

ASSESSMENT OF SPORE MULTIPLICATION ABILITY AND *IN-VITRO* EFFICACY OF LOCALLY ISOLATED *ARBUSCULAR MYCORRHIZAL* FUNGI ON MUNG BEAN YIELD IMPROVEMENT

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Arbuscular Mycorrhizae Fungi (AMF) is a symbiont fungus that penetrates the cortical cells of the roots of a vascular plant forming arbuscules. This study was conducted to evaluate the spore multiplication (SM) ability of locally isolated AMF and its impact on the yield of mung bean cultivation under *in-vitro* conditions. The AMF was isolated from soil and extracted spores and inoculated into the soils. Two experiments were conducted under shade house conditions, organized as a Completely Randomized Design (CRD) with three replicates each, to evaluate both SM and yield performance (YP) of the isolated AMF. Data were analysed using analysis of variance (ANOVA), and means were separated using the LSD test. For the SM study, four treatments were arranged collectively with pre-isolated AMF spores (inoculated in 200 g of soil), chemical fertilizers (CF), and compost. Treatments were T1 (100% sterilized soil (SS)+AMF), T2 (100% compost+AMF), T3 (SS+100% CF+ AMF), and T4 (SS+50% CF+50% compost+AMF). Spore count (SC) per 1g of soil and root infectivity percentage (IP) were taken at two-week intervals. Certain yield parameters were determined at the end of the three months, and the results were compared with two controls; T5 (100% SS) and T6 (100% CF), which were only used for the YP study. Results revealed that the significantly ($p<0.05$) highest cumulative SC (49 ± 2.5) and root IP ($61.67\% \pm 1.43$) were recorded in T2 over time and the significantly ($P<0.05$) highest pod yield (16 pods/plant ± 0.49) and seed weight (17.24g/plant ± 1.81) were also recorded with T2. Isolated AM is notable for high SM with time, and it has the potential to enhance the crop productivity.

Keywords: Compost, Infective percentage, Sporulation, Crop productivity