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Reactive Oxygen Species and Reactive Carbonyl Species in Plants

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Message from the Guest Editors

Photosynthetic activities always carry the risk of oxygen activation, producing reactive oxygen species (ROS). ROS significantly impact biological activities in two ways: high ROS levels cause oxidative damage to cells, while the ROS molecules act as essential signals for the acclimation of plants to survive ever-changing environmental conditions. RCS molecules, like ROS, bring about cellular injury and carry oxidative signals, but RCS is more diverse than ROS and variable by organelles, tissues, and stress conditions. This Special Issue will comprise papers addressing the following topics, aimed at uncovering how photosynthetic organisms have overcome the challenge of O_2 in the face of ROS generation as the atmospheric environment became increasingly oxygen-rich:

1. ROS production in photosynthetic organisms and mechanisms for its suppression;
2. Molecular mechanisms for ROS signal detection and acquisition of oxidative injury resistance;
3. Diversity of RCS generation reactions and the mechanisms for suppressing them;
4. Molecular mechanisms for RCS sensing and the avoidance of RCS-induced injury.

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Message from the Editor-in-Chief

It has been recognized in medical sciences that in order to prevent adverse effects of "oxidative stress" a balance exists between prooxidants and antioxidants in living systems. Imbalances are found in a variety of diseases and chronic health situations. Our journal *Antioxidants* serves as an authoritative source of information on current topics of research in the area of oxidative stress and antioxidant defense systems. The future is bright for antioxidant research and since 2012, *Antioxidants* has become a key forum for researchers to bring their findings to the forefront.

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