

Title Induction of Abiotic Stress Tolerance by Salicylic Acid Signaling
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Abstract

The role of salicylic acid (SA) as a key molecule in the signal transduction pathway of biotic stress responses has already been well described. Recent studies indicate that it also participates in the signaling of abiotic stresses. The application of exogenous SA could provide protection against several types of stresses such as high or low temperature, heavy metals, and so on. Although SA may also cause oxidative stress to plants, partially through the accumulation of hydrogen peroxide, the results published so far show that the preliminary treatment of plants with low concentrations of SA might have an acclimation-like effect, causing enhanced tolerance toward most kinds of abiotic stresses due primarily to enhanced antioxidative capacity. The effect of exogenous SA depends on numerous factors such as the species and developmental stage of the plant, the mode of application, and the concentration of SA and its endogenous level in the given plant. Recent results show that not only does exogenous SA application moderate stress effects, but abiotic stress factors may also alter the endogenous SA levels in the plant cells. This review compares the roles of SA during different abiotic stresses.