



seeds

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Special Issue Reprint

Seed Priming Approaches That Achieve Environmental Stress Tolerance

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Seed germination and seedling vigor can be enhanced by different chemical or physical treatments and this process is called “seed priming”. Thus, seed priming can be defined as treatments for enhancing seed germination and vigor. Seed priming can be a costless, practical, and effective approach, leading to fast and uniform germination, thus increasing seedling vigor and crop yield in numerous crops, especially under unfavorable environmental conditions, in both dormant and non-dormant seeds. Similarly, seed priming can enhance resistance to environmental stress conditions, including biotic and abiotic stressors. Different seed priming approaches, including osmopriming, hydropriming, phytohormone priming, chemical priming, nutrient priming, and redox priming, have been described. In the latter group, hydrogen peroxide (H_2O_2) must be included, as it is well known that, at low concentrations, H_2O_2 stimulates seed germination as well as the early seedling growth of plants. In addition, physical treatments can also stimulate seed germination and vigor. In this regard, specifically, the short treatments of seeds with red light also stimulates seed germination and vigor. The aim and scope of this Special Issue is to encourage the publication of reviews and/or experimental research regarding physiological, biochemical, and molecular aspects related to the effect of seed priming on germination and seedling establishment in dormant and non-dormant seeds, and their interaction with environmental stresses.



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