

ROLE OF ROS IN SEED PHYSIOLOGY

Summary

Reactive oxygen species (ROS) are involved in various aspects of seed physiology. They are generated during seed development, germination and ageing. Despite acting as toxic molecules ROS participate also in signal transduction pathways during different phases of seed development leading to modification in gene expression. In the present paper we explain the model of “oxidative window” describing dual role of ROS in seed physiology. ROS regulate seed metabolism *via* cellular redox status, interaction with reactive nitrogen species (RNS) and

initiation of generation of reactive electrophilic oxilipine species (RES). One of the key functions of ROS is oxidation of proteins. Oxyproteins generated in distinct compartment may act as ROS-mediated specific signal molecules. ROS content is precisely regulated by detoxifying enzymes and cellular antioxidant compounds responsible for ROS scavenging. Taking into account an informational function of ROS, it is suggested that expression “oxidative stress” should be replaced by the phrase “oxidative signal”.