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Nota di contenuto	1. Visualization of microorganisms in bioprocesses -- 2. Integrated Innovative Biotechnology for Optimization of Environmental Bioprocesses and Green Economy -- 3. Bioprocess for solid waste management -- 4. Processes of microbial transformation and physical removal of polychlorinated biphenyls (PCBs) in wastewater treatment -- 5. Bioprocess development for natural indigo dye production from Indigofera plant biomass – an alternative to its synthetic counterpart -- 6. Sequestration options for Phosphorus in Waste water -- 7. Bioremediation of Terrestrial Oil Spills: Feasibility Assessment -- 8. Role of Clostridial nitroreductases in Bioremediation -- 9. Activated sludge process and Energy -- 10. Mass production of microalgae in photobioreactors for biodiesel application: Selection, limitations, and optimization -- 11. Bioflocculants and production of microalgal biomass -- 12. Biohydrogen Production: An outlook of fermentative processes and integration strategies -- 13. Development of dry anaerobic technologies of bio-waste and unlock the barriers for

valorization -- 14. Modelling for anaerobic process -- 15. Biofilm Microenvironments: understanding through modelling approaches -- 16. Microbial co2 fixation bioprocesses and desert as future carbon sink -- 17. Bioprocess network for solid waste management -- 18. The Application of Computer Image Analysis in Water Toxicity Tests.

Sommario/riassunto

This book argues that the sustainable management of resources requires a systematic approach that primarily involves the integration of green innovative biotechnological strategies and eco-engineering. It discusses how microbial community intelligence can be used for waste management and bio-remediation and explains how biological processes can be optimized by integrating genomics tools to provide perspectives on sustainable development. The book describes the application of modern molecular techniques such as fluorescence in situ hybridization (FISH), highly sensitive catalyzed reporter deposition (CARD)-FISH, in situ DNA-hybridization chain reaction (HCR) and methods for detecting mRNA and/or functional genes to optimize bioprocessess. These techniques, supplemented with metagenomic analysis, reveal that a large proportion of micro-organisms still remain to be identified and also that they play a vital role in establishing bioprocesses.