

## **Antibacterial Effect of Aqueous Leaf Extracts of Lemon Grass Plant against *Staphylococcus aureus* and *Escherichia coli***

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### **Abstract**

Antimicrobial drug resistance has increased dramatically in the past years. Therefore, the urge to discover alternative natural antimicrobial agents has increased. Several plant extracts were found to be highly effective against the activity of these pathogens causing food borne infections. This study aims to determine the antibacterial effect of aqueous leaf extract of *Cymbopogon citratus* (Lemon grass) against *Staphylococcus aureus* (ATCC 25923) and *Escherichia coli* (ATCC 25922). Aqueous plant leaf extract was obtained by maceration technique under sterile conditions. Antibacterial testing of the plant extract was performed using the agar well-diffusion method, Minimum Inhibitory Concentration (MIC), and Minimum Bactericidal Concentrations (MBC). Concentrations of 50mg/ml, 100mg/ml, 200mg/ml, and 400mg/ml plant extracts were prepared in 10% Dimethyl sulfoxide (DMSO) solution and tested for the zone of inhibition. Vancomycin Intravenous (IV) and Cefotaxime IV drugs were used as positive controls for *S. aureus* and *E. coli* respectively. For the negative control 10% DMSO was used. According to the triplicates results, a zone of inhibition was only observed in *E. coli* with  $9.67 \pm 0.1$  mm for 400 mg/ml, MIC of 400 mg/ml, and MBC of 800 mg/ml and zone of inhibition was not observed for 50 mg/ml, 100 mg/ml, and 200mg/ml concentrations under the tested conditions. Aqueous plant extracts at the studied concentrations failed to inhibit the growth of *Staphylococcus aureus*. In conclusion, aqueous extractions of *C. citratus* leaf possess antibacterial activity against *E. coli* and to produce new antibacterial compounds using *C. citratus* plant will be an intriguing option.

**Keywords:** *Antimicrobial activity, Cymbopogon citratus, Aqueous plant extract*