

Formulation and evaluation of medicated chewing gum of nicotine tartrate

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Background and Aims: Cigarette smoking is the leading avoidable reason of death in the world and kills almost four million people yearly. Nicotine gum is an established dosage form for smoking cessation. However, formulation limitations, specifically its slow rate of nicotine delivery and thus slow onset of therapeutic effects may decrease the performance of nicotine gums. Also, the reputation of undesirable taste may keep some smokers from trying the nicotine chewing gum, and then improving taste of nicotine gum increases its efficiency. The present study was performed to introduce a formulation for nicotine gum with a desirable taste and quality.

Methods: Different formulations of nicotine gum were prepared and the effect of aspartame, stevia, liquorice, sodium saccharine, zinc acetate, sodium acetate, sodium chloride and various flavors were considered on masking the bitter taste of nicotine. Produced gums were given to some smokers and they were asked about organoleptic characteristics such as taste, chewing hardness, adhering to teeth and plumpness. The profile of drug dissolution was evaluated by a mastication instrument. Also, content uniformity test on gums was done.

Results: Aspartame and flavoring of cherry and eucalyptus had the most effect on masking the bitter taste of nicotine. During 20 minutes, 83% and 79% of nicotine was released from 2 and 4 mg gum, respectively. Nicotine content of each of 2 and 4 mg gum was in pharmaceutical range.

Conclusions: Results of this study showed that gum can be a good carrier for nicotine. Prepared chewing gums had suitable organoleptic and invitro characteristics.

Keywords: Nicotine chewing gum; Nicotine replacement; Smoking cessation; Nicotine addiction