Glucosinolates in Plant Immunity; 1.3 Benzoxazinone Glucosides; 1.4 Strigolactones; 1.5 Phytoalexins - Inducible Defense Metabolites; 1.5.1 Phenylalanine-derived Phytoalexins; 1.5.2 Phytoalexins in Brassicaceae; 1.6 Conclusions; References 2 Designer Microbial Ecosystems - Toward Biosynthesis with Engineered Microbial Consortia 2.1 Introduction; 2.2 Bacterial Cell-to-Cell Communication via Quorum-Sensing Systems; 2.3 Engineering Population Control into Designer Bioproduction Consortia; 2.4 Control and Optimization of Bioproduction Consortia; 2.5 Design of Synthetic Microbial Consortia for Biosynthesis; 2.6 Conclusions; Acknowledgments; References; 3 Marine Natural Products - Chemical Defense/Chemical Communication in Sponges and Corals; 3.1 Introduction; 3.2 Chemical Communication between the Organism and Its Environment

3.2.1 Feeding Deterrents; 3.2.2 Compounds Inducing Larvae Settlement; 3.2.3 Photoprotective and Antioxidant Compounds; 3.2.4 Antifouling Compounds; 3.2.5 Antimicrobial Compounds; 3.3 Mediating Communication between Host and Microbial Associates; 3.3.1 Chemical Control by the Host of Its Microbial Partners; 3.3.2 Chemical Resistance of the Microbial Partners to the Host Digestion; 3.3.3 Chemical Defense of the Host by Associated Microorganisms; 3.4 Chemical Communication within the Host Microbial Compartment; 3.4.1 Molecules Involved in Quorum Sensing; 3.4.2 Molecules Involved in Bacterial Antagonisms; 3.5 Conclusions and Perspectives; References; Part 2 Self-Protection - Avoiding Autotoxicity; 4 How Plants Avoid the Toxicity of Self-Produced Defense Bioactive Compounds; 4.1 Introduction; 4.2 Sequestration and Excretion; 4.2.1 Vacuolar Sequestration; 4.2.2 Extracellular Excretion; 4.3 Genomic Clustering; 4.4 Target Mutation-based Mechanism; 4.5 Predicting Drug Resistance in Other Organisms; Acknowledgments; References; Part 3 Fishing and Pharming; 5 Marine Bioprospecting; 5.1 Introduction; 5.2 International Treaties and Permit Issues; 5.3 Techniques and Types of Collection; 5.4 Screening Extracts vs. Fractions vs. Compounds; 5.5 Chemical and Biological Screening Methods; 5.6 Innovations on the Horizon; 5.7 Conclusions; Acknowledgments; References; 6 Myxobacteria: Chemical Diversity and Screening Strategies; 6.1 Introduction; 6.2 Natural Products from Myxobacteria: Chemistry and Biological Activity, a Review of Publications Since 2009; 6.2.1 Peptides; 6.2.2 Macrolides; 6.2.3 Polyketides; 6.2.4 Miscellaneous; 6.3 Screening for New Scaffolds; 6.3.1 Screening for New Antimicrobials (Bioassay-Guided Fractionation); 6.3.2 Mining New Myxobacterial Taxa and Structure-Guided Isolation: The Aethearmides

Sommario/riassunto

"Natural Products: Discourse, Diversity and Design provides an informative and accessible overview of discoveries in the area of natural products in the genomic era, bringing together advances across the kingdoms. As genomics data makes it increasingly clear that the genomes of microbes and plants contain far more genes for natural product synthesis than had been predicted from the numbers of previously identified metabolites, the potential of these organisms to synthesize diverse natural products is likely to be far greater than previously envisaged. Natural Products addresses not only the philosophical questions of the natural role of these metabolites, but also the evolution of single and multiple pathways, and how these pathways and products may be harnessed to aid discovery of new bioactives and modes of action. Edited by recognized leaders in the fields of plant and microbial biology, bioorganic chemistry and natural products chemistry, and with contributions from researchers at top labs around the world, Natural Products is unprecedented in its combination of disciplines and the breadth of its coverage. Natural Products: Discourse, Diversity and Design will appeal to advanced students and experienced researchers, from academia to industry, in diverse areas including ecology, industrial biotechnology, drug discovery, medicinal chemistry, agronomy, crop improvement, and natural product chemistry"--Provided by publisher.