

Arbuscular mycorrhizal fungi in conilon coffee plantation chronosequence in the state of Espírito Santo, Brazil.

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Coffee is one of the most widely consumed commodities in the world. Conilon coffee, also known as robusta coffee, is a crop of great economic importance in the Espírito Santo region. In order to maximize productivity and grain quality, it is essential to understand soil conditions and the interactions between plant roots. Recent studies show that inoculating coffee seedlings with Arbuscular Mycorrhizal Fungi (AMF) has brought benefits to this crop. Thus, the aim of this study was to compare the percentage of mycorrhizal colonization and the number of glomerospores present in roots and soils with commercial cultivation of *C. canephora* produced in the state of Espírito Santo over the years 2020, 2021 and 2022. Soil and root samples were collected from six properties in conilon coffee-producing municipalities in the state of Espírito Santo with altitudes ranging from 630 to 1550 meters, in the years 2020, 2021 and 2022. Five composite samples of soil and fine roots were collected from each property, with one composite sample coming from five points around the tree crown, at a depth of 0 - 10 cm, totaling 90 samples. Each sample was counted to determine the number of glomerospores present in 50 mL of soil, using the wet sieving method, followed by centrifugation in water and 50% sucrose. The coffee roots were diaphonized and stained with trypan blue, and then the percentage of mycorrhizal colonization was determined using the common slide method. The highest values of mycorrhizal colonization and glomerospores number were observed in the 2022 sample and lowest values in the 2020 samples. Thus, we can conclude that the coffee species studied behaves differently in relation to the year, the type of soil and other environmental conditions, and further studies are needed in order to understand the effects of symbiosis, and whether this can influence the taste of the coffee bean.

Key words: Glomerospores; mycorrhizal colonization; *Coffea canephora*

Fungos micorrízicos arbusculares na cronosequência de plantações de café conilon no estado do Espírito Santo, Brasil.

A produção de café requer uma grande quantidade de micro-organismos que podem impulsionar o funcionamento do cultivo ao longo do tempo. Dentre os grupos microbianos que beneficiam a cultura do café temos os fungos micorrízicos arbusculares (FMA). Poucos estudos têm relatado a influência dos FMA em *coffea canephora*, assim o objetivo deste estudo foi comparar ao longo de três anos a colonização micorrízica e o número de glomerosporos nesta espécie de café. Os resultados mostraram maiores valores de glomerosporos nas amostras de café Conilon 2022. No entanto mais estudos devem ser realizados avaliando outros parâmetros além dos anos de cultivo.

Palavras-chave: Glomerosporos; colonização micorrízica; *Coffea canephora*

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