

Compatibility between Microbial Cultures of Bio-Fertilizers and Bio-control Agents for Sustainable Crop Management in Bio-Based Farming

Chandan Kumar Mondal*, Priyaranjan Bandyopadhyaya¹, Prabir Kumar Garain and Atit Maji

Ramkrishna Ashram Krishi Vigyan Kendra, Nimpith Ashram, South 24 Parganas, West Bengal -743338, India

¹Present Address: Indian Potash Limited, 11A-Everest House, 46C-J.L.Nehru Road, Koklata – 71

E-mail: *drchandanmondal@gmail.com

Abstract—For sustainable crop production along with higher productivity and profitability, bio-based cultivation is the need of present day. Massive application of inorganic fertilizers, insecticides and fungicides have increased environmental pollution and enhanced toxicity in the ecosystem. In this perspective, biofertilizers and microbial pesticides may be a better option for plant nutrient management and control of fungal diseases. But confusion always exist among farmers or even among agriculturist about their mode of application, either there is any synergistic or antagonistic effect of these microbial cultures upon each other. In this perspective the present study was designed with the objectives of finding out the compatibility and effectiveness of Azotobacter, Azospirillum & PSB along with Trichoderma viride and Pseudomonas fluorescens individually or in combination for improving crop growth and yield in okra crop. The result shows that Azotobacter in combination with T. viride and P. fluorescens is better option for improving yield related traits as well as yield. But the best treatment for yield related traits and yield along with higher plant survivality against soil pathogens was combination of all the microbial inoculations like biofertilizers Azotobacter, Azospirillum & PSB and microbial pesticides T. viride and P. fluorescens. It also improves soil fertility to the highest level also, which is the most desired thing for the sustainability of agriculture. It also implies that these five microorganisms are compatible to each other at in-vivo condition.

Keywords: Bio-fertilizer, Bio-pesticide, Okra.