1. Record Nr. UNINA9911021966603321

Autore	Kumar Arya Shailendra
Titolo	Algal Bioengineering and Microbial Synergy to Green Remediation / / edited by Shailendra Kumar Arya, Madhu Khatri, Gursharan Singh, Sudarshan Sahu
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2025
ISBN	9789819680542 9789819680535
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (516 pages)
Collana	Engineering Series
Altri autori (Persone)	KhatriMadhu SinghGursharan SahuSudarshan
Disciplina	363.728 628.4
Soggetti	Refuse and refuse disposal Industrial microbiology Biomedical engineering Sustainability Ecology Waste Management/Waste Technology Industrial Microbiology Biomedical Engineering and Bioengineering Environmental Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Overview of Algal Bioengineering and Microbial Synergy -- Fundamentals of Algae and Microbial Systems -- Engineering Algal Strains for Enhanced Performance -- Microbial Consortia and Their Interactions with Algae -- Waste Types and Their Impact on Algal and Microbial Activity -- Bioreactor Designs for Algal and Microbial Cultivation -- Case Studies of Successful Algal-Microbial Waste Remediation -- Advances in Algal Biomass Harvesting and Processing -- Nutrient Recovery and Recycling -- Bioenergy Production from Algal and Microbial Systems -- Environmental and Economic Benefits of

Algal-Microbial Remediation -- Challenges and Limitations in Algal Bioengineering and Microbial Synergy -- Regulatory and Policy Frameworks -- Future Prospects and Emerging Technologies -- Conclusion and Roadmap for Implementation.

Sommario/riassunto

This comprehensive book delves into the synergy between algal bioengineering and microbial processes, revealing their potential to mitigate environmental impact and foster a sustainable future. Through a meticulous blend of theoretical insights and practical applications, this book provides readers with a holistic understanding of algal-microbial consortia. It scrutinizes the latest technological advancements in bioreactor design, offering real-world case studies that showcase successful implementations of these innovative solutions. Readers will gain valuable knowledge on the economic and regulatory landscapes shaping this field, equipping them to navigate and influence the industry effectively. Authored by leading experts, this book integrates perspectives from biology, engineering, and environmental science, making it an essential resource for researchers, industry professionals, and policymakers. It addresses critical challenges and presents actionable strategies for sustainable waste remediation, bridging the gap between theory and practice. Whether readers are an environmental scientist, biotechnologist, engineer, or sustainability manager, this book offers a treasure trove of insights and practical guidance. Discover how algal bioengineering and microbial synergy can revolutionize waste management and contribute to a greener, more sustainable future. Open the door to innovative solutions and join the movement towards an eco-friendly industrial paradigm with "Utilizing Algal Bioengineering and Microbial Synergy to Green Industry for Sustainable Waste Remediation".