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Autore	Manderscheid, Hubertus
Titolo	Die Skulpturenausstattung der Kaiserzeitlichen Thermenanlagen / Hubertus Manderscheid
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Altri autori (Persone)	Abd-ElsalamKamel A. <1969-> AlghuthaymiMousa A
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Nota di contenuto	Preface -- 1. Introduction: Nano fertilizers for development agriculture production -- 2. Fabricated Nano Fertilizers as a clean and viable substitute for conventional fertilizers -- 3. Nano fertilizers: types, synthesis methods, mechanisms -- 4. Nanocomposite fertilizers -- 5. Environmentally Benign Synthesis of Metal Nanoparticles for Fertilizer Applications in Agriculture -- 6. Smart Fertilizers and slow-release of N and Zn -- 7. Plant Nanonutrients for sustainable agriculture -- 8. Microalgae-based nanofertilizers for sustainable agriculture -- 9. Green synthesis of nanofertilizers and its role in plant protection -- 10. Preparation and Characterization of Nanofertilizers and Their Utility in Control of Phyto-pathogens: Towards Sustainable Agriculture -- 11. Green Synthesis of Nanofertilizers and Their Application for Rice

Production -- 12. Nano-biofertilizers: Applications in sustainable agriculture and crop productivity -- 13. ZnO nanoparticles: sustainable plant production -- 14. Influential Relevance of Nanofertilizers in the Sustainable Cultivation of Horticultural Crops -- 15. Nano-engineering of Metal-based Fertilizers Using Biopolymers: An Innovative Strategy for A More Sustainable Agriculture -- 16. Silica Nanoparticles for Improving Abiotic Stress Tolerance -- 17. Smart fertilizers: the prospect of slow-release nanofertilizers in modern agricultural practices -- 18. Metal nanoparticles in agriculture: impacts on plants, and associated microorganisms -- 19. The Use of nanobiofetilizers in Agricultural production: An ecofriendly technology towards environmental sustainability -- 20. Large-scale production of Nanofertilizers: Commercialization, Challenges and Future trends -- 21. Impact of Nanofertilizers for Mitigation of Multiple Environmental Stresses -- 22. Ecotoxicological and regulatory aspects of environmental sustainability of nanofertilizers -- 23. The fate of nanofertilizers in agroecosystems -- Bibliography -- Index.

Sommario/riassunto

Large-scale chemical fertilizer application causes irreparable damage to soil structure, mineral cycles, soil microbial flora, plants, and other food chains across ecosystems, culminating in heritable mutations in future generations of consumers. A better way forward is the use of nanofertilizers to focus on macro elements (N, P, K), as switching to nanofertilizers may result in large environmental benefits by replacing the majority of these nutrients. Furthermore, the biosynthesis of nanomaterials using bacteria, algae, yeast, fungus, actinomycetes, and plants has opened up a new avenue of research in the production of inorganic nanoparticles as ecologically friendly fertilizers. Nanofertilizers should also attain increased efficiency because of a several-fold increase in the surface-to-volume ratio of nano-forms of nutrients and their suitability for foliar application, where environmental losses are further reduced. Nanostructured fertilizers can also improve nutrient use efficiency through strategies such as targeted distribution and progressive or controlled-release as they can precisely release their active molecules in response to environmental cues and biological demands. Recent research shows nanofertilizers can increase agricultural productivity by speeding up seed germination, seedling growth, photosynthetic activity, nitrogen metabolism, and carbohydrate and protein synthesis. The potential agricultural benefits of nanofertilizers, their modes of action, and the fate of nanomaterials in soil are all discussed in this book. It also covers nanofertilizer formulation and delivery, applications, uptake, translocation, and their fate in plants, as well as their impact on plant physiology and metabolism. Nutrient nanoformulation is a valuable method that has the potential to alter the agricultural sector and provide solutions to current and future concerns for sustainable and climate-sensitive crops.