



Category: Miscellaneous

Isolation, Characterization, Screening, Formulation and Evaluation of Plant Growth Promoting Rhizobacteria

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Abstract

Plant growth promoting rhizobacteria (PGPR) are bioresources which may be viewed as a novel and potential tool for providing substantial benefits to the agriculture. Soil is the dynamic living matrix and the major source of food security providing various resources of plant growth and maintaining life processes. PGPR are originally defined as root-colonizing bacteria that cause either plant growth promotion or biological control of plant diseases. Chemical fertilizers are used for killing pathogens, increase crop yield but long term use of chemical fertilizers lead to adverse effect to the soil profile and is the reason for decrease in soil productivity, on the other hand PGPR promote plant growth directly by either facilitating resource acquisition (nitrogen, phosphorus and essential minerals) or modulating plant hormone levels, or indirectly by decreasing the inhibitory effects of various pathogens on plant growth and development in the forms of biocontrol agents. PGPR is the indispensable part of rhizosphere biota that when grown in association with the host plants can stimulate the growth of the host. PGPR seemed as successful rhizobacteria in getting established in soil ecosystem due to their high adaptability in a wide variety of environments, faster growth rate and biochemical versatility to metabolize a wide range of natural and xenobiotic compounds. Isolated PGPRs from selective crop rhizosphere soil were used for further growth promotion and biocontrol studies in the green house and field. Different studies have been carrying out to develop some new bioformulations and evaluate their efficacy in promoting crop seedlings growth characteristics. Field trials were performed to evaluate selective crops with formulations of several plants PGPR in a production system. The present review highlights the Plant growth promoting rhizobacteria as an alternative of chemical fertilizer for sustainable, environment friendly agriculture.

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