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Nota di contenuto	Part. I.Bioremedation -- 1. Phycoremediation: An eco-friendly approach to solve water pollution problems -- 2. Microbial conversion of waste and surplus materials into high-value added products: The case of biosurfactants -- 3. Oil biodegradation -- 4.Bacterial decolourization, degradation and detoxification of azo dyes: an ecofriendly approach -- 5.Biological significance of degradation of polyhydroxyalkanoates -- 6. Microbial Biofouling: A possible solution to treat harmful microorganisms in ship ballast water -- Part II. Bioenergy -- 7. Xylanase- from paper to fuel -- 8. Microbial Fuel Cell technology: Technical challenges and Economic fusibility -- 9. Biohydrogen production: Integrated approaches to improve the process efficiency -- 10. Valorization of olive mill by-products towards sustainable biofuels and bio-based products -- 11. Algal biotechnology: the potential future fuel and prospects -- Part III. Future Perspectives -- 12. New Generation DNA Sequencing (NGS): Mining for genes and the potential

	of extremophiles -- 13. Impact of Next Generation Sequencing technology in plant microbe interaction study -- 14. An overview of Next-Generation Sequencing (NGS) technologies to study the Molecular Diversity of Genome -- 15. Marine polyextremophiles and their biotechnological applications. .
Sommario/riassunto	This contributed volume sheds new light on waste management and the production of biofuels. The authors share insights into microbial applications to meet the challenges of environmental pollution and the ever-growing need for renewable energy. They also explain how healthy and balanced ecosystems can be created and maintained using strategies ranging from oil biodegration and detoxification of azo dyes to biofouling. In addition, the book illustrates how the metabolic abilities of microorganisms can be used in microbial fuel-cell technologies or for the production of biohydrogen. It inspires young researchers and experienced scientists in the field of microbiology to explore the application of green biotechnology for bioremediation and the production of energy, which will be one of the central topics for future generations. .