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Special Issue Reprint

Seed Dormancy

Edited by: Angel J. Matilla

The appearance of the new generation in higher plants is ensured by the presence of viable seeds in the mother plant. A good number of signaling networks is necessary to provoke germination. Phytohormones play a key role in all stages of seed development, maturation, and dormancy acquisition. The dormancy of some seeds can be relieved through a tightly regulated process called after-ripening (AR) that occurs in viable seeds stored in a dry environment. Although ABA is directly involved in dormancy, recent data suggest that auxin also plays a preponderant role. On the other hand, the participation of reactive oxygen species (ROS) in the life of the seed is becoming increasingly confirmed. ROS accumulate at different stages of the seed's life and are correlated with a low degree of dormancy. Thus, ROS increase upon AR and dormancy release. In the last decade, the advances in the knowledge of seed life have been noteworthy. In this Special Issue, those processes regulated by DOG1, auxin, and nucleic acid modifications are updated. Likewise, new data on the effect of alternating temperatures (AT) on dormancy release are here present. On the one hand, the transcriptome patterns stimulated at AT that encompasses ethylene and ROS signaling and metabolism together with ABA degradation were also discussed. Finally, it was also suggested that changes in endogenous γ-aminobutyric acid (GABA) may prevent seed germination.

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