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The antibacterial activity of *Satureja hortensis* extract and essential oil against oral bacteria**Sana Dibazar and Leila Golpasand Hagh**

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Statement of the Problem: Recently, there has been an increasing growth in research on medical plant's effect on dental plaque bacteria.

Aim: The aim of this study was to determine the antibacterial effects of *Satureja hortensis* extract and its essential oil (EO) on *Streptococcus salivarius*, *Streptococcus sanguis* and *Streptococcus mutans* as important bacteria in early supragingival dental plaque formation.

Methodology & Theoretical Orientation: In this *in vitro* study, different concentrations of *S. hortensis* extract and its EO were prepared using double dilution method. The disc diffusion method was used to determine antibacterial activity. Based on these measurements, the minimal inhibitory concentration value was reported for each bacterium. Antibiotics used as positive controls in this study were erythromycin (15 µg) and tetracycline (30 µg). T-test and ANOVA were used for statistical analysis ($P < 0.05$).

Findings: Aqueous and methanolic extract did not show significant antibacterial activity, but the EO significantly inhibited the growth of the test bacteria compared to positive control ($P < 0.05$). For *S. mutans*, the inhibition effect of tetracycline 30 µg was similar with 50% ($P = 0.789$) and 25% ($P = 0.158$) dosages of the EO. For *S. salivarius*, the effect of tetracycline 30 µg was similar to 50% dosages of the EO ($P = 0.122$). For *S. sanguis*, the effect of erythromycin 15 µg was lower than 50% ($P = 0.0006$) and 25% ($P = 0.003$) dosages of the EO. The inhibition effects of all concentrations of EO were higher for *S. sanguis*, *S. salivarius* and *S. Sanguis* are more sensitive than *S. mutans* to *S. hortensis* EO. So, due to the strong antibacterial effect of *S. hortensis* EO on the oral bacteria growth, it can be served as herbal mouth rinse, while to confirm this antibacterial effect, further clinical studies are necessary.

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