

ARBUSCULAR MYCORRHIZAL FUNGAL COMMUNITIES IN SOILS UNDER SWEETPOTATO IN WESTERN KENYA.

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ABSTRACT

Arbuscular mycorrhizal fungi are of considerable interest because they have the ability to form symbiotic associations with several crop species. In this work, the occurrence of arbuscular mycorrhizal species diversity in soils from two districts in Western Kenya was evaluated in trap cultures. Rhizosphere soil samples were collected from four orange fleshed sweetpotatoes (OFSP) varieties in two districts. A total of forty eight samples were collected, twenty four samples from each district and six samples for each of the four OFSP varieties. Previous crop grown was also noted. The soil samples were analyzed chemically for pH, organic matter, available phosphorus (P) and total nitrogen (N). Spore count for the samples was done before setting up trap cultures. Trap cultures were thereafter established using the four OFSP varieties, *Allium porrum* L, *Sorghum bicolor* and *Glycine max*. The traps were grown for 150 days under greenhouse conditions, when the colonization, spore density and species diversity were assessed. Three genera *Scutellospora spp*, *Glomus spp* and *Gigaspora spp* were identified. *Scutellospora spp* was the most abundant genus with a spore abundance of 68 spores/25g of soil while *Gigaspora spp* the least abundant with 27 spores/25g of soil. It was also indicated that colonization rates varied between the trap crops used. The frequency and intensity of colonization (56.7% and 32% respectively) was highest in *Allium porrum* L, and lowest in sweetpotato (20% and 12%). Research directions are needed to increase the understanding of these symbiotic mycorrhizal associations in tropical cropping systems and to understand their benefits in crop production.

Key words: Arbuscular mycorrhizal fungi, trap cultures, colonization, frequency, intensity.