

Investigating the Potential of a Native *Glomus* sp. as a Biofertilizer

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Many plant species benefit by forming symbiotic associations with arbuscular mycorrhizal fungi (AM). They are known to enhance plant growth, photosynthetic activity & phosphorus content, act antagonistically towards soil borne plant pathogens, and modify the concentration of plant metabolites. Consequently, the uptake of N, P, and K are also enhanced significantly by AM inoculation. Therefore, mycorrhizae have been developed as biofertilizers in many countries. Hence, it is a timely action to evaluate the potential of local mycorrhizae as plant growth enhancers. A mass propagation method was developed to evaluate the native *Glomus* sp. as a biofertilizer for pepper cultivation. Finger millet, maize and sorghum have been employed as host crops and root colonization was detected by (i) observing the presence of the fungus within root tissue (ii) counting the AM spores in root associated soil, after twelve weeks post inoculation. Both sorghum and finger millet were identified as suitable host crops. Effective spore density for successful colonization of pepper rooted cuttings was determined in a pot experiment. The spore density levels tested were: T1 (400), T2 (800), T3 (1200) and T4 (1600) spores per 800 g of standard potting mixture. The pepper variety Panniyur was used with 5 replicates for the study. After 12, 20 and 28 weeks of post inoculation, root pieces were microscopically examined for the fungal colonization. The cuttings inoculated with 800 spores per 800 g potting mixture was found to be the most effective spore density for pepper inoculation.

Keywords: Arbuscular Mycorrhiza, *Glomus*, Pepper