

Contents

DEDICATION	V
ACKNOWLEDGMENT	VII
PREFACE	IX
CONTRIBUTORS	XIII
PART I FUNDAMENTAL ISSUES RELATED TO NATURAL PRODUCT-BASED DRUG DELIVERY	
1 Natural Products and Drug Discovery <i>Arnold L. Demain and Lixin Zhang</i>	3
PART II STRATEGIES	
2 Integrated Approaches for Discovering Novel Drugs From Microbial Natural Products <i>Lixin Zhang</i>	33
3 Automated Analyses of HPLC Profiles of Microbial Extracts: <i>A New Tool for Drug Discovery Screening</i> <i>José R. Tormo and Juan B. García</i>	57
4 Manipulating Microbial Metabolites for Drug Discovery and Production <i>C. Richard Hutchinson</i>	77
5 Improving Drug Discovery From Microorganisms <i>Chris M. Farnet and Emmanuel Zazopoulos</i>	95
6 Developments in Strain Improvement Technology: <i>Evolutionary Engineering of Industrial Microorganisms</i> <i>Through Gene, Pathway, and Genome Shuffling</i> <i>Stephen B. del Cardayré</i>	107
PART III SPECIFIC GROUPS OF DRUGS	
7 The Discovery of Anticancer Drugs From Natural Sources <i>David J. Newman and Gordon M. Cragg</i>	129
8 Case Studies in Natural-Product Optimization: <i>Novel Antitumor Agents</i> <i>Derived From Taxus brevifolia and Catharanthus roseus</i> <i>Jian Hong and Shu-Hui Chen</i>	169
9 Terpenoids As Therapeutic Drugs and Pharmaceutical Agents <i>Guangyi Wang, Weiping Tang, and Robert R. Bidigare</i>	197
10 Challenges and Opportunities in the Chinese Herbal Drug Industry <i>Wei Jia and Lixin Zhang</i>	229

11	Arsenic Trioxide and Leukemia: <i>From Bedside to Bench</i> <i>Guo-Qiang Chen, Qiong Wang, Hua Yan, and Zhu Chen</i>	251
PART IV MICROBIAL DIVERSITY		
12	New Methods to Access Microbial Diversity for Small Molecule Discovery <i>Karsten Zengler, Ashish Paradkar, and Martin Keller</i>	275
13	Accessing the Genomes of Uncultivated Microbes for Novel Natural Products <i>Asuncion Martinez, Joern Hopke, Ian A. MacNeil, and Marcia S. Osburne</i>	295
PART V SPECIFIC SOURCES		
14	New Natural-Product Diversity From Marine Actinomycetes <i>Paul R. Jensen and William Fenical</i>	315
15	Novel Natural Products From Rainforest Endophytes <i>Gary Strobel, Bryn Daisy, and Uvidelio Castillo</i>	329
16	Biological, Economic, Ecological, and Legal Aspects of Harvesting Traditional Medicine in Ecuador <i>Alexandra Guevara-Aguirre and Ximena Chiriboga</i>	353
INDEX		371