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RESEARCH PAPER

Assessment of root system architecture (RSA) of rice seedling as influenced by co-inoculation of plant growth promoting micro-organisms

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Abstract : In addition to single inoculation of plant growth promoting microorganisms, its combination with other PGPB which elicits plant growth and development. The root system study explores the spatial distribution of all minute parts of the root in a particular environment. In the present study, co-inoculation of two bacterial strains of plant growth promoting bacteria *Bacillus altitudinis*FD4 and PPFM was investigated by root system architecture study (RSA) by Gia root software. Co-inoculation of PPFM and *B. altitudinis* FD48 gives best results for overall growth parameters than single strain inoculation. Among 20 different RSA-traits monitored by root imaging and analysis, the major parameters include network perimeter, Solidity, Cover area, network area and bushiness index show significantly increased in consortium of microorganisms. In addition, co-inoculation of PPFM and *B. altitudinis* FD48 conducted in pot culture study which gave considerable results for overall growth parameters such as root length, shoot length, plant dry biomass and germination percentage of rice plants. Therefore, this study indicates that a consortium of microorganisms promotes better plant growth than single inoculation.

Key Words : Consortium, RSA, PGPB, *B. altitudinis* FD48, PPFM

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