PLANT GROWTH AND NODULATION OF MUCUNA (MUCUNA PRURIENS) IN RESPONSE TO RHIZOBIUM INOCULATION

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Abstract: A total 20 Rhizobium strains were isolated from nodules of Pisum sativum. Isolated strains were characterized on the basis of cultural staining and biochemical tests by standard methods. Further, Plant growth activities of characterized twenty Rhizobium strains were analysed. Only nine Rhizobium i.e. Rhizobium PMR-2, Rhizobium PMR-3, Rhizobium PMR-7, Rhizobium PMR-9, Rhizobium PMR-12, Rhizobium PMR-13, Rhizobium PMR-15, Rhizobium PMR-17, Rhizobium PMR-19 produced siderophore, HCN, IAA and solubilized phosphorous. Mucuna pruriens has some medicinal value as well as food -feed crop and selected for present study. Pot experiment had done to analyzed PGPR activity of Rhizobium strains. Mucuna seeds were surface-sterilized and bacterized with Rhizobium strain of density of 10⁸ cfu ml⁻¹. Sterile earthen pots (24 cm × 12 cm × 12 cm) were filled with sterilized sandy loam soil. Total 10 treatment were prepared and these are Rhizobium PMR-2 + Seed; Rhizobium PMR-3 + Seed; Rhizobium PMR-7 + Seed; Rhizobium PMR-9 + Seed; Rhizobium PMR-12 + Seed; Rhizobium PMR-13 + Seed; Rhizobium PMR-15+ Seed; Rhizobium PMR-17 + Seed; Rhizobium PMR-19 + Seed and uninoculated seed (control). All bacterized Rhizobium strains produced more dry weight and plant height as compared to uninoculated seed (control). Rhizobium PMR-13 and PMR-19 increased plant dry weight by 181.7 and 181.9% respectively as compared to control. Maximum height has been observed in Rhizobium PMR-19 bacterized seed treatment and it was 122% as compared to control. Rhizobium PMR-13 bacterized seeds showed 52 nodules per plant. We concluded that use of rhizobia inoculant enhanced plant growth in Mucuna plant.

Keywords: Rhizobium, Siderophore, HCN, IAA, P-solubilization

REFERENCES


