

Special Issue

Contribution of Plant Growth-Promoting Microorganisms (PGPMs/PGPR) to Plant Growth and Development

Message from the Guest Editor

Plant Growth-Promoting Microorganisms (PGPMs), including Plant Growth-Promoting Rhizobacteria (PGPR), play a vital role in enhancing plant growth and development through a variety of ecological and biochemical mechanisms. These beneficial microorganisms colonize the rhizosphere, the zone of soil surrounding plant roots, where they interact with plants in a symbiotic or associative manner. Their contribution to plant health is both direct—through nutrient acquisition and phytohormone production—and indirect—via pathogen suppression and stress mitigation. Direct mechanisms involve biological nitrogen fixation, phosphate solubilization and the production of plant growth regulators. These processes improve nutrient uptake efficiency and stimulate root and shoot development. PGPMs also enhance the bioavailability of micronutrients like zinc and iron, which are essential for various physiological processes in plants. PGPMs indirectly contribute to plant defense by producing antibiotics, siderophores, and enzymes that inhibit pathogenic microbes. They also induce systemic resistance in plants, priming them for faster and stronger responses to future pathogen attacks.

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Message from the Editor-in-Chief

Plants is an open access journal which provides an advanced forum for research findings in areas related to plant function, its physiology, biology, taxonomy, stresses, and its interactions with other organisms. It publishes original research articles, reviews, reports, and conference proceedings (peer reviewed full articles) and communications. In original research papers, it is important that full experimental details are provided. We also encourage timely reviews and commentaries on topics of interest to the plant research community.

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