

Utilization of AM Fungi and Other Antagonist Organisms to Control Plant Diseases and Developing A Formulation with Vermicompost

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Arbuscular mycorrhizal fungi help plants in diffusion-limited nutrient uptake, production of plant growth promoting substances and biologically controlling root pathogens. In this investigation, AM fungi were studied as a biofertilizer for okra. Eleven fungi were used in the study, *viz*, *Acuulospora laevis*, *Gigaspora margarita*, *Glomus bagyarajii*, *Glomus etuniculatum*, *Glomus fasciculatum*, *Glomus intraradices*, *Glomus leptotichum*, *Glomus macrocarpum*, *Glomus momosporum*, *Glomus mosseae* and *Scutellospora calospora*. Plant parameters like plant height, stem girth, dry weight of shoot and root, and fruit yield were monitored. Mycorrhizal parameters like percent colonization and spore number in the root zone soil were also determined. Giving emphasis to the plant biomass and fruit yield, *Glomus bagyarajii* and *Glomus leptotichum* proved to be the best symbionts for inoculating okra.

Plant biomass contains cellulose as the major component, and microbial cellulose utilization is responsible for one of the largest material flows in the biosphere. Hence, by using agricultural wastes the disposal of these will also be reduced. These carbon rich sources increase the shelf life of biocontrol agents such as *Trichoderma viride* and *Streptomyces* sp. One of the approaches to the biological control of soil borne plant pathogens is to introduce the biological agents along with vermicompost. In the present investigation two biocontrol agents, *viz*, *Trichoderma viride* and *Streptomyces* sp. enriched in vermicompost were mass produced up to 25 kg in a period of three months. Enriched vermicompost was incubated in 39 gauge storage bags and subsequently in plastic containers at 25% moisture level. Colony forming units were determined to check the viability of the biocontrol agent after every 30 days and organic substrates were added subsequently. Hence, it can be concluded that 25% moisture level and the use of substrate along with vermicompost facilitates the growth of the above biocontrol agents.