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Titolo	Biosensors in agriculture : recent trends and future perspectives // Ramesh Namdeo Pudake, Utkarsh Jain, Chittaranjan Kole, editors
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Descrizione fisica	1 online resource (XV, 493 p. 83 illus., 72 illus. in color.)
Collana	Concepts and strategies in plant sciences, , 2662-3188
Disciplina	631.3
Soggetti	Agricultural instruments Agricultural innovations Biosensors Innovacions agrícoles Llibres electrònics
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Recent trends, prospects, and challenges of nanobiosensors in agriculture -- Nanostructured platforms integrated to biosensors: Recent applications in agriculture. Advances in nanotechnology for bio-sensing in agriculture and food -- Nanomaterial based gas sensor for agriculture sector -- Volatile organic compounds (VOCs) sensors for stress management in crops -- Current trends of plasmonic nanosensors use in agriculture -- Relevance of biosensor in climate smart organic agriculture and their role in environmental sustainability: What has been done and what we need to do? -- New trends in biosensors for pesticide detection -- Application of biosensor for the identification of various pathogens and pests mitigating against the agricultural production: recent advances -- Gold nanoparticles-based point-of-care colorimetric diagnostic for plant diseases -- Advancements in biosensors for fungal pathogen detection in plants -- Journey of Agricultural sensors – From conventional to ultra-modern -- PART II: Biosensors in food science, Advances in biosensors based on electrospun micro/nanomaterials for food quality control and safety -- Current trend of electrochemical sensing for mycotoxins -- Biosensor for

fruit quality monitoring -- Lateral flow assays for food authentication -- Nanobiosensors in agriculture and foods: a scientometric review -- PART III: Biosensors in animal and fishery Sciences, Biosensors: Modern tools for disease diagnosis and animal health monitoring -- Nanobiosensing devices detecting biomarkers of communicable and non-communicable diseases of animals -- Recent advances in biosensor development for poultry industry -- Smart aquaculture: Integration of sensors, biosensors, and artificial intelligence -- Biosensor as potential tool for on-site detection of insect pathogens.

Sommario/riassunto

This book reviews the application of nanosensors in food and agriculture. Nanotechnology has the potential to become transformative technology that will impact almost all sectors. Tools like nanosensors, which detect specific molecular interactions, can be used for on-site, in-situ and online measurements of various parameters in clinical diagnostics, environmental and food monitoring, and quality control. Due to their unprecedented performance and sensitivity, nanobiosensors are gaining importance in precision farming. The book examines the use of nanobiosensors in the monitoring of food additives, toxins and mycotoxins, microbial contamination, food allergens, nutritional constituents, pesticides, environmental parameters, plant diseases and genetically modified organisms. It also discusses the role of biosensors in increasing crop productivity in sustainable agriculture, and nanosensor-based smart delivery systems to optimize the use of natural resources such as water, nutrients and agrochemicals in precision farming.
