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Nota di contenuto	Preface -- New approaches for renewable energy using metal electrocatalysts for lithium-O2 and zinc-air batteries -- Biodiesel production for the sustainable development of chemical industry -- Cellulose based green and sustainable energy -- Design of dithienopyrrole-based organic dyes for efficient dye-sensitized solar cells: Strategies and outcome -- Sonochemical production of hydrogen: A novel approach -- Impact of alcohol and its blends on engine performance -- Photovoltaic performance of bipyridine and

dipyridophenazine-based ruthenium complexes in application of dye-sensitized solar cell sensitizers -- Compressed fluids for food by-products biorefinery -- Green and sustainable biomass processing for fuels and chemicals -- Enriching of carotenes by supercritical desorption of buriti oil (Mauritia flexuosa Mart.) from alumina adsorbent -- Utilization of bio waste in green chemistry -- The role of heterogeneous catalysts in cellulose conversion to platform chemicals and biofuels -- Potential of neem oil as source of biodiesel -- Sustainable photocatalyst for energy and environment application -- Implementation guidelines for modelling gasification processes in computational fluid dynamics: A tutorial overview approach -- Sustainable cellulose based absorbents for heavy metal remediation -- Recent trend in photo-catalytic water of azo dyes -- Hospital effluents treatment -- Solar photocatalytic treatment of tannery effluent -- Modification of natural fibers by graft copolymerization and their environmental applications -- Dye degradation for environmental remediation -- Exploring natural coagulant application in the treatment of water for safe drinking -- Sustainable technologies for the wastewater treatment generated by leather industry sector: Regulation and economic aspects -- Physical and biological techniques to remediate carcinogenic Cr(VI) from industrial effluents -- Separation of industrial effluents -- Application of polymers in purification of industrial wastewater -- Role of disinfectants in green chemistry -- Sonochemistry in green processes: modeling, experiments and technology -- Biosynthesis of silymarin through plant in-vitro cultures -- Chemistry for new frontiers in supramolecular theranostics -- Cellulose nanocrystal aerogels: Synthesis, functional properties, and applications -- Graphene oxide: An efficient, and recyclable nano catalyst for the synthesis of 2-substituted benzimidazoles from aldehydes and diamines at ambient temperature -- Green synthesis of TiO2 nanomaterials photocatalyst -- Green corrosion inhibitors for industrial cleaning processes -- Cellulose amphiphilic materials: Chemistry, process, and applications -- Oleogels and their applications -- Measuring corrosion abrasion in various solid-fluid systems -- Base-free conversion of aldose sugar to aldonic acid -- Treatment of dairy products with conversion of useful bio-products -- Green corrosion inhibitor for petroleum pipelines -- Impact and challenges of polymerization -- Index.

Sommario/riassunto

Urbanization, industrialization, and unethical agricultural practices have considerably negative effects on the environment, flora, fauna, and the health and safety of humanity. Over the last decade, green chemistry research has focused on discovering and utilizing safer, more environmentally friendly processes to synthesize products like organic compounds, inorganic compounds, medicines, proteins, enzymes, and food supplements. These green processes exist in other interdisciplinary fields of science and technology, like chemistry, physics, biology, and biotechnology, Still the majority of processes in these fields use and generate toxic raw materials, resulting in techniques and byproducts which damage the environment. Green chemistry principles, alternatively, consider preventing waste generation altogether, the atom economy, using less toxic raw materials and solvents, and opting for reducing environmentally damaging byproducts through energy efficiency. Green chemistry is, therefore, the most important field relating to the sustainable development of resources without harmfully impacting the environment. This book provides in-depth research on the use of green chemistry principles for a number of applications.