

A study on taste evaluation and prediction of dimenhydrinate direct compressible chewing gum

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Background and Aims: Medicated chewing gums are one of the best dosage forms that not only have a fast onset of action, but also can be taken with the least difficulty (without water). The goal of this study is to formulate Dimenhydrinate medicated chewing gum with an acceptable taste attribute.

Methods: Different amounts of Eudragit® EPO (1%-16%) were used to mask the drug's taste using two techniques: wet granulation and particle coating using bottom spray Fluid Bed Coater (FBC). In some formulations methyl salicylate was added as a taste suppressing agent. Taste masked particles of dimenhydrinate were then incorporated into the directly compressible gum base (HIG PWD-01, CAFOSA GUM S.A.U, Spain) and then compressed using single punch compression machine. Initial screenings for taste masking efficiency evaluation were performed by testing chosen formulations on 10 healthy volunteers aged 23-29 using facial hedonic scale based questionnaires. In these studies, bitterness, ease of chewing and aftertaste were investigated.

Results: According to the questionnaires, the higher amounts of Eudragit® EPO lead to better taste masking properties. However the dissolution studies revealed that, as Eudragit® percentage increases not only an undesirably sustain in drug dissolution rate occurred, but also it resulted in unfavourable chewability properties. Thus the optimized formulation from granulation method was the one using 8% of Eudragit® with the assistance of a taste suppressing agent, methyl salicylate.

Conclusions: Volunteer based evaluations showed that although taste masking efficacy of both particle coating and wet granulation method may be the same, the same results were achieved with significantly lower amounts of Eudragit® EPO (less than 1%) in the FBC particle coating method, Thus by taking an economic viewpoint, is more acceptable than granulation method.

Keywords: Dimenhydrinate; Chewing gum; Direct compressible