Evaluation of in-vitro antibacterial activity of cinnamomum zeylanicum extract on different microorganisms of the dental plaque

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Abstrak

The present study was conducted to evaluate the antibacterial activity of aqueous and ethanol extracts of Cinnamomum zeylanicum on different types of dental plaque microorganisms. Screening study was performed to detect the potential antibacterial activity agains S. aureus, E. coli, S. mutans, L. casei, B. fragilis, A. actinomycetemcomitans and dental plaque pool samples. From the screening test, values of Minimum Inhibitory Concentration (MIC) were determined. The lowest MIC value was 25 mg/ml of aqueous and 12.5 mg/ml of ethanol extract for S. aureus. The highest MIC values were seen in A. actinomycetemcomitans and dental plaque anaerobic pool samples with 300 mg/ml of aqueous extract and 150 mg/ml of ethanol extract. The MIC values for aqueous extracts ranged from 25 to 300 mg/ml whereas for ethanol extract it ranged from 12.5 to 150 mg/ml. The high concentration of ethanol extract, 100 mg/ml in the fixed plant concentration test, showed the strongest inhibition effect for all the organism tested. Generally, the ethanol extract of Cinnamomum zeylanicum demonstrated a stronger antibacterial activity compared to the aqueous extract. This study also compared the antibacterial activity of chlorhexidine with that of the plant extracts. Chlorhexidine showed a higher antibacterial effect on the microorganisms, with almost all organisms inhibited.