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Arbuscular mycorrhizal fungi and vermicompost to maximize the production of foliar biomolecules in *Passiflora alata* Curtis seedlings

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Abstract

BACKGROUND: Arbuscular mycorrhizal fungi (AMF) are soil organisms that associate with plant roots and promote plant growth, increasing the concentration of secondary metabolites, which are molecules of interest to the pharmaceutical industry. *Passiflora alata* is a Brazilian medicinal plant that is used as a raw material for anxiolytic phytotherapeutic agents. The anxiolytic properties are related to the presence of biomolecules in the plant material, principally flavonoids. The objective of this study was to evaluate the effect of inoculation with AMF and organic fertilization on the production of soluble carbohydrates and total foliar proteins, phenols and flavonoids in *P. alata* seedlings.

RESULTS: There was an effect of the tested treatments on the analyzed variables. Seedlings inoculated and cultivated in soil to which 0.15 kg vermicompost kg⁻¹ had been added showed increased growth and production of primary and secondary metabolites compared with treatments with lower levels of manure, which did not differ from those cultivated in soil with 0.2 kg vermicompost kg⁻¹.

CONCLUSION: The inoculation of *P. alata* seedlings with *Gigaspora albida* is an alternative to maximize the production of pharmacologically important foliar biomolecules, especially flavonoids, with benefits that vary in accordance with the fertility of the soil.

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Keywords: Glomeromycota; flavonoids; organic manure; sweet passion fruit