

TOXICITY AND ANITMICROBIAL ACTIVITY OF *CYMBOPOGON MARTINII* ESSENTIAL OIL.

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INTRODUCTION: Essential oils (EOs) are complex mixtures of volatile, fat-soluble substances with a characteristic odor, which have become potential candidates as therapeutic adjuvants. Studies evaluating active concentrations that do not cause serious side effects are still scarce. **OBJECTIVE:** Characterization and evaluation of the toxicity and antimicrobial activity of the *Cymbopogon martinii* EO (CMEO) **METHODOLOGY:** The CMEO was analyzed by GC-MS and, based on the data obtained, was subjected to column chromatographic separation (CC), totaling seven groups relative to the total yield of 95.1%, in NMR analysis was possible to confirm the presence of the two major monoterpenes. For toxicity tests, 24-hour-old *Artemia franciscana* nauplii were exposed to concentrations of 0.0025% to 0.02% of both, CMEO and the major isolates, diluted in 3% saline solution and 1% DMSO, and the mortality rate was evaluated 24 and 48 hours after exposure. For antimicrobial analyses, the CMEO, as well as its major isolates, at concentrations of 0.005 and 2%, diluted in 2% DMSO, were used against Gram-positive, *Staphylococcus aureus* in a growth assay in liquid medium, with readings at 595 nm after 24 hours. **RESULTS:** GC-MS and NMR analyses revealed geranyl acetate (GA) 17.9% and geraniol (GE) 75.5% as the major components. *A. franciscana* mortality rates showed a significant increase ($p < 0.05$) in CMEO at concentrations ranging from 0.0025% to 0.0125%; in GA 0.0150% to 0.0200%; and in GE at 0.0050%. These data allowed us to determine that the LC₅₀ was 0.007% for CMEO and GA 0.0200%. Finally, the results of the antimicrobial activity revealed 85% growth inhibition (CMEO, GA and GE) at the highest concentrations against *S. aureus* in relation to the positive controls. **CONCLUSION:** The data indicate that high concentrations of CMEO, despite their antimicrobial activity, can be toxic and their indiscriminate use poses a significant health risk.

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