

1. Record Nr.	UNINA9910830572503321
Titolo	Renewable Energy Innovations : Biofuels, Solar, and Other Technologies // Alok Kumar Patel and Amit Kumar Sharma, editors
Pubbl/distr/stampa	Hoboken, NJ : , : John Wiley & Sons, Inc., , [2023] ©2023
ISBN	9781119785675 1-119-78570-7 1-119-78571-5 1-119-78569-3
Edizione	[First edition.]
Descrizione fisica	1 online resource (403 pages)
Disciplina	333.794
Soggetti	Renewable energy sources
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

RENEWABLE ENERGY INNOVATIONS This critical text, designed for microbiologists, biotechnologists, entrepreneurs, process engineers, chemical engineers, electrical engineers, physicists, and environmentalists, assesses the current knowledge about lab-scale and large-scale production of renewable and sustainable fuels, chemicals, and materials. Global warming is having a huge impact on the world's ecosystem. Glaciers have shrunk, ice on rivers and lakes is breaking up early, and plant and animal ranges have relocated. On a worldwide scale, the threat posed by climate change and pollution is obvious. A green and sustainable future necessitates using renewable resources to produce fuels, chemicals, and materials. This book investigates diverse bioprocesses that are crucial to everyday life, including the key concerns regarding the generation of biofuels, energy, and food securities, along with waste management. Commercial interest in biotechnological processes has risen to produce pharmaceuticals, health supplements, foodstuffs, biofuels, and chemicals using a biocatalyst such as enzymes, microorganisms, plant cells, or animal cells in a bioreactor. The sustainability of renewable biomass, replacement of depleted fossil fuels, and the mitigation of greenhouse gas emissions from the existing chemical and oil industries are the key benefits of switching to bioproducts. This book discusses bioprocessing to produce biofuels, biobased chemicals, bioproducts, and biomass biorefinery processes. This involves designing novel pretreatment and fractionation technologies for lignocellulose biomass into cellulose, hemicellulose, and lignin and the conversion of these streams into biofuels and biobased chemicals via biochemical and thermochemical routes. This book also covers the advancement of oleaginous microorganisms for biofuels and nutraceutical, biological wastewater treatment. Written and edited by authors from leading biotechnology research groups from across the world, this exciting new volume covers all of these technologies, including the basic concepts and the problems and solutions involved with the practical applications in the real world. Whether for the veteran engineer or scientist, student, manager, or another technician working in the field, this volume is essential for any library.
