

IN VITRO ANTIMICROBIAL ACTIVITY OF *OCIMUM AMERICANUM* L. ESSENTIAL OIL AGAINST ORAL MICROORGANISMS

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Abstract. The aim of the present study was to evaluate the efficacy of the essential oil of *Ocimum americanum* L. on *in vitro* activity against *Streptococcus mutans*, *Lactobacillus casei* and *Candida albicans*. An agar disk diffusion method was employed for screening antimicrobial activity. Minimum inhibitory concentration (MIC) and minimum cidal concentration (MCC) values of the oil against planktonic cells were determined using the Millipore membrane method. The antimicrobial potential of the essential oil was also investigated with a biofilm model. The results indicate that essential oil has antimicrobial activity against all tested microorganisms. The MIC values of the oil against the three organisms was 0.04% v/v whereas the MCC values for *S. mutans*, *L. casei* and *C. albicans* were 0.08%, 0.3% and 0.08% v/v, respectively. *S. mutans* and *C. albicans* were more sensitive to the essential oil than *L. casei*. With the biofilm assay, a 5-minute exposure to 3% v/v essential oil eliminated 3 log₁₀ of the tested microorganisms. At a lower concentration (0.3% v/v), a 2 log₁₀ reduction in *S. mutans* and *C. albicans* was observed while the lactobacilli were more resistant. This finding indicates the possibility of using the essential oil of *O. americanum* L. in oral health care products for reducing these pathogenic microorganisms in the oral cavity.

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