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Formulation and evaluation of domperidone fast disintegrating tablets and its taste masking using solid dispersion technology

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Background and Aims: Domperidone, an antiemetic drug, has been used as an add-on treatment in adults and children. As precision of dosing and patient's compliance becomes an important prerequisite for quick relief from emesis, there is a need to develop a formulation for this drug which overcomes problems such as difficulty in swallowing, inconvenience in administration while traveling and better compliance. Hence the present study was carried out to formulate fast disintegrating tablets of domperidone and to mask the bitter taste of fast disintegrating tablet by solid dispersion.
Methods: In this study, the fast disintegrating tablets were prepared using various superdisintegrants like sodium crosscarmellose,sodium starch glycolate,cross povidone and various filler like mannitol,Avicel PH 102,lactose by direct compression.Taste masking was done via solid dispersion technique using polyethylenglycol 4000 and polyvinylpyrrolidone K-30 in different rates to find the optimized one. Then, all of the resulting formulations were evaluated for characteristics such as hardness, friability, disintegration time, Dissolution rate in HCl(0.1N) and for in vivo taste.
Results: An effective formulation was found to have a good hardness of 3 kg, with disintegration time of 10seconds. It also showed 100% release within 25 minutes for tablets containing crosspovidone, Avicel PH102, mannitol and hence considered superior as compared to other superdisintegrants and fillers. Domperidone solid dispersions with polyvinylpyrrolidone K-30 in 1:1 ratios of drug: carrier showed maximum drug release compared to polyethyleneglycol 4000 in1:1 ratios of drug: carrier. The taste evaluation of the tablets containing drug and polyvinylpyrrolydone K-30 in 1:4 ratio in human volunteers revealed a considerable taste masking.
Conclusions: Our results demonstrated successful masking of taste and rapid disintegration of the formulated tablets in the oral cavity.

Keywords: Fast disintegrating tablets; Solid dispersion; Taste masking; Domperidone; Superdisintegrants