Anti-Bacterial Activity of Cinnamon Oil on Oral Pathogens

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The study aimed to determine the in-vitro anti-bacterial effect of cinnamon (Cinnamomum zeylanicum Blume) oil on pathogenic oral bacteria. Essential oil from cinnamon tree bark was extracted using steam distillation technique and analysed using gas chromatography (GC) and gas chromatography – mass spectrometry (GC-MS). Broth microdilution test was used to determine the Minimal Inhibitory Concentration (MIC) of oil against major oral pathogens in caries and periodontal diseases viz. Streptococcus mutans, S. mitis, S.salivarius, Enterococcus faecalis, Porphyromonas gingivalis and Fusobacterium nucleatum. Bacterial cell membrane modification following exposure to the oil was also observed using scanning electron microscopic (SEM). Through the GC/GC-MS analysis, Eugeno1 was identified as the major component of cinnamon oil (82.5% relative amount). Both, cinnamon oil and eugenol showed antibacterial activity against the tested bacteria (MIC 0.21 – 0.63 mg/mL and 0.8 – 0.15 mg/mL respectively). Membrane cell changes were observed following 2h exposure to the oil. This finding suggests cinnamon bark oil as a potential therapeutic agent in preventing bacterial-related oral diseases.

Keywords: Antibacterial, periodontal, Cinnamomum zeylanicum.