



Emerging Plant Growth Regulators in Agriculture

Roles in Stress Tolerance

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Chapter 3 - Physiological, biochemical, and molecular mechanisms of plant steroid hormones brassinosteroids under drought-induced oxidative stress in plants

Abkar Hossain ^a, Visha Kumari Venugopalan ^b, Md. Atikur Rahman ^c, Md. Jahangir Alam ^d, Abdullah Al-Mahmud ^d, Md Ariful Islam ^e, Ayaz Latif Siyal ^f, Sagar Maitra ^g, Tariq Aftab ^h

^a Bangladesh Wheat and Maize Research Institute, Dinajpur, Bangladesh

^b Department of Agronomy, Bidhan Chandra Krishi Vishwavidalya, Mohanpur, West Bengal, India

^c Spices Research Center, Bangladesh Agricultural Research Institute (BARI), Bogura, Bangladesh

^d On-Farm Research Division, Bangladesh Agricultural Research Institute (BARI), Gaibandha, Bangladesh

^e On-Farm Research Division, Agricultural Research Station, Bangladesh Agricultural Research 6 Institute (BARI), Poilanpur Pabna, Bangladesh

^f Department of Plant Breeding and Genetics, Sindh Agriculture University, Tandojam, Sindh, Pakistan

^g Department of Agronomy, Centurion University of Technology and Management, Odisha, India

^h Plant Physiology Section, Department of Botany, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

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Abstract

As sessile organisms, plants are constantly exposed to diverse environmental conditions. Abiotic stresses can be considered as the most severe adverse conditions that plants may face. Among them drought stress is responsible for great amounts of lost in production and this scenario is expected to be more frequent as we are facing global temperature changes. Drought is responsible for major losses in productivity, mainly due to drastic alterations in plant physiology and biochemistry. Plants have demonstrated extensive physiological, biochemical, cellular, and molecular adaptation to drought stress, thus enabling them to survive. Under stress condition plants accumulate numerous phytohormones (PHs) and osmolytes, which have an important role to survive against abiotic stresses. Among PHs, brassinosteroids (BRs) play a vital role in response to plants to survive against abiotic stresses including drought. BRs are a group of plant phytohormones that have emerged as a crucial regulator in plant growth, development, and stress response by coordinating numerous physiological, biochemical, and molecular processes. BRs also control a wide range of physiological and developmental processes by coupling with other