

Formulation and Characterization of Antimicrobial Herbal Mouthwash from Some Herbal Extracts for Treatment of Periodontal Diseases

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Abstract : Purpose: The aim of the present work was to develop an oral gel for brushing with an antimicrobial activity which will cure/protect from various periodontal diseases such as periodontitis, gingivitis, and pyorrhea. Methods: Plant materials procured from local suppliers, extracted and standardized. Screening of antimicrobial activity was carried out with the help of disk diffusion method. The gel was formulated by dried extracts of *Beautea monosperma* and *Cordia obliquus*. Gels were evaluated on various parameters and standardization of the formulation was performed. The release of drugs was studied in pH 6.8 using a mastication device. Total phenolic and flavonoid contents were estimated by folin-Ciocalteu and aluminium chloride method, and stability studies were performed (40°C and RH 75% ± 5% for 90 days) to assess the effect of temperature and humidity on the concentration of phenolic and flavonoid contents. The results of accelerated stability conditions were compared with that of samples kept at controlled conditions (RT). The control samples were kept at room temperature (25°C, 35% RH for 180 days). Results: Results are encouraging; extracts possess significant antimicrobial activity at very low concentration (15µg/disc, 20µg/disc and 15 µg/ disc) on oral pathogenic bacteria. The formulation has optimal characteristics, as well as has a pleasant appearance, fragrance, texture, and taste, is highly acceptable by the volunteers. The diffusion coefficient values ranged from 0.6655 to 0.9164. Since the R values of korsmayer papas were close to 1, Drug release from formulation follows matrix diffusion kinetics. Hence, diffusion was the mechanism of the drug release. Formulation follows non-Fickian transport mechanism. Most Formulations released 50 % of their contents within 25-30 minutes. Results obtained from the accelerated stability studies are indicative of a slight reduction in flavonoids and phenolic contents with time on long time storage. When measured degradation under ambient conditions, degradation was significantly lower than in accelerated stability study. Conclusion: Plant extracts possess compounds with antimicrobial properties can be used as. Developed formulation will cure/protect from various periodontal diseases. Further development and evaluations oral gel including the isolated compounds on the commercial scale and their clinical and toxicological studies are the future challenges.

Keywords : herbal gel, dental care, ambient conditions, commercial scale

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