

Mechanisms of seed priming for improving stand establishment and seed germination of rapeseed (*Brassica napus* L.) under salinity and drought stresses

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Abstract

Since rapeseed does not produce tiller, its grain yield is considerably dependent on plant density affected by germination and seedling establishment. Oilseeds deteriorate more rapidly during storage, which reduces the quality of seeds. Furthermore, their germination and seedling establishment are adversely affected by suboptimal environmental conditions such as salinity and drought stress. One of the methods which enhance seed vigor is seed priming, which reinforce also the emergence of low-vigor seeds. Seed priming is widely adopted as a tool to improve seed germination under both optimal and adverse conditions, but benefits have also been found for subsequent seedling growth. This paper aims to review the recent literature on the response of rapeseed (*Brassica napus* L.) to seed priming under suboptimal environmental conditions such as salinity and drought stress. The results show that seed priming with physiological, biochemical, and molecular changes in seeds leads to improve seed vigor, seed germination, and seedling establishment enhancement. A better understanding of the metabolic events taking place during the priming treatment and the subsequent germination should help to use this simple and cheap technology more efficiently but the results show that for rapeseed, little information exists and further research is needed.

Keywords: drought stress, rapeseed, salt stress, seed germination, seed priming.

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