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Nota di contenuto	Chapter 1 Introductory Chapter – Microalgae: Past, Present, And Future Irections -- Chapter 2 Challenges Of Microalgae Production: From The Laboratory To Large Scale -- Chapter 3 Cultivation Conditions And Operating Modes In Large-Scale Microalgae Processes -- Chapter.4 Mathematical Modeling And Simulation Applied To Microalgae.-Chapter 5 Configurations And Design Of Bubble Column Photobioreactors For The Production Of Protein And Phycocyanin From Microalgal Biomass -- Chapter 6 Configurations Of Photobioreactors For Microalgae Cultivation In Third Generation Of Biorefinery -- Chapter 7 Microalgae-Derived Biohydrogen -- Chapter 8 Bio-Green Evolution: The Journey Of Microalgae Products From Lab To Market - An Overview Of Microalgae-Based Processes And Products – Part I -- Chapter 9 Bio-Green Evolution: The Journey Of Microalgae Products From Lab To Market - Considerations And Recommendations - Part II -- Chapter 10 Large-Scale Microalgae Production: Considerations And Recommendations -- Chapter 11 Patent Mapping In Microalgae-Mediated Processes -- Chapter 12 Wastewater Treatment In Microalgae Cultivation Systems:

Recommendations For Large-Scale Application.-Chapter 13 Large-Scale Harvesting Of Microalgae -- Chapter 14 Large-Scale Microalgae Drying -- Chapter 15building-Integrated Microalgae Photobioreactor: An Adaptive Solution To Urban Heat Island Mitigation -- Chapter 16 Bioremediation Of Effluents In Pilot-Scale Microalgae Cultivation Systems: A Case Study -- Chapter 17: Pilot-Scale Outdoor Microalgae Production: A Case Study.

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#### Sommario/riassunto

This book provides comprehensive recommendations and insights into the fundamentals, innovations, and industrial applications of microalgae-based processes. Covering both upstream and downstream processes, it addresses challenges and solutions in scaling up microalgae technologies from laboratory to industrial uses. Key topics include cultivation techniques, bioreactor designs, harvesting and drying methods, and applications in food, biofuels, and environmental management. Special emphasis is placed on market trends, socio-political factors, regulatory frameworks, innovation, and sustainability, ensuring a holistic understanding of this rapidly evolving field. In addition, the final chapters are dedicated to real-world cases, highlighting pilot projects and large-scale installations that tackle practical challenges in engineering and commercialization. As an interdisciplinary science, microalgae technology has significant relevance in academia, industry, and government, driving innovation and contributing to a growing billion-dollar global market for high-value products. This book serves as an essential resource for students, researchers, scientists, engineers, and professionals seeking to deepen their knowledge and stay updated on the latest developments in microalgae research and applications.

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