Record Nr. UNINA9910810256103321 Autore Bisen Prakash S Titolo Microbes: concepts and applications // Prakash S. Bisen, Mousumi Debnath, Godavarthi B.K.S. Prasad Hoboken, N.J., : Wiley-Blackwell, 2012 Pubbl/distr/stampa **ISBN** 9786613795489 9781118311899 1118311892 9781282000377 1282000373 9781118278130 1118278135 9781118311912 1118311914 9781118311905 1118311906 Edizione [1st ed.] 1 online resource (717 p.) Descrizione fisica

Classificazione SCI045000

Altri autori (Persone) DebnathMousumi

PrasadGodavarthi B. K. S

Disciplina 616.9/041

Soggetti Microbiology

Microbial diversity
Microbial ecology
Microbial biotechnology

Microorganisms

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Note generali Description based upon print version of record.

Nota di bibliografia Includes bibliographical references and index.

Nota di contenuto Machine generated contents note: Preface Acknowledgments Chapter 1.

Human and Microbial World 1.1 Prologue 1.2 Innovations in

microbiology for human welfare 1.3 The microbial world 1.4 Future challenges: Metagenomics Chapter 2. Gene Technology: Application and Techniques 2.1 Prologue 2.2 Introduction to Gene technology 2.3 Nucleic acid hybridization 2.4 DNA sequencing 2.5 Polymerase chain

reaction 2.6 Omics technology and Microbes 2.7 Bioinformatics in microbial technology 2.8 Future challenges: The Biochips Chapter 3. Molecular Diagnostic and Medical Microbiology 3.1 Prologue 3.2 Microbial biology 3.3 Infection and immunity 3.4 Bacterial pathogens and associated diseases 3.5 Viral pathogen and associated diseases 3.6 Prions 3.7 Parasitic infections 3.8 Fungal pathogen 3.9 Microbial diagnostics 3.10 Future challenges: Promises of pharmacogenomics and molecular testing Chapter 4. Identification and Classification of Microbes 4.1 Prologue 4.2 Principles of taxonomy 4.3 Using phenotypic characteristics to identify microbes 4.4 Using genotypic character to identify microbes 4.5 Characterizing strain differences 4.6 Classification of microbes on the basis of phenotypic characteristics 4.7 Classification of microbes on the basis of genotypic characteristics 4.8 Future challenges: Aptamers for detection on pathogens Chapter 5. Diversity of Microorganisms 5.1 Prologue 5.2 Physiology diversity of micro organism 5.3 Thriving in terrestrial environment 5.4 Aquatic environment 5.5 Animal as habitat 5.6 Arachea in extreme environment 5.7 Biogeochemical cycling 5.8 Environmental influence and control of microbial growth 5.9 Micro organism and organic pollutants 5.10 Micro organism and metal pollutants 5.11 Environmentally transmitted pathogens 5.12 Microbes as friends of man 5.13 Microbes as disastrous enemy 5.14 Future challenges: Microbes in space Chapter 6. Microbes in Agriculture 6.1 Prologue 6.2 The soil plant micro organism 6.3 Root microbial interaction 6.4 Pathogenic microbes in agriculture 6.5 Microbes as a tool of genetic engineering 6.6 Future challenges: Functional genomic approach for improvement of crops Chapter 7. Microbes as a Tool for Industry and Research 7.1 Prologue 7.2 Historical development 7.3 Clinical diagnostics in a new era 7.4 Industrial microorganisms and product formation 7.5 Major industrial products for health and industry 7.6 Food diagnostics, preservation and food borne microbial diseases 7.7 Future challenges: Next generation diagnostics industry.

Sommario/riassunto

"This book connects the basic biology of microbes, microbial biodiversity, advances in microbialomics, and the role microbes play in modern biotechnology, agriculture, food science, and environmental remediation. In short, it offers the most complete treatment of microbial biology available. Each chapter contains a detailed account of what is known about the microbes and how key discoveries were made, the latest advances in microbialomics, and future directions, many of which may inspire current undergraduate and graduate students in their own research in medicine, biotechnology, or environmental science"--