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Nota di contenuto	Part 1. Bio-electrochemical systems for biofuels and biochemicals -- 1. Photosynthetic Microbial Fuel Cells: Fundamentals and Potential Applications -- 2. Algal bio-cathodes in aid of bio-energy generation, bio-remediation and nutrient removals -- 3. Hydrogen and methane production in Bio-electrochemical systems -- 4. Hydrogen and methane generation from bio-waste: enhancement and upgrading via bioelectrochemical systems -- 5. Bio-electrochemical systems/technology for Energy and waste treatment -- 6. Bio-electrochemical for Energy and waste treatment via suitable microbial systems -- 7. Bio-electrochemical remediation of organic pollutants -- 8. Electrosynthesis of various chemicals -- Part 2. Recognition of bio-electrochemical systems in real life -- 9. Industrial applications of bio-electrochemical system: wastewater treatment and others -- 10. Applications of bio-electrochemical systems in metal recovery -- 11. Integrating waste management with MFC -- 12. Bio-electrochemical technology: Challenges and Implications -- 13. High value-added compounds (oligomers from hemicellulose) using microwaves pretreatment of electrochemical Processes -- 14. Rice paddy field microbial fuel cells: fundamentals and recent progresses -- 15. Effective Cathode Catalysts for Oxygen Reduction Reactions in Microbial Fuel Cell -- 16. Hydrogen production and contaminants

removal using microbial electrochemical cells.

Sommario/riassunto

This book is the second in a two-volume set devoted to bioelectrochemical systems (BESs) and the opportunities that they may offer in providing a green solution to growing energy demands worldwide. While the first volume explains principles and processes, in this volume established research professionals shed light on how this technology can be used to generate high-value chemicals and energy using organic wastes. Bioelectricity is generated in microbial fuel cells (MFCs) under oxygen-depleted conditions, where microbial bioconversion reactions transform organic wastes into electrons. Dedicated chapters focus on MFCs and state of the art advancements as well as current limitations. In addition, the book covers the use of microbial biofilm- and algae-based bioelectrochemical systems for bioremediation and co-generation of valuable chemicals. A thorough review of the performance of this technology and its possible industrial applications is presented. The book is designed for a broad audience, including undergraduates, postgraduates, energy researchers/scientists, policymakers, and anyone else interested in the latest developments in this field.
