1. Record Nr. UNINA9910866578703321

Autore	Alcaraz Gonzalez Victor
Titolo	Wastewater Exploitation : From Microbiological Activity to Energy / / edited by Victor Alcaraz Gonzalez, René Alejandro Flores Estrella, Andreas Haarstrick, Victor Gonzalez Alvarez
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	3-031-57735-3
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (376 pages)
Collana	Springer Water, , 2364-8198
Altri autori (Persone)	Flores EstrellaRené Alejandro HaarstrickAndreas Gonzalez AlvarezVictor
Disciplina	363,728 628.4
Soggetti	Refuse and refuse disposal Renewable energy sources Environmental management Microbial ecology Waste Management/Waste Technology Renewable Energy Environmental Management Environmental Microbiology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- General view on synergies and trade-offs using wastewater and anaerobic processes for current in the form of biomass, CH4 and H2 as well as energy production systems -- Anaerobic Digestion -- Decreasing the retention time as a way for stabilizing anaerobic digestion processes -- Dark Fermentation -- Microbial population dynamics in continuous hydrogen production systems by dark fermentation of tequila vinasse -- Practical applications of dark fermentation for hydrogen production -- Biohydrogen Production: A Focus on Dark Fermentation Technology -- Experiences of Biohydrogen Production from various feedstocks by Dark Fermentation at laboratory scale -- Microbial communities in Dark Fermentation, analytical tools

to elucidate key microorganisms and metabolic profiles -- Microbial Fuel Cells -- Microbial fuel cell systems for wastewater treatment and energy generation from organic carbon and nitrogen: fundamentals, optimization, and novel processes -- Microbial Electrolysis Cells -- Online optimization of Microbial Electrolysis Cells -- Bioethanol and Butanol Systems -- Optimizing Bioethanol Production via Extremum Seeking Control in a Continuous Stirred Tank Bioreactor -- Performance evaluation of the non-structured and structured kinetic modelling for the abe process. From batch to continuous fermentation -- Microalgae -- Microalgae-Based Diesel: A Historical Perspective to Future Directions -- Bioconversion of industrial CO2 into synthetic fuels -- Future trends -- Bioprocesses Coupling for Biohydrogen Production: Applications and Challenges -- Harvesting biofuels with Microbial Electrochemical Technologies (METs): state of the art and future challenges -- Evolution of the biorefinery concept and its evaluation tools toward a circular bioeconomy.

Sommario/riassunto

With all the current efforts to use non-fossil sources as a starting point for future energy solutions, consideration is also being given to using microbial activities as a direct or indirect source of energy production. This ranges from the use of algae as biomass or as H2 producers, anaerobic microorganisms to produce methane, hydrogen, and even electricity directly. This book deals with both theoretical and technical possibilities of using anaerobic microorganisms in combination with wastewater as a substrate source to produce biofuels and bioenergy in the form of biomass, CH4 and H2 as well as the corresponding power densities and electricity quantities in economically justifiable processes. Unique process facilities are widely addressed; however, special interest is also placed in biorefinery and circular economy related concepts. The theoretical background as well as application examples are presented. .