TITLE: IN VITRO ANTIBACTERIAL ACTIVITY OF CYMBOPOGON CITRATUS STAPF AGAINST *S. aureus* AND *E. coli*

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ABSTRACT

The phytotherapy products have been gaining ground in therapy and Brazilian scientific field due to the great variety of native flora. The wide spectrum of active principles of plants is the subject of research that have sought antimicrobial compounds as an alternative to use of conventional of antibiotics medical clinic. The objective is to evaluate the oil *Cymbopogon citratus* Stapf (lemon grass) capacity as antimicrobial. The microorganisms studied were: *S. aureus* ATCC 25923 and *E. coli* ATCC 25922. The tests were performed by disk diffusion technique according to the method of Kirby-Bauer and the broth microdilution technique according to the CLSI document (M7-A6). Filter paper discs N^{o}.1 Whatman of diameter 6mm sterile were used and culture medium used was Mueller-Hinton agar of CLSI (M2-A8). In each disk was inserted 5µl of the diluted oil in DMSO at different concentrations: 10% (445.2 µg), 20% (890.4 µg), 50% (2226 µg), 70% (3116,4 µg) e 100% (pure oil with 4452 µg). The plates were incubated at 37° C for 24h, after this period the halos were measured using a caliper. In the microdilution tests, the study was conducted using 10 different concentrations ranging from 445.2mg/ml to 0.87mg/ml. It was performed in microtiter plates, with background "U" (sterile). The minimal inhibitory concentration (MIC) was performed after 24 hours of incubation at 37°C. The Concentration bactericidal minimum MCB was determined, after growth an aliquot of 10 µl in Agar Muller Hinton. MCB was considered the plate which does not show any growth of bacteria. The results of linear halos against the different concentrations were best observed for *S. aureus* and *E. coli*. The MIC and MCB of Cymbopogon against *S. aureus* was 0.34mg/mL and 0.69mg/mL. The MIC was 0.17 mg/mL and MBC 0.34mg/mL against *E. coli.* We conclude that the *Cymbopogon citratus* stapf oil was inhibited against *S. aureus* and *E. coli* using disk diffusion and broth microdilution technique.

Keywords: Lemon grass; *Staphylococcus aureus*, *Escherichia coli*

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