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Nota di contenuto	Part I- Reviews on energy and environment -- Chapter 1. A review on production, properties and applications microbial surfactants as a promising biomolecule for environmental applications (Kidist Mulugeta, M. Kamaraj, Mesfin Tafesse & J. Aravind) -- Chapter 2. Hairy Root Applications in Phytoremediation – An updated Review (Anil Kumar Moola, Balasubramanian P, Lakkakula Satish, Sasanala Shamili, Manikandan Ramesh, T. Senthil Kumar & B. D. Ranjitha Kumari) -- Chapter 3. Pretreatment of wheat straw using ionic liquids for bioethanol production – A review (Ibsa Neme & Chandra Masi) -- Chapter 4. Harnessing the sustainable bioresource, cellulose at the nanoscale for multifarious environmental applications (Ebrahim M. Abda & Rocktotpal Konwarh) -- Chapter 5. Allelochemicals as natural herbicides for sustainable agriculture to promote a cleaner environment- A review (Hemalatha Palanivel, Gebiyaw Tilaye, Sathish Kumar Belliathan, Solomon Benor, Solomon Abera & Kamaraj M) -- Chapter 6. Strategies and limitations of water treatment methods for

point-of-use application (N. R. Srinivasan, M. Kamaraj & S. Venkatesa Prabhu) -- Part II - Cleaner technologies on mitigation of organic and inorganic pollutants -- Chapter 7. Recent trends in application of Bacterial polymers to mitigate organic and inorganic pollutants (P Muthukumaran, J Aravind, M Kamaraj & KK Ramachandran) -- Chapter 8. Bioremediation: Efficient technology to combat Pesticide pollutants in Environment (Raman Kumar Ravi & R.Y. Hiranmai) -- Chapter 9. Removal of dyes from industrial effluents using bioremediation technique (Narayana Saibaba K.V.) -- Chapter 10. A harmless approach on textile effluent detoxification: bioremediation and its recent strategies (R. Kavitha, S. Venkatesa Prabhu & Melkamu Kifetew. M) -- Chapter 11. Modern Bioremediation Approaches for Clean and Green Environment (Ankita Murmu, S. Murugan) -- Chapter 12. Arsenic-transforming bacteria – A potential weapon for Arsenic contaminated soil (Radhesh Krishnan Subramanian & Prabhakaran Narayanasamy) -- Chapter 13. Phycoremediation of heavy metals, factors involved and mechanisms related to functional groups in the algae cell surface- A review (Abate Ayele, Arumuganainar Suresh & Solomon Benor) -- Chapter 14. Heavy Metal Extraction from E-Waste through Bioleaching: A Promising Ecofriendly Approach (S. Venkatesa Prabhu, N.R. Srinivasan & Sintayehu Mekuria. H.) -- Chapter 15. Potential of Free Floating Macrophytes for Bioremediation of Heavy Metals – A conceptual Review (Punita Parikh & Krupa Unadkat) -- Chapter 16. Bioremediation of heavy metals using *Salvinia molesta* – a freshwater aquatic weed for pollutant remediation approach (Nithya T.G, Snegapriya P & Kamaraj M) -- Chapter 17. Mycoremediation: Fungal-based technology for biosorption of heavy metals – A Review (Abate Ayele, Setegn Haile, Digafe Alemu, Tamiru Tesfay & Kamaraj Murugesan) -- Part III - Impact and risk assessments -- Chapter 18. Geospatial modelling of air pollution and its impact on the health of urban residents using spatial statistical models - A review (Janani Selvaraj, Harathi Dayalan & Prashanthi Devi M) -- Chapter 19. Health impacts of contaminated water in India: Coping Strategies for Sustainable Development (J.V. Arun & A. Premkumar) -- Chapter 20. The potential of biotechnology on soil quality by minimizing agrochemical impact to ensure sustainable agriculture - A review (Solomon Abera).

Sommario/riassunto

This volume explores recent research trends and achievements in environmental pollution remediation (e.g. water, air, soil), and compiles critical and constructive papers and reviews with a focus on advances in bioremediation and green technology solutions for waste minimization, waste management and pollution control. The book is timely, as the need for researchers and engineers to develop sustainable and green eco-friendly remediation technologies is increasing with a growing global population, stressed agricultural systems, and an environment impacted by climate change. A key focus of the book is on the efficient use of agricultural waste residues as viable substrates for creating materials for environmental clean-up, and the possible conversion of these pollutants to sustainable bioresources. The volume will be of interest to sustainability researchers, environmental engineers, industry managers and agricultural scientists. .