



Plant-Microbe Interaction - Recent Advances in Molecular and Biochemical Approaches

Volume 1 : Overview of Biochemical and Physiological Alteration During Plant-
Microbe Interaction

2023, Pages 205-228

Chapter 10 - Advanced study of plant-microbe interactions in photosynthesis

T. Karpagam^a, A. Shanmugapriya^a, V. Suganya^a, B. Varalakshmi^a, Jannathul Firdous^b

[Show more](#) ▾

[Outline](#) | [Share](#) [Cite](#)

<https://doi.org/10.1016/B978-0-323-91875-6.00011-6> ↗

[Get rights and content](#) ↗

Abstract

Plants interact with various microorganisms at certain stages of their life. In symbiotic relationship, plants provide photosynthetically fixed carbon to microbes. The microbial community, in return, provides a defense against pathogens, increase yield, nutrient acquisition, and stress tolerance. It also produces antibiotics, extracellular polysaccharides (EPS), glycoconjugates, and proteins that influence growth and photosynthesis. Microbes also have several enzymes with lytic functions, thus breaking down insoluble organic polymers and generating nutrients that plants can use. The plant-microbe interaction stimulates hormone production such as auxins, cytokinins, and N-acyl-L-homoserine. They enhance cell-cell communication and modulate the architecture of the plant root system with changes in gene expression metabolism and growth. Plant growth-promoting soil bacteria augment the photosynthetic capacity by modulating endogenous sugar, abscisic acid signaling, and increasing chlorophyll content.

Access through your organization

Check access to the full text by signing in through your organization.