

## Antimicrobial Activities against Periodontopathogens of Essential Oil from Lemon Grass (*Cymbopogon citratus* (DC.) Stapf.)

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### ABSTRACT

*The purpose of this study was to investigate the antimicrobial activities of the essential oil from Cymbopogon citratus (DC.) Stapf. (lemon grass) against some periodontal pathogens, including Actinomyces naeslundii (WVU 45), Porphyromonas gingivalis (WP 50) and the clinical isolates from 3 gingivitis and 3 periodontitis patients, using the broth dilution and antibiotic-sensitivity tests. The results revealed that the minimum inhibitory concentration (MIC) values of the essential oil against Actinomyces naeslundii and Porphyromonas gingivalis were 0.44 and 0.22 mg/ml, respectively. Furthermore, the results showed that some bacterial strains from clinical isolates could resist both concentrations. However, the black-pigmenting bacteria (BPB) could not be detected in any group. These resistant bacteria could be differentiated into 10 different groups, depending upon their antibiotic-sensitivity patterns to the following four antibiotics, i.e., tetracycline hydrochloride, ceftazidime, ampicillin and erythromycin. Five of the 10 groups were susceptible to the tested oil at the original concentration whereas only one group was sensitive to 10% tetracycline hydrochloride. It can be concluded that essential oil of Cymbopogon citratus has activities against both reference strains and majority of clinical-isolate groups, especially the tetracycline hydrochloride-resistant strains. The present study suggests the benefit of the use of essential oil to treat any tetracycline hydrochloride-resistant bacteria in combination with other antibiotics.*

**Key words:** Lemon grass (*Cymbopogon citratus*), Antibacterial activity, Tetracycline hydrochloride-resistant bacteria.