

TITLE: ANTIMICROBIAL ACTIVITY OF A DITERPENE FROM *Croton blanchetianus* AGAINST *Staphylococcus aureus* BIOFILMS

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Biofilm are a community of microorganisms adhered to a biotic or abiotic surface, embedded in an extracellular polymer matrix. Moreover, biofilms confers significant tolerance to antimicrobial agents when compared to planktonic cells. These microbial communities can cause infections associated to medical devices, tissue and chronic infections. *Staphylococcus aureus* is a pathogen involved in a variety of community-and hospital-acquired infections, as well as being a great biofilm builder. Thus, the purpose of this study was to evaluate the antibacterial and antibiofilm activity of the diterpene ent-3,4-seco-atisan-4(18),16-dien-3-oic acid (ICB8) isolated from roots of *Croton blanchetianus* against two different strains of *S. aureus*, *S. aureus* ATCC25923 and *S. aureus* ATCC700698. The antimicrobial activity was evaluated by minimum inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) tests. The antibiofilm activity was evaluated by quantification of total biomass (violet crystal staining method), quantification of the number of viable cells in the biofilm through of colony forming units (CFU) counts and cell viability assay using the tetrazole salt (XTT) reduction technique. The tests were performed on microtiter plates at concentrations ranging from 7.8 to 250 µg/mL. The compound showed MIC and MBC values of 250 and 125 µg/mL against *S. aureus* ATCC25923 and *S. aureus* ATCC700698, respectively. Interestingly, ICB8 showed MBC value of 125 µg/mL to both strains. Regarding antibiofilm activity, the compound caused significant inhibition of biomass production in concentrations ranging from 250 to 7.8 µg/mL. Furthermore, ICB8 showed potential reduction in the viable cells and in the metabolic activity of biofilms in all concentrations tested. In summary, ICB8 proved to be a promising natural alternative against infections caused by *S. aureus* biofilms.

Keywords: *Croton blanchetianum*; biofilm; *Staphylococcus aureus*

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