TITLE: EVALUATION OF ANTIMICROBIAL POTENTIAL OF EXTRACTS MADE FROM THE LEAVES OF *Thuya occidentalis*

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ABSTRACT:

The emergence of multi-resistant bacterial isolates intensifies the need of research for new antimicrobial agents of natural origin whith few side effects. *Thuya occidentalis* (Cupressaceae), popularly known as "tuia" in Brazil, is used as a tincture made from it's leaves to treat acute infections of the upper respiratory tract, due to it's antiasthmatic, emenagogic and expectorant activities. However, there are few studies on the antimicrobial activity of *T. occidentalis*. In view of the above, the objective of this study was to evaluate the antimicrobial potential of *T. occidentalis* fractions against different bacteria. The powder of *T. occidentalis* leaves was extracted with 99% ethanol at room temperature under mechanical stirring three times and then concentrated in a rotary evaporator at temperature ≤ 40°C. To obtain the fractions, the crude ethanolic extract was solubilized in methanol. The resulting solution was extracted by successive liquid/liquid partitions with chloroform and ethyl acetate, obtaining four fractions: chloroform, acetate, acetate:chloroform and chloroform:methanol. The antimicrobial activity of these extracts was tested against *Staphylococcus aureus* (ATCC 25923), *Staphylococcus epidermidis* (ATCC 31488) and *Pseudomonas aeruginosa* (ATCC 27853). Minimum inhibitory concentrations (MIC) were determined by broth microdilution testing according to the Clinical and Laboratory Standards Institute (CLSI). The fractions showed considerable activity against all strains tested, with MICs from 256 µg/mL to 2048 µg/mL. The chloroform fraction presented better activity, with MIC values of 256 µg/mL, 512 µg/mL and 2048 µg/mL for *S. aureus*, *S. epidermidis* and *P. aeruginosa*, respectively. The findings of this study demonstrate that *T. occidentalis* has a bacteriostatic effect against the evaluated bacteria. Results found here look promising, making it worthy to continue testing the fractions and substances isolated from the leaves of this plant species, as well as performing future in vivo experiments to gather evidence aiming the search of new antimicrobial agents.

Keywords: *Thuya occidentalis*, antimicrobials, medicinal plants