Formulation and Characterization of antimicrobial oral gel from some herbal extracts for treatment of periodontal diseases.

R. Yadav [1], A. Asthana [2], S. Yadav [1]
[1] IES College of Pharmacy, [2] Maharishi Markandeshwar University

Purpose

The aim of the present work was to develop a oral gel for brushing with 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. gel was formulated by Dried Extracts of Beautea monosperma, and Cordia obliqua. gels evaluated on various parameters and Standardization of the formulation was performed. 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 (40oC 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 (25oC, 35% RH for 180 days.

Results

Results are encouraging, extracts possess significant antimicrobial activity at very low concentration (15µg/disc, 20µg/disc and 15µg/disc) on oral pathogenic bacteria. Formulation has optimal charectristics as well as has 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 commercial scale and their clinical and toxicological studies are the future challenges





