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The Role of Phytohormones in Modulating Vegetable Crop Resilience to Abiotic Stresses

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ABSTRACT

Worldwide the vegetable production is low in different growing areas due to salinity stresses, abiotic stresses are drastically decreasing yield in vegetable crops. Among abiotic stresses, drought and salinity are two more challenging constraints to sustainable vegetable production. Phytohormones are in the limelight for their potential to confer abiotic stress tolerance in plants occurs due to poor water availability, and increased salinity mainly due to an increase in irrigation with brackish water. Vegetables are considered higher water-dependent crops and require water for proper growth and yield. Drought and salinity will impair plant metabolism. When plant metabolism is impaired, growth is reduced and developmental processes are deteriorating with consequential loose in vegetable crop yield. Robust management and sustainable solutions are needed to offset the adverse effects of drought and salinity. Many agronomical practices, plant breeding approaches aid in enhancing tolerance and therefore this topic is explored in-depth. It significantly highlights the role of phytohormones in vegetable crops subjected to drought and salinity stresses. Phytohormones such as salicylic acid, melatonin, jasmonaic acid, brassinosteroids, ascorbic acid and many others act as an oxidant scavenger can then be sprayed for improving plant growth, yield, and photosynthetic pigments by modulating physiological and biochemical roles. In this way phytohormones and grafting should be studied for its tolerance of vegetable crops growing under abiotic stress conditions and sustainably improves plant performance under drought and salinity stress in solanaceae vegetable crop production.

Keywords: vegetable crop, phytohormones, salinity stress, abiotic stress, brassinosteroids

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