Influence of soil fertilization management on the Symbiosis of Arbuscular Mycorrhizal Fungi in Arabica Coffee

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Minas Gerais leads as the main producer of Arabica coffee in Brazil, contributing 70% of the country's total production. Given the economic relevance of this sector, it is vital to conduct research aimed at improving production methods. Thus, coffee production through organic fertilization becomes a more sustainable and economical alternative that can add value to the product. Thus, the objective of this study was to evaluate the mycorrhizal colonization (MC) and the number of glomerospores (NG) in coffee trees under two production systems, conventional coffee (CC) and coffee managed with organic fertilizer (CMOF) in a property located in the municipality of Araponga – MG. The crops had the same variety, Catuai 44, with approximately 28 years of cultivation. Statistical analysis of the data was performed using Analysis of Variance (ANOVA) in DIC and using a significance level of 5%. All analyzes were performed using Minitab v.13 software. Soil and root collections were carried out in June, which corresponds to the period of production of coffee fruits. In each plot 10 collection points were designated, with each point comprising five plants. Around the canopy of the coffee trees, three soil samples were collected to form a composite sample at a depth of 0 -10 cm, totaling 10 soil and root samples. In each of the composite samples, counts were performed to determine the number of glomerospores (NG) present in 50 mL of soil, using the wet sieving methodology, followed by centrifugation in water and 50% sucrose. The glomerospores were counted in a channeled petri dish using a stereomicroscope (64x). To determine the mycorrhizal colonization (MC), the coffee roots were diaphanized and stained with trypan blue, and then the percentage of MC was determined using the quadrant intersection method. The results show that there was no significant difference for NG between CC and CMOF, as well as in the percentage of root colonization between coffee production systems. Thus, we can conclude that until the moment of the coffee bean harvest phase, the type of handling does not influence the presence of AMF propagules in conventionally and organically managed soils, being necessary to carry out other collection in different phases of coffee production.

Key words: Organic Coffee; Conventional Coffee; mycorrhizal colonization;

Influência do Manejo de Adubação na Simbiose dos Fungos Micorrízicos Arbusculares em Café Arábica.

A produção do café Arábica é de grande importância para o Estado de Minas Gerais, tornando essencial conduzir pesquisas que explorem os benefícios da adubação orgânica. Este estudo foi realizado em uma propriedade situada no distrito de Araponga -MG, com o objetivo de avaliar colonização micorrízica e quantidade de glomerosporos em cafeeiros submetidos a dois sistemas de produção: café convencional e café com adubação orgânica. Foi realizado uma coleta referente a fase de colheita do café, que resultou na ausência de diferenças significativas entre os dois manejos utilizados, demonstrando a importância de realizar novas coletas em diferentes fases de produção.

Palavras-chave: Café Orgânico; Café Convencional; Colonização micorrízica.

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