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| Nota di contenuto | Nitric Oxide in Plant Physiology; Contents; Preface; List of Contributors; 1 Nitric Oxide: Chemistry, Biosynthesis, and Physiological Role; 1.1 Introduction; 1.2 Nitric Oxide Chemistry; 1.3 Biosynthesis of Nitric Oxide; 1.4 Physiological Role of Nitric Oxide; 1.4.1 Effect of Nitric Oxide on Seed Dormancy; 1.4.2 Effect of Nitric Oxide on Growth; 1.4.3 Effect of Nitric Oxide on Senescence; 1.4.4 Effect of Nitric Oxide on Nitrate Reductase Activity; 1.4.5 Effect of Nitric Oxide on Respiration; 1.4.6 Effect of Nitric Oxide on Stomatal Movement; 1.4.7 Effect of Nitric Oxide on Chlorophyll Content<br>1.4.8 Effect of Nitric Oxide on Photosynthesis1.4.9 Effect of Nitric Oxide on Antioxidant System; 1.4.10 Effect of Nitric Oxide on Programmed Cell Death; 1.5 Nitric Oxide and Cross Talk with Classical Plant Hormones; 1.5.1 Auxins and Nitric Oxide; 1.5.2 Abscisic Acid and Nitric Oxide; 1.5.3 Cytokinins, Gibberellins, and Nitric Oxide; 1.5.4 Ethylene and Nitric Oxide; References; 2 Electron Paramagnetic Resonance as a Tool to Study Nitric Oxide Generation in Plants; 2.1 Introduction; 2.1.1 Chemistry of Nitrogen-Active Species; 2.1.2 Biological Effects of NO; 2.2 Methods of NO Detection |

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3.2 Cell Polarity and Plant Gametophyte Development3.3 Calcium Signaling in Pollen and Fern Spores; 3.4 NO/cGMP Signaling in Pollen and Fern Spores; 3.5 NO/cGMP in Pollen-Pistil Interactions; 3.6 Ovule Targeting and NO/cGMP; 3.7 Ca2+/NO/cGMP Connection?; 3.8 Closing Perspectives; References; 4 Nitric Oxide and Abiotic Stress in Higher Plants; 4.1 Introduction; 4.2 Nitric Oxide and Related Molecules; 4.2.1 Chemistry of Nitric Oxide in Plant Cells; 4.2.2 Reactive Nitrogen Species; 4.3 Cellular Targets of NO; 4.3.1 Nitrosylated Metals; 4.3.2 Protein S-Nitrosylation
4.3.3 Protein Tyrosine Nitration4.3.4 Nitrolipids; 4.3.5 Nucleic Acid Nitration; 4.3.6 NO and Gene Regulation; 4.4 Functions of NO in Plant Abiotic Stress; 4.4.1 Salinity; 4.4.2 Ultraviolet Radiation; 4.4.3 Ozone; 4.4.4 Mechanical Wounding; 4.4.5 Toxic Metals (Cadmium and Aluminum); 4.5 Concluding Remarks; References; 5 Polyamines and Cytokinin: Is Nitric Oxide Biosynthesis the Key to Overlapping Functions?; 5.1 Introduction; 5.2 Cytokinin- and Polyamine-Induced NO Biosynthesis; 5.3 Tissue Distribution of Zeatin-Induced and PA-Induced NO Formation
5.4 Nitric Oxide, Cytokinin, and Polyamines in Plant Growth and Development and in Abiotic and Biotic Stresses

Sommario/riassunto

Written by a truly global team of researchers from Europe, Asia and the Americas with strong ties to agricultural research centers and the agrochemical industry, this ready reference and handbook focuses on the role of nitric oxide signaling in plant defense systems against pathogens, parasites and environmental stress response. This is one of the first titles to provide a comprehensive overview of the physiological role of this ubiquitous signaling molecule in higher plants, making it an indispensable resource not only for academic institutions but also for those working in the agrochemic