1. Record Nr. UNINA9910298311603321

Titolo	Low-Oxygen Stress in Plants : Oxygen Sensing and Adaptive Responses to Hypoxia / / edited by Joost T. van Dongen, Francesco Licausi
Pubbl/distr/stampa	Vienna : , : Springer Vienna : , : Imprint : Springer, , 2014
ISBN	3-7091-1254-0
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (419 p.)
Collana	Plant Cell Monographs, , 1861-1370
Disciplina	571.9453
Soggetti	Plant physiology Botanical chemistry Plant ecology Plant Physiology Plant Biochemistry Plant Ecology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Section I. Oxygen sensing -- Sensing molecular oxygen -- Sensing the energy status -- Sensing pH Sensing ROS / NO -- Section II. Molecular responses -- Transcriptional regulation -- Translational regulation.- Section III. Metabolic responses -- Storage metabolism. Primary carbon metabolism -- Primary nitrogen metabolism -- Fermentation / Pasteur Effect -- Regulation of respiration / oxygen consumption -- Plant Hemoglobins.- Section IV. Hormonal responses. Ethylene. ABA. GA. Auxine.- Section V. Morphological adaptations. Aerenchyma -- Oxygen convection -- Elongation -- Adventitious rooting -- Mangrove -- Section VI. Ecophysiological adaptations -- Species distribution -- Underwater photosynthesis -- Survival strategies -- Radial oxygen loss.- Section VII. Agronomical and horticultural aspects of low-oxygen stress -- Fruit storage physiology -- Intensive glasshouse horticulture -- Rice (intelligent) breeding -- Section VIII. General discussion and integration chapter.
Sommario/riassunto	During the last ten years, knowledge about the multitude of adaptive responses of plants to low oxygen stress has grown immensely. The

oxygen sensor mechanism has been discovered, the knowledge about the interaction network of gene expression is expanding and metabolic adaptations have been described in detail. Furthermore, morphological changes were investigated and the regulative mechanisms triggered by plant hormones or reactive oxygen species have been revealed. This book provides a broad overview of all these aspects of low oxygen stress in plants. It integrates knowledge from different disciplines such as molecular biology, biochemistry, ecophysiology and agricultural / horticultural sciences to comprehensively describe how plants cope with low oxygen stress and discuss its ecological and agronomical consequences. This book is written for plant scientists, biochemists and scientists in agriculture and ecophysiology.