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Nota di contenuto	Chapter 1. Lignocellulosic Biomass as Replenishable Source for the Derivation of Biofuel and Value-added Products of Global Significance -- Chapter 2. Valorization of the Lignocellulosic Biomass via Bacterial Enzymatic Machinery for Sustainable Biorefinery -- Chapter 3. The Contribution of Fungal and Its Enzymatic System towards Multiproduct Biorefinery and Global Biofuel Research -- Chapter 4. An Overview of Fungal Enzymes in the Generation of Value-Added Product of Industrial Significance -- Chapter 5. Bioprocessing of Biomass to Value-added Products using Enzymes -- Chapter 6. Production of Value-Added Products Using Microalgae: A Zero Waste Biorefinery Approach -- Chapter 7. Microalgal in the Production of Various High-End Value-Added Products using Zero Waste Biorefinery Approach -- Chapter 8. Microalgae - A Sustainable Bio-factory for High Value-Added Product -- Chapter 9. Feedstock to Fortune: Microalgae Bioconversion to Value-Added Products via Circular Bioeconomy -- Chapter 10. Development

and Scale-Up of the Bioreactor System in Biorefinery: A Significant Step Towards a Green and Biobased Economy -- Chapter 11. Scaling up Bioreactor Systems for Sustainable Bio-Refinery: A Crucial Step in Advancing the Green Economy -- Chapter 12. Bioconversion of Waste to Bioethanol Production -- Chapter 13. The Development in Nanotechnology and Tailor-Made Enzymes as the Future of Biobased Economy -- Chapter 14. In-silico Investigations on Exploring Various Aspects of Biorefinery: A Futuristic Paradigm through Microbiological Perspectives -- Chapter 15. Conceptual to Technological Reality: Biorefineries using Techno-Economic and Life Cycle Assessment Models -- Chapter 16. Strategies to Develop an Efficient Biorefinery System using Techno-Economic Evaluation & Life Cycle Assessment -- Chapter 17. The Prospective Impact of Technological Advances in Value-Sensitive Design (VSD) Used in the Biorefinery Design Selection Processes.

Sommario/riassunto

This book is unique as it will cover the latest technological advancements in the field of biorefinery and how it is a major futuristic component of global biofuel research. Initially, the role of bio-based waste materials, microorganisms, and their bioactive metabolites in biorefinery will be focused. Further, recent advances and emerging topics that are related to industrially important products such as biofuels, hydrogen production will also be elaborated. The book addresses the lack of understanding of recent technological advancement such as life cycle assessment (LCA) and techno-economic assessment (TEA) as well. The systems for biorefineries demand a methodical approach to identifying effects and evaluating their long-term viability. Thus, a futuristic paradigm focusing on in silico studies, will also be incorporated, enabling us to understand the developments and impacts of bio-based materials towards a circular and sustainable economy. Additionally the proposed book will also discuss various strategies such as the analysis of cost-effectiveness, nanotechnology, value sensitive design (VSD) and also emphasize the economic, technical, and environmental aspects that affect their production as well as the future perspective in terms of the market scenario. Thus, the book will provide cumulative information on various dimensions of biorefinery and its role as a major bio-economic industry of the future for researchers, industrialists, entrepreneurs, career starters, and policymakers. The shift towards a bioeconomy not only promises innovative solutions to pressing global challenges but also opens up new avenues for various industries and policymakers. Thus, biorefinery is regarded as a crucial aspect of biobased economy ultimately leading the path towards sustainability.