

1. Record Nr.	UNINA9910495203703321
Titolo	Nanobiotechnology : Mitigation of Abiotic Stress in Plants / / edited by Jameel M. Al-Khayri, Mohammad Israil Ansari, Akhilesh Kumar Singh
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	9783030736064 3030736067
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (595 pages)
Disciplina	581.788
Soggetti	Botany Agriculture Plant Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Abiotic Stress in Plants: Socio-economic Consequences and Crop Plants Responses -- Plant Abiotic Stress Tolerance Mechanisms -- Biotechnology Strategies to Combat Plant Abiotic Stress -- Nanomaterials Fundamentals: Classification, Synthesis and Characterization -- Utilization of Nanobiotechnology in Modern Agriculture -- Contributions of Nano Biosensors in Managing Environmental Stresses under Climate Change Era -- Utilization of Nanobiotechnology to Alleviate Impact of Abiotic Stress in Crop Plants -- Green Synthesis of Nanoparticles Using Different Plant Extracts and their Characterizations -- Applications of Plant-Derived Nanomaterials in Mitigation of Crop Abiotic Stress -- Biosynthesis and Characterization of Microorganisms-Derived Nanomaterials -- Utilization of Nanofertilizers in Plant Tolerance to Abiotic Stress -- Role of Nanomaterials in Regulating Reactive Species as a Signaling Molecule of Abiotic Stress -- Role of Nanomaterials in Regulating Oxidative Stress -- Plant Stress Enzymes Nanobiotechnology -- Plant Stress Hormones Nanobiotechnology -- Effect of Nanoparticle on Plant Growth and Development -- Application of Nanobiotechnology in Overcoming Salinity Stress -- Application of Nanobiotechnology in Overcoming Drought Stress -- Application of Nanobiotechnology in

Overcoming Temperature Stress -- Application of Nanobiotechnology in Overcoming Mineral Nutrients Stress -- Nanomaterials Combat Heavy Metals Toxicity by Modulating Oxidative Stress Pathways in Plants -- Nanonutrients: Plant Nutritive and Possible Antioxidant Regulators -- Impact of Nanomaterials Stress on Plants -- Biosafety of Nanomaterials for Plants to Cope with Stress Conditions -- Nanomaterials in Combating Plant Stress: An Approach for Future Applications.

**Sommario/riassunto**

This book provides up-to-date knowledge of the promising field of Nanobiotechnology with emphasis on the mitigation approaches to combat plant abiotic stress factors, including drought, salinity, waterlog, temperature extremes, mineral nutrients, and heavy metals. These factors adversely affect the growth as well as yield of crop plants worldwide, especially under the global climate change. Nanobiotechnology is viewed to revolutionize crop productivity in future. The chapters discuss the status and prospects of this cutting-edge technology toward understanding tolerance mechanisms, including signaling molecules and enzymes regulation in addition to the applications of Nanobiotechnology to combat individual abiotic stress factors. .