1. Record Nr. UNINA9911011343403321

Autore	Kumar Lakhan
Titolo	Phyconanotechnology: Current Research, Challenges, and Prospects / / edited by Lakhan Kumar, Navneeta Bharadvaja, Sunil Khare, Raksha Anand
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-82186-6
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (431 pages)
Collana	Sustainable Landscape Planning and Natural Resources Management, IEREK Interdisciplinary Series for Sustainable Development, , 2948-1929
Altri autori (Persone)	BharadvajaNavneeta KhareSunil AnandRaksha
Disciplina	620.5 660.6
Soggetti	Nanobiotechnology Environmental engineering Biotechnology Bioremediation Nanotechnology Food science Nanochemistry Environmental chemistry Environmental Engineering/Biotechnology Food Nanotechnology Environmental Biotechnology Environmental Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Phyconanotechnology: Historical development and progression, challenges, and prospects -- 2. Synthesis and Application of phyconanomaterials for biofertilizers -- 3. Utilization of Algal Biomass-Based Nanomaterial for Various Applications -- 4. Phyconanoremediation: a novel approach to heavy metal removal by

integrating nanotechnology and bioremediation using algae -- 5. Phyconanoremediation of environmental pollutants: An insight into degradation and deterioration of contaminants and degraded materials -- 6. Phyconanotechnology: Green nanoparticles from different algae groups -- 7. Application of Phyconanotechnology in Agriculture: Plant Protection, Biofertilizer and Biopesticide Activity -- 8. Algal nanoparticles in reducing the menace of bio-inorganic pollution -- 9. Biomedical applications of algae-synthesized nanoparticles: drug delivery, anti-bacterial, anti-fungal, anti-inflammatory, anti-oxidant -- 10. Decoding the algal tapestry: spectrometric and multi-omics approaches for profiling bioactive compounds -- 11. Harnessing Algae and Nanotechnology for Efficient Remediation of Environmental Pollutants -- 12. Phyconanomaterials: Novel approach for the remediation of environmental pollutants -- 13. Algae-based Nanoparticles for Sustainable Agriculture: Recent Advances and Future Perspectives -- 14. Phyconanotechnology: Green nanoparticles from different algae groups -- 15. Applications of Phyconanomaterials in remediation of emerging micropollutants in aqueous ecosystem -- 16. Algae materials-based bioelectrodes.

Sommario/riassunto

This book explores the scientific development in the field of algal-based nanomaterials synthesis, production methods, and commercial and utilization aspects of phyconanomaterials to address a range of problems of humanity. Nanomaterials have been recently explored for and employed in environmental remediation, biomedical applications, agriculture, food industries, energy sectors, cosmetics, biolabeling, and space due to their versatility and wide range of applicability owing to their peculiar material characteristics and other attributes. Their conventional synthesis approaches are replacing green methods as the latter is comparatively economical, energy-efficient, and eco-friendly. Biological entities and derived materials-based nanomaterials synthesis is such a green approach. Using natural systems to synthesize nanomaterials does not leave behind any toxic compounds generally produced as by-products when physical or chemical methods are employed. Phyconanotechnology, a green way of synthesizing nanomaterials, can be used to overcome this issue. In the proposed book, algal diversity-based nanomaterials synthesis and their applications will be presented to the readers.