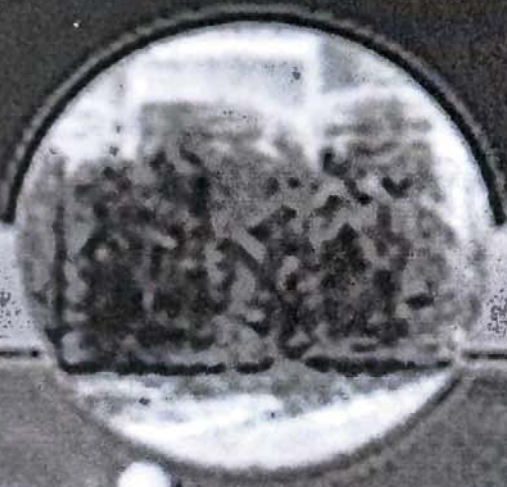
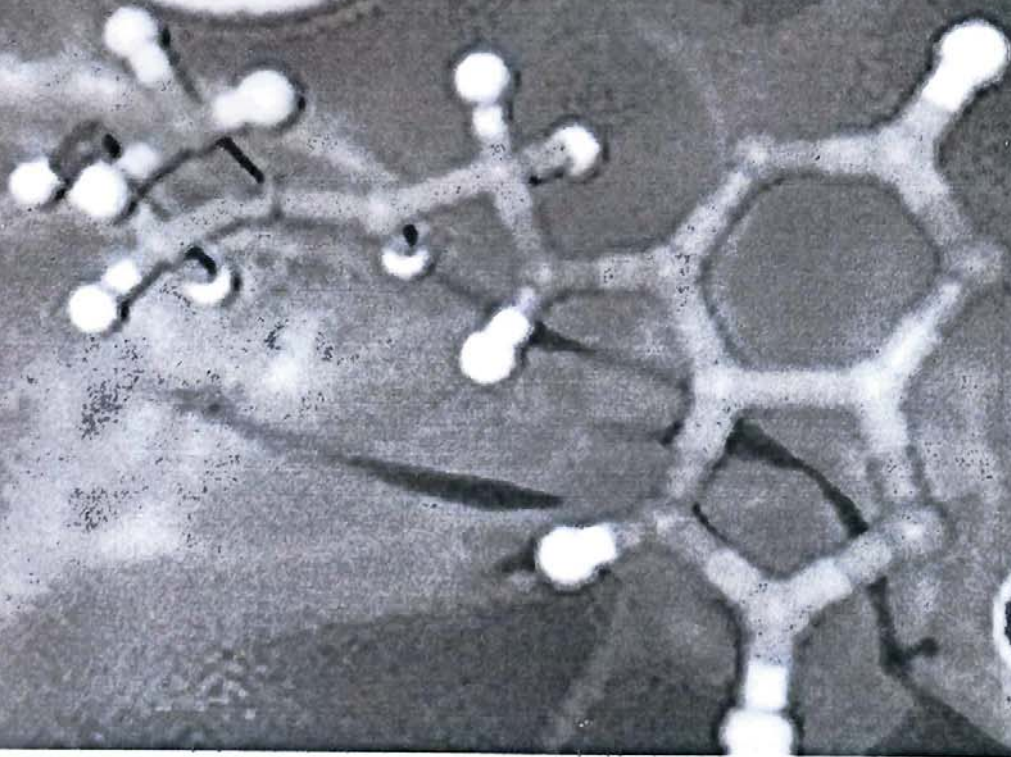


Plant Hormones in Crop Improvement



Edited by

M. Iqbal R. Khan, Anwarjit Singh
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PLANT HORMONES IN CROP IMPROVEMENT

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Chapter 5 - Phytohormone signaling in osmotic stress response

Riddhi Datta¹, Ananya Roy², Soumitra Paul²

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Abstract

With the changing environmental condition, coping with abiotic stress factors has become a major challenge for plants. Among them, drought and salinity pose serious threats to plant survival. To counter this, plants have evolved an intricate signaling network where phytohormones are the key players. In response to osmotic stress, different signaling cues trigger the synthesis of the stress hormone abscisic acid (ABA) and hinder the growth hormone gibberellic acid (GA) thus lowering the GA/ABA ratio and stabilizing the DELLA repressor. This leads to growth restraint and promotes stress-adaptive phenomena like stomatal closure, ion homeostasis, and inhibition of seed germination signifying transition from "growth phase" to "defense phase." Ethylene, brassinosteroids, jasmonic acid, salicylic acid, and strigolactones facilitate these phenomena, while cytokinin antagonizes the ABA-mediated responses. Auxin again regulates lateral root growth and halotropism under stress. This chapter also highlights the application of phytohormones to enhance tolerance and crop productivity under osmotic stress.

Recommended articles

References (0)

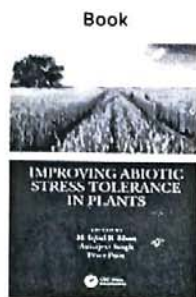
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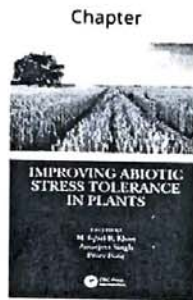
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