Sublingual Tablets; A Promising Approach for Domperidone Delivery

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Abstract:

The aim of this study was to improve the bioavailability of water-insoluble, anti-emetic drug; domperidone (DMP) which has a poor oral bioavailability (13-17%) due to its extensive first pass metabolism. Solid dispersions of DMP with pluronic F-68 were prepared at different weight ratios by fusion method and they were tested for their in-vitro dissolution rate to select the best ratio for tablet formulation. Then, the selected solid dispersions were incorporated into sublingual tablets together with different water-soluble excipients. Sublingual tablets were prepared by direct compression technique and they were evaluated for their physical properties and in-vitro dissolution rate. Sublingual tablets formulae S4 (containing fructose and 10% w/w Ac-Di-Sol) and S8 (containing fructose and 10% w/w Explotab) showed the best results and thus; they were selected for in-vivo studies in rabbits in comparison with the commercially-available oral tablets; Motinorm®. The selected formulae showed marked enhancement of DMP bioavailability compared with the marketed oral tablets, with relative bioavailability values of 432.49 ±10.13% and 409.32 ±11.59 % for S4 and S8, respectively. The results confirmed that sublingual tablets were promising tool for DMP delivery with marked enhancement of bioavailability.

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