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Title: In vitro comparison of antibacterial activity of Salvia leriifolia Benth essential oils on Streptococcus pyogenes, with Cetylpridinium and Tetracycline

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Abstract: Background and Objectives: There has been an increasing interest in plant essential oils during recent years because of the need of new therapies against microbes. Bacterial resistance is spreading throughout the world primarily due to excessive use of antibiotics and poor infection control practices in hospitals, making it one of our times biggest issues. On the other hand, artificial drugs such as mouthwashes, have unpleasant side effects and the number of drug resistant microorganisms is increasing. Finding plants that have antimicrobial effects and using them as mouthwashes, will be decrease the side effects and also they'll be more economical. In the present study, the antimicrobial property of essential oils of Salvia leriifolia Benth, (Lamiaceae), a native and pharmaceutical plant species of Khorasan province, against bacterial infection causes pharyngitis, was investigated.

Materials & Methods: Leaves of S. leriifolia were collected at full flowering stage and essential oils were obtained by steam distillation method. Effects of different concentrations of essential oils (50, 25, 12.5, 6.25 mg/ml) against Streptococcus pyogenes (PTCC:1447) were evaluated with agar disk diffusion and hole-plate diffusion methods. Cetylpridinium and tetracycline were used as positive controls while distilled water plus tween 80 was used as negative one. After 48h, the diameters of halos indicative of lack of growth were measured. Results were compared with cetylpridinium and tetracycline using JMP and MSTATC analyses.

Results: Results showed that there wasn't any significant difference (p<0.01) between two tested methods. Antibacterial effects of essential oils in in all concentrations were significantly higher than cetylpridinium while, tetracycline was more efficient than essential oils and cetylpridinium.

Conclusion: Therefore, the essential oils from S. leriifolia is a potent antimicrobial compound with appropriate effects on the bacterial infection causes pharyngitis. More studies are suggested for production of herbal mouthwashes.

Key words: Antibacterial effects, Cetylpridinium, Disk diffusion method, Essential oils, Hole-plate diffusion method, Pharyngitis, Salvia leriifolia Benth

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