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Nota di contenuto	Part I. Fundamentals of Microalgae Cultures -- The Beginning to Integration: Evolution and Context of Microalgae Biotechnology -- Microalgae Production Systems and Photobioreactor Designs: Recent Trends and Future Prospects -- Dewatering and Microalgal Harvesting Techniques: The Bottleneck to Industrial Microalgae Processing -- Wastewater Treatment Based in Microalgae Bioremediation -- Part II. Microalgae as Bioenergy Products -- Thermochemical Conversion of Microalgae Biomass: A Potential Source of Bio-oil, Biochar and Syngas -- Biodiesel Production from Microalgae Biomass -- Biogas Production from Anaerobic Digestion of Microalgae -- Microalgae Biomass as

Feedstock for Bioethanol -- Biohydrogen from Microalgae: Future Perspectives and Constrains -- Part III. Microalgae as Source of Edible Products -- Properties, Extraction, Characterization, and Market Opportunities of Edible Oil from a Residual Microalgae Biomass -- Pigments from Microalgae: Chlorophyll, Carotenoids and Phycobiliproteins as Source of Natural Colorants for Food -- Microalgae as Source of Alimentary Ingredients: Valorization of Microalgal Protein, Lipids and Vitamins from the Perspective of Food Applications -- Part IV. Health Products Developed from Microalgal Biomass -- Microalgal Compounds with Therapeutic Properties with Potential Uses in Medicine and Human Health -- Microalgae as Source of Antioxidants: Potential Role on the Nutraceutical Products for Human Health -- Part V. Cosmetic Applications from Microalgae -- Microalgae as a Potential Source of Cosmeceuticals Products with Anti-Ageing Properties -- Main Prospects and Constrains for a New Cosmetics Generation Based on Microalgae Bioactive Compounds -- Part VI. Alternative High Value Application for Microalgae Biomass -- Microalgae as Bio-Fertilizers Source in the Advanced Agriculture -- Microalgae Biomass as a Sustainable Source of Bioplastics -- Enzymes Bio-Factories Developed Through Microalgae -- Microalgal Applications in Nanotechnology: Potential for Bioproducts Obtention and Nano-Compounds Synthesis -- Part VII. Techno-Economical Approaches Applied to Microalgal Technologies and Products -- Microalgal Biorefineries: Advances, and Techno-Economical Challenges -- Life Cycle Assessment of Microalgae Technology and Products -- The Bioeconomy Analysis of Microalgal Products and Process: The Role of Microalgae Technology in the Blue Economy.

Sommario/riassunto

This book contains a wide compendium of information, which includes algal culture basics and the newest scientific and industrial advances in microalgal applications, including traditional uses such as renewable energy biofuels, wastewater treatment, edible products, aquaculture and livestock production. It also presents emerging perspectives of microalgae valorization, for example, health/cosmetic products, biofertilizers, bioplastics, vaccine delivery systems, nanotechnology and enzymes bio-factories. Moreover, this book provides a comprehensive overview for those readers that are initiating the study about microalgae potential as a renewable source of valuable commercial products and highlights the state-of-the-art on the innovative advances for scientific researchers, students and microalgae commercial producers, which already focused in developing microalgae biotechnology for bioenergy, food, and other applications. Also, the role of microalgae technology in the blue economy is analyzed, an aspect with high relevance in the present and the future time, but which is regularly understudied.