TITLE: IMPACT OF ORGANIC AND CONVENTIONAL MANAGEMENT OF OIL PALM CULTIVATION ON THE SPORE DENSITY OF ARBUSCULAR MYCORRHIZAL FUNGI (AMF)

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ABSTRACT:

In the Amazon, the intensive management of oil palm (Elaeis guineensis) is changing the landscape through increased deforestation, soil erosion and loss of biodiversity. An alternative system of oil palm cultivation based on organic management was proposed in the city of Tomé-Açu (state of Pará, Brazil) to evaluate the impact of this system on the biological quality of the soil in relation to intensive cultivation. The objective of this study was to evaluate the impacts of organic and intensive management on oil palm cultivation on arbuscular mycorrhizal fungi (AMF) spores. In September 2017, six simple samples of five soil composites (0-10 cm) were collected in four plots (30m x 30 m) in the treatment with organic management and intensive management. The spores were extracted through the sieving method. Variance analysis of repeated measures was used to test the differences between treatments and results compared by the Turkey test at the 5% probability level. The results showed significant difference on spore density, organic management presented a mean of 1.67 spores /g, while the conventional mean of 2.61 spores /g. The intensive cultivation system can reduce fungal species less resistant to this type of management, on the other hand, selects more resistant species which does not always result in symbiotic efficiency, but rather to fungus survival. In this case, it is very likely that AMF species that can survive through intensive management soil, in short reproductive cycles conditions and more competitive and dominant in stress situations. Therefore, in this study, we observed that the intensive culture system altered the spore density, this happened probably related to the selection of some species resistant to this type of management and greater sporulation capacity.

Keywords: Soil management, alternative agriculture, Amazon.

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