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Nota di contenuto	1 Understanding the small world: The Microbes -- 2 Bacteria and their industrial importance -- 3 Industrial perspectives of fungi -- 4 Microbial fermentation: basic fundamentals and its dynamic prospect in various industrial applications -- 5 Fermenter Design -- 6 Strain improvement of microbes -- 7 Enzyme Kinetics: a plethora of information -- 8 Asparaginase: Production, harvest, recovery and potential industrial application -- 9 Laccases: production, harvest, recovery, and potential industrial application -- 10 Pectinases: Production, harvest, recovery, and potential industrial application -- 11 Production of malt-based beverages -- 12 Biotransformation of industrially important steroid drug precursors -- 13 Value addition to chemical compounds through biotransformation -- 14 Fermentation Strategies for Organic Acid Production -- 15 Biological Production of Succinic Acid: State of the Art and Future Perspectives -- 16 Biomass, Bioenergy, and Biofuels -- 17 Biomethanation: Advancements for

Upgrading Biomethane in Biogas Technologies -- 18 Microbial Bioelectricity Generation & Product Electrosynthesis -- 19 Microbial assisted systems for lignin-based product generation -- 20 Bioremediation Technology : A cumulative study of Microbial bioremediation of heavy metals, aromatic hydrocarbons, acrylamide and polyacrylamide -- 21 Microbes and their application in the food and agriculture industry -- 22 Microbes in resource and nutrient recovery via wastewater treatment -- 23 Potential of CRISPR/Cas9-based genome editing in the fields of industrial biotechnology-strategies, challenges, and applications -- 24 Animal cell culture: Basics and applications.

Sommario/riassunto

Industrial microbiology utilizes microorganisms to produce industrially important products in a more sustainable way, as opposed to the traditional chemical and energy intensive processes. The present book is an attempt to provide its readers with compiled and updated information in the area of Industrial Microbiology and Biotechnology. This book provides the basics of microbiology and how it has been exploited at an industrial scale. The book focuses on the role of biotechnological advances that directly impact the industrial production of several bioactive compounds using microbes-based methods under a controlled and regulated environment. On one hand, this book presents detailed information on the basics of microbiology such as types of microbes and their applications, bioreactor design, fermentation techniques, strain improvement strategies, etc. At the same time it also provides recent and updated information on industrial production, recovery, and applications of enzymes, alcohols, organic acids, steroids as a drug precursor, etc., using microbial biotechnological approaches. The book presents an overview of modern technological advances for the generation of energy (biomethane, bioethanol, and bioelectricity) and resource recovery from waste. It also highlights the application of CRISPR-based technologies in the industrial microbiology sector. This book is developed with the motive to benefit students, academicians, as well as researchers. The book will also find interests among microbiologists, biotechnologists, environmentalists, and engineers working in the application of the microbes-based approach for the development of greener technologies.