

1. Record Nr.	UNINA9910682594103321
Autore	Sachdev Swati
Titolo	Reactive Oxygen Species in Plants : The Right Balance / / by Swati Sachdev, Shamim Akhtar Ansari, Mohammad Israil Ansari
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-19-9884-1
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (250 pages)
Disciplina	546.72159
Soggetti	Stress (Physiology) Plants Botany Molecular biology Plant Stress Responses Plant Science Molecular Biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Reactive oxygen species (ROS): An Introduction -- 2. ROS generation in plant cells orchestrated by stress -- 3. Oxidative stress triggered damage to cellular biomolecules -- 4. Senescence and Apoptosis: ROS contribution to stress tolerance or cellular impairment -- 5. Photosynthetic apparatus: Major site of oxidative damage -- 6. Generation and fate of ROS in mitochondria -- 7. Peroxisomes and ROS under stress conditions -- 8. ROS production and function at plasma membrane and apoplast -- 9. Antioxidant defensive mechanisms to regulate cellular redox homeostatic balance -- 10. Role of osmolytes in alleviation of oxidative stress -- 11. ROS as signaling molecule under unfavorable conditions -- 12. Molecular mechanisms underpinning signaling function of ROS.
Sommario/riassunto	The book deals with dual role of reactive oxygen species (ROS) which is beneficial and harmful at below and above threshold limits, respectively. To date, the emphasis has been laid only on ROS aspects damaging/ disrupting cellular machinery and inflicting crop productivity loss. The ROS is believed to be a hallmark of both abiotic

and biotic stress. However, the recent researches have unambiguously established that the ROS at below threshold confers protection against both abiotic and biotic stress, augmenting crop productivity. This emphasizes for a proper understanding of ROS based physio-molecular mechanisms and their upgradation in crops to adapt them to stress conditions. As a result, the cultivation area of various economically important crops and their productivity and quality can be enhanced, arresting degradation of sites, improving environment quality and mitigating ill impact of climate change. The book encompasses recent information on positive and negative impact of ROS on stress tolerance mechanisms and their management in augmenting crop performance. The information has been well illustrated and categorized in several chapters crafted lucidly, maintaining connectivity and synergy with each other. The book provides up-to-date comprehensive scientific information dual role of ROS, hitherto neglected, in crop abiotic and biotic stress management that would immensely benefit and educate graduate/ post graduate students, entrepreneurs, researchers, scientists and faculty members alike. .
