



Effective Eco-Friendly Micro-Flora for Early Degradation of Herbicide and Enhancing Chickpea Productivity

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Abstract: The investigation was carried out to evaluate the effective eco-friendly microflora for early degradation of herbicide and enhancing chickpea productivity. Fifteen soil samples were collected from different plots of a long term herbicidal trail where different herbicides were applied in *kharif* and *rabi* season continuously for last five years in a rice-chickpea cropping system. Three rhizobial, four phosphobacterial, two *Azotobacter* and two *Azospirillum* isolates were isolated and 11 crop beneficial herbicide tolerant microbial isolates were identified. Among different treatments dual inoculation of rhizobial isolate *Rhizobium*-3 and phospho-bacterial isolate PSB-4 was found best for rapid degradation of herbicide pendimethalin, followed by single inoculation of phosphor-bacterial isolate PSB-4. These native isolates had highest basal soil respiration, alkaline phosphatase activity and microbial population over control at 50 days after sowing. The combined application of *Rhizobium*-3 and PSB-4 also found supreme to increase the chickpea yield at highest level followed by isolate PSB-4 by mobilizing more nitrogen and phosphorus in crop rhizosphere.

Keywords: Chickpea, Isolation, Microbes, Biochemicals, Degradability, Plant growth parameter, Yield
