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Role of Plant Growth-Promoting Rhizobacteria for Improving Crop Productivity in Sustainable Agriculture

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Chapter
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Abstract

The plant growth-promoting rhizobacteria (or PGPR) are the beneficial microorganism that colonizes rhizosphere and help in promoting plant growth, protecting from biotic and abiotic stresses, and significantly increasing soil fertility. For the effective ways of developing sustainable agriculture for improving crop productivity with a minimal disturbance to the environment is the exploration of plant growth-promoting rhizobacteria and some other microbe-based symbioses in plants. For increasing crop yields, the use of PGPR has been well proven for its eco-friendly sound by promoting plant growth either direct or indirect mechanism. The mechanisms of plant growth-promoting rhizobacteria include resistance against plant pathogens, solubilizing nutrients for easy uptake, and maintaining the plant growth regulator hormone. This chapter emphasizes an eco-friendly approach to increase crop production and health, the development of sustainable agriculture, the mechanism of PGPR for agricultural sustainability, and the role in different major crop plant varieties along with their mechanism of action.

Keywords

Plant growth-promoting rhizobacteria (PGPR) Phytopathogens Sustainable agriculture Biofertilizer Crop yields

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