Evaluation of Antimicrobial and Cytotoxic Activity of the sesquiterpene β-caryophyllene

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INTRODUCTION. The β-caryophyllene is a sesquiterpene derivative of the plant secondary metabolism that is widely found in essential oils from plants. Several biological activities are assigned to him as anti-inflammatory activity, antigenotoxic, anesthetic, and use in fragrances and cosmetics. Different studies are conducted to evaluate the antimicrobial activity of natural products due to resistance developed by bacteria to the indiscriminate use of antibiotics. **OBJECTIVE.** Thus, the objective of this study is to evaluate the antimicrobial activity of β-caryophyllene against *Staphylococcus aureus* and *S. epidermidis*, and the cytotoxic activity in fribroblasts. **MATERIAL AND METHODS**. The minimum inhibitory concentration (MIC) was determined by the microdilution broth method. A stock solution of β-caryophyllene to 50 mg/mL was prepared, and from this solution the other concentrations were prepared in serial dilutions. The extent of growth of the microorganisms was assessed by measuring the absorbance at 600 nm in a spectrophotometer after 24 h of incubation at 37°C. The minimum bactericidal concentration (MBC) was evaluated transferring 5µl from the wells of MIC to plates containing Brain Heart Infusion Agar, incubating for 24 hours at 37°C. Cytotoxicity was assessed by the MTT method. The cytotoxic concentration to 50% of the cells (CC50) was determined after 24h incubation. **DISCUSSION AND RESULTS**. The β-caryophyllene showed MIC in concentrations of 12.5 mg/ml and 25 mg/ml for *S. aureus* and *S. epidermidis*, respectively. The MBC was determined at 50 mg/mL for *S. epidermidis*. Cytotoxic activity CC50 after 24 hours of incubation was 44,87µg / mL. **CONCLUSION**. The β-caryophyllene was shown to be active against *S. aureus* and *S. epidermidis*. The results suggest that future studies can be developed in an attempt to enable the use of Caryophyllene in the topical treatment of infections.

Key words: Antimicrobial, β-caryophyllene, cytotoxity.

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