

# PREVALENCE OF MYCORRHIZAE IN DRY ZONE SOILS AND THEIR INTERRELATIONS WITH SELECTED DRY ZONE CROP AND WEED SPECIES

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Mycorrhizae are symbiotic associations essential for the partners; fungus and roots of a living plant that are primarily responsible for nutrient transfer. This experiment was undertaken to study the behaviour of Mycorrhizae in dry zone soils and their interactions with some selected dry zone crop and weed species. Three locations were selected (Kiralogama, Puliyankulama and Medawachchiya) to study the behavior of mycorrhizae under natural weed populations and rainfall. A pot experiment was conducted to study the mycorrhizal interactions with five crops; *Vigna unguiculata*, *Sesamum indicum*, *Momordica charantia*, *Capsicum annuum* and *Solanum lycopersicum* and six weeds; *Euphorbia heterophylla*, *Acmella uliginosa*, *Aerva lanata*, *Eleusine indica*, *Eleusine coracana* and *Megathyrus maximus* with three available varieties for each crop. Plants were raised using seeds and the respective plants were subjected to destructive sampling; short term crops at 100% and long term crops at 50% of flowering. All the weed species were sampled at 50% flowering. They were used to assay root colonization and to analyze for plant P and Zn. Soil Samples were collected at the beginning and at the end of experiment series and were analyzed for spore counts, available phosphorous (P), zinc (Zn), pH and microbial biomass carbon. The data were analyzed using ANOVA, Correlation and Regression of the SAS Version 9.0. The rhizosphere soils from a well-managed site at Medawachchiya recorded the highest live (1340) and dead (3520) spore counts, compared to Kiralogama with 213 live and 2507 dead spores; a site that had been least managed during the preceding season. In Kiralogama, spore counts increased with time and rainfall whereas marginal decreases were observed in both live and dead spores in Medawachchiya. *Sesamum indicum* recorded highest root colonization at 71.5% with a high spore count at 898 spores/100 g of soil. *Capsicum annuum* and *Solanum lycopersicum* recorded low colonization at 11.8% and 7.1% along with low spore counts of 302 and 380, respectively. Among weed species *E. heterophylla* and *A. uliginosa* showed high colonizations at 76.8% and 51.2%, respectively. Soil available P established a weak correlation with colonization percentage while Zn showed strong correlation. Further studies are necessary to confirm the correlation between soil P and mycorrhizal colonization for better understanding the prevalence of mycorrhizae in dry zone soils.

**Keywords:** Mycorrhizae, Root colonization, Spores, Soil available P, Soil available Zn, Symbiotic association