

TITLE: ANTIBACTERIAL ACTIVITY OF CHALCONES AGAINST *Staphylococcus aureus*

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ABSTRACT: *Staphylococcus aureus* is a commensal and human pathogenic microorganism responsible for the variety of diseases including acne, endocarditis, boils, osteomyelitis, pustules, impetigo, meningitis, pneumonia and arthritis. The multiresistant strains of *S. aureus* have been observed with increasing frequency and its spread has been recognized as one of the most alarming issues for the global health system. Furthermore, this is one of the bacterial species most associated with infections caused by the formation of biofilms. Chalcones are natural products and present numerous pharmacological *in vitro* and *in vivo* activities, including effects against *S. aureus*. The present work aimed the synthesis of 35 chalcones replaced by electron-donor and electron-acceptor, as well as hydrophilic and hydrophobic groups, and subsequent evaluation of the activity against *S. aureus*. The evaluation of activity against *S. aureus* was performed by the biological assay that identifies the MIC of a substance. The MIC was determined by the broth microdilution test in which the substances were dissolved in DMSO and tested in concentrations ranging from 62.5 to 0.48 µg/mL. Vancomycin was the reference antibiotic, presenting MIC of 1 µg/mL. The bacterial susceptibility assays indicated *para*-substituted chalcone with hydrophobic groups, and the naphthylchalcones were the most potent of all the substances tested, indicating values of MIC₉₀ (concentration capable of 90% inhibition of growth of *S. aureus* ATCC 25923) of 15.6, 15.6 and 7.8 µg/mL, respectively. These results corroborate the antibacterial activity of chalcones, besides fomenting the development of new active substances against *S. aureus*.

KEYWORDS: Chalcones, antibacterial, *Staphylococcus aureus*