



## Production of rhizomes, content and composition of essential oil of accessions of turmeric in response to nitrogen

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Turmeric (*Curcuma longa* L.) is a perennial species of lateral growth of the same family as ginger Zingiberaceae. Its rhizomes are widely used by diverse populations in the world, both for culinary purposes for medicated with which is mainly due to active principles and other compounds present. Nutritional imbalance can affect both the production and the composition and content of essential oil as well as its composition. The present study aimed to evaluate the effect of nitrogen on the production, content and composition of essential oil from three accessions of turmeric. The experiment introduced in a randomized block design with split plot with the main factor 3 hits of turmeric (C06, C36 and C39) and 5 N rates (15, 60, 105, 150, 240 kg ha<sup>-1</sup>) with 5 replications. At 270 days the total weight of the rhizome, content and composition of essential oil of turmeric were evaluated. The essential oil was characterized by gas chromatography and mass spectrometry. Three compounds were found in larger concentrations in turmeric independent of doses of N and access type. They were: *ar*-tumerone (17.3 to 22.8 %),  $\alpha$ -tumerone (14.3 to 16.1 %) and 1,8-cineole (11.8 to 14.8 %). Overall, essential oil yield was not affected by turmeric accesses (C06 – 0.68 %; C36 – 0.54 % and C39 – 0.77 %) or N doses (15 kg ha<sup>-1</sup> - 0.54 %, 60 kg ha<sup>-1</sup> - 0.59 %, 105 kg ha<sup>-1</sup> - 0.88 %, 150 kg ha<sup>-1</sup> - 0.62 %, and 240 kg ha<sup>-1</sup> - 0.60 %), just as content and composition of essential oil, except for  $\alpha$ -phellandrene and  $\alpha$ -pinene, which showed linear behavior in function of N doses. The three access of turmeric have equal doses production characteristics and essential oil content, it recommended that the lowest dose of N for the production of turmeric.

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