

1. Record Nr.	UNINA9910444254803321
Titolo	Bioelectrochemical systems . Volume 1 Principles and processes // Prasad Kumar, Chandrasekhar Kuppam, editors
Pubbl/distr/stampa	Singapore : , : Springer, , [2020] ©2020
ISBN	981-15-6872-3
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XII, 326 p. 64 illus., 53 illus. in color.)
Disciplina	572.437
Soggetti	Bioelectrochemistry Microbial biotechnology Bioelectroquímica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part 1. The Principle of Bio-electrochemical Systems+61. Bio-electrochemical systems: Principles and Application -- 2. Bioelectrochemically assisted anaerobic digestion: Principles and Perspectives -- 3. An insight into Biological Photovoltaic Cell based Electrochemical System -- 4. Electro-fermentation technology: Emerging platform -- 5. Electrochemical losses and their role in power generation -- 6. Electricity-driven microbial factory for value-added resources recovery from waste streams -- Part 2. Catalysts controlling BES implementation -- 7. Effective cathode catalysts for O2 reduction -- 8. Role of Biocatalysts in Microbial Electrosynthesis for value-added product via CO2 sequestration -- 9. Biocatalysts in electro-fermentation systems: Mixed culture and pure cultures -- 10. Bacterial metabolism coupled energetic -- 11. Electrotrophs and Electricigens; Key players in Microbial Electrophysiology -- 12. Biofilms: Engineering approaches to enhance process efficiency -- 13. The enhanced mechanism of heterotrophic denitrification in bioelectrochemical system -- 14. Nanotechnology approaches: Tunable electrode surfaces for bioelectrocatalytic conversion of greenhouse gases into valuable products.

This book is the first 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. In this first volume, established research professionals explain the underlying principles and processes of BESs, providing a thorough introduction to these systems before proceeding to address the roles of cathode catalysts and biocatalysts, biofilms, heterotrophic denitrification, and nanotechnology approaches. This volume forms a sound foundation for understanding the potential industrial applications of this technology, which include in particular the generation of high-value chemicals and energy using organic wastes. These applications are the focus of the second volume, where readers will find up-to-date information on microbial fuel cells and the use of microbial biofilm- and algae-based bioelectrochemical systems for bioremediation and co-generation of valuable chemicals. 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.
