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Formulation and In Vitro, In Vivo Evaluation Fast Disintegrating Tablets of Donepezil HCL

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Abstract: *Donepezil hydrochloride has analgesic, anti-inflammatory, and antipyretic properties. The mechanism of action of VIOXX, like that of other NSAIDs, is not completely understood, but involves inhibition of cyclooxygenase (COX-1 and COX-2). At therapeutic concentrations in humans, VIOXX does not inhibit the cyclooxygenase-1 (COX-1) isoenzyme. Donepezil hydrochloride is a potent inhibitor of prostaglandin synthesis in vitro. In this present research work, an attempt was made to develop solid dispersions for the enhancement of solubility, dissolution and bioavailability of Donepezil Hcl and also to find the effect of natural super disintegrants in the development of fast disintegrating tablets. Solid dispersions were prepared by solvent evaporation method using PEG 6000 as carrier in different ratios. The optimized solid dispersions were utilized in the formulation of fast disintegrating tablets using different natural super disintegrants in different concentrations. The prepared tablets were evaluated and subjected to in vitro dissolution studies to select the best formulation. All the formulations showed fast disintegrating action. Among all the formulations dehydrated banana powder containing formulations* ***FF5 (96.72)*** *and* ***FF6 (99.27)*** *showed better release rate of Donepezil Hcl from the dosage form. Thus, dehydrated banana powder can be utilized as better regular super disintegrant in the advancement of quickly breaking down tablets when compared to orange peel pectin and mango peel pectin.Finally, the optimized formulations were subjected to pharmacokinetic studies in rabbits. The solid dispersion reached peak concentration (C_{max}) 11445.46 ng/ml at T_{max} of 2 h while it was observed to be 9140.84 ng/ml at T_{max} of 3 h in case of control tablet, indicating that enhancement of absorption in solid dispersion pattern of Donepezil Hcl than pure form. The AUC of control and FF6 tablets of Donepezil Hcl were 31495.16 and 43126.52 ng-h/ml correspondingly. These resultsindicated that the FF6 tablet showed enhancement of AUC when compared to control tablet of Donepezil Hcl.*

Keywords: Brand Management Strategy, Brand Image

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