Title

EFFECT OF ORGANIC SOIL AMENDMENTS AND CONTINUOUS TOMATO MONOCULTURE ON ARBUSCULAR MYCORRHIZAL COMMUNITIES

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Abstract

As interest in crop management alternatives to conventional high input farming increases, understanding the impacts of organic soil amendments and crop rotations on microbial components of the agroecosystem is desirable, especially for arbuscular mycorrhizal (AM) fungi. Soil amendments are thought to be more conducive for the activity of AM fungi, depending on nutrient supply. The effects of broiler litter and urban plant debris on infectivity and community structure of AM fungi are under evaluation in an ongoing tomato (*Solanum lycopersicum*) microplot study. Tomato plants were cultivated under conventional methods for the first two years, then transitioned for three years with alternative organic treatments and crop rotation. Mycorrhizal inoculum potential (MIP) of rhizosphere soil was assayed with maize (*Zea mays L*.) to assess activity of AM fungi. Soil DNA has been collected and will be assayed for the presence of key rDNA phylotypes in an attempt to track changes in the AM community over time at different stages of management transition. Depending on the availability of P and N, AM fungal colonization is expected to be suppressed due to plant sufficiency. Since the microplots have received multiple treatments with soil amendments, host crops, and harvests per year, the plots have been highly disturbed. Hence, the prediction is that the fungal diversity or prevalence will decrease due to hyphal network disruption. Furthermore, frequent disturbance and removal of host plant may favor more aggressive and early colonizing AM fungi. Overall, the organic plots are expected to support higher AM fungal activity, depending on organic treatment, and a distinct fungal community compared to the conventional plots.

Type of Presentation

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YES