Title: **ANTIBACTERIAL PROSPECTION OF CHALCONES AGAINST GRAM NEGATIVE BACTERIA**

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Summary:

The chalcones are a class of compounds whose backbone have been associated to pharmacologic activities such as antitumoral, antiviral, anti-inflammatory and antimicrobial. Chemically, they are α,β-unsaturated carbonyl and their derivatives can be synthesized by Claisen-Schmidt condensation between acetophenones and aromatics benzaldehyde. Considering that bacteria resistance is presented to the commonly used antibacterial agents, it is necessary to search for compounds that are active and exhibit different mechanisms of action from those already available. Thus, the aim of this study was to evaluate the antibacterial potential of sixteen chalcones against three Gram negative bacteria (*Pseudomonas aeruginosa* ATCC 25853, *Escherichia coli* ATCC 25922 e *Acinetobacter baumannii* ATCC19606). The analysis of the antibacterial activity was performed by determining the Minimum Inhibitory Concentration (MIC) by broth microdilution method and the Minimum Bactericidal Concentration (MBC) by agar microdilution. The compounds were tested in concentrations ranging from 1000µg/mL to 3.9µg/mL. Streptomycin and Dimethylsulfoxide (diluent) were included in the assays as positive and negative controls, respectively. The results showed that the compounds LZ39, LZ41, LZ42, LZ46 and LZ47 were active against *P. aeruginosa*, with MIC values ranging from 50µg/mL to 250µg/mL, and the compound LZ46 were also bactericidal against this microorganism, with MBC equal to 850µg/mL. The bacteria *A. baumannii* showed sensitive to the compounds LZ39, LZ41, LZ43, LZ44 and LZ46, with MIC values between 62.5µg/mL to 550µg/mL. In addition, LZ43 showed bactericidal activity against this bacteria, with MBC equal to 500µg/mL. The results indicated that chalcones present antibacterial activity against three Gram negative samples tested. The discovery of new and effective antibacterial compounds is extremely important since bacterial resistance is considered a public health problem worldwide. The data show chalcones as potential antibacterial agents.

Keywords: Antibacterial activity, Gram negative, Chalcones.

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