

Role of Salicylic Acid in Plant Abiotic Stress

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Salicylic acid (SA) plays many roles in plant physiology. Besides pathogenesis-related resistance, SA is involved in the response to abiotic stress. However, the effects of SA on plant resistance to abiotic stress were found contradictory, and the actual role of SA in abiotic stress remains unresolved. Generally, deficiency of SA or a very high level of SA increase the plant susceptibility to abiotic stress. The optimal levels for the highest stress tolerance range from 0.1 mM to 0.5 mM for most plants. But the role of SA at a certain level in moderate and severe abiotic stress may be different. This can be attributed to redox regulations in plant cells. In this paper, we discuss the relationship between reactive oxygen species (ROS) and SA, and propose a subsequent intracellular signal transduction network of SA and ROS under abiotic stress. Anti-stress substances besides antioxidant enzymes induced by SA are also summarized.

Key words: Abiotic Stress, Antioxidant Enzymes, Salicylic Acid, Reactive Oxygen Species