

Title: ANTI-TUBERCULOSIS ACTIVITY OF CARVACROL IN *Mycobacterium tuberculosis*

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Abstract:

Tuberculosis (TB) is caused by *Mycobacterium tuberculosis* and is a global public health problem. The infection have reached approximately one third of the world population. Brazil has high prevalence of disease and is among the countries, which account for 80% of TB in the world. One of the problems in combating TB is the intrinsic and acquired resistance of *M. tuberculosis* to therapeutic agents, hindering the development of new drugs and therapeutic approaches. The multidrug-resistant TB (MDR-TB), defined as resistance to at least the two first-line drugs, isoniazid (INH) and rifampicin (RIF), and extensively drug-resistant TB (XDR-TB), resistance to INH and RIF, with additional resistance to fluoroquinolones and at least one of the three injectable second-line drugs (kanamycin, amikacin, and capreomycin) have consequently emerged and caused serious problems worldwide. The search for new active substances isolated from plants, which can be obtained more easily and perhaps at lower cost has motivated many pharmaceutical companies to invest in studies with natural products. The carvacrol (CAR) is abundantly found in herbs such as oregano and tomilho, has antioxidant activity, anti-microbial, anti-cancer among others. The aim of this study was to evaluate the anti-TB action of CAR on *M. tuberculosis*. The minimal inhibitory concentration (MIC) of CAR was determined in triplicate for *M. tuberculosis* H₃₇Rv and two clinical isolates (one pan-susceptible and one MDR) using the Resazurin Microtiter Plate Assay (REMA). INH and RIF were used as control for determining the MIC. MIC values were considered as the lowest CAR, INH and RIF concentrations that were able to hinder change blue-to-rosy color of the resazurin. The MIC of CAR for the reference strain H₃₇Rv and the two clinical isolates were 76 µg/mL. This preliminary result shows that CAR has activity against *M. tuberculosis* and it may be a potential antituberculosis drug candidate for future studies.

Key-words: *Mycobacterium tuberculosis*, Carvacrol, tuberculosis

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