

TITLE: INHIBITION OF *PHYTOPHTHORA PALMIVORA* MICELIAL GROWTH BY VOLATILE COMPOUNDS PRODUCED BY ISOLATES OF THE GENUS *BURKHOLDERIA* SP.

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ABSTRACT:

Volatile organic compounds (VOCs) are a class of antimicrobials used in biological control. Species of the genus *Burkholderia* sp. are known for their potential to produce different VOCs that act in the inhibition of phytopathogens of economic importance. The objective of this work was to evaluate the inhibition of mycelial growth of *Phytophthora palmivora*, the causing agent of cacao black pod rot by VOCs produced by isolates of the genus *Burkholderia* sp. The experiment was carried out in a randomized block design with five replicates in a 3x16 factorial scheme in three different culture media, Nutrient Agar (NA), Luria-Bertani Agar (LB) and Malt Extract Agar (MEA) and 16 bacterial isolates. An aliquot of the cell suspension was spread onto the Petri dishes containing the above-mentioned media. Fragments of the pathogen were added in agar-water solution and 10 µl of this solution were transferred to the potato agar dextrose (BDA). Then the bottom of the Petri dishes containing the pathogen were sealed with the bottom of the plate with the bacterial isolates and incubated at 28 °C. In the control treatment, the pathogen was incubated in the absence of the bacteria. The colony diameter of the pathogen was measured every 24 hours for eight days. Statistical analysis of inhibition of mycelial growth (IMG) was performed in Program R. Data were submitted to analysis of variance and means were compared using the Tukey test at 5% probability. All bacterial isolates produced volatile compounds capable of inhibiting the mycelial growth of *Phytophthora palmivora* in all culture media analyzed as compared to the control treatment. The volatiles produced by the bacterial isolates in the MEA culture medium presented significantly higher IMG values when compared to those obtained in culture media AN and LB.

Keywords: antimicrobial, malt extract agar, phytopathogen

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