FORMULATION AND EVALUATION OF GASTRO RETENTIVE DRUG DELIVERY SYSTEM OF NOSCAPINE

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Abstract:

Noscapine belongs to the class of anti-tussive agents and is used to treat patients suffering from cough. The bioavailability of Noscapine following oral administration is very low nearly 30%. Noscapine is absorbed rapidly on oral administration. The lactone ring of Noscapine opens in basic media and also undergoes first pass metabolism. Therefore, gastro retentive drug delivery system ie., floating tablets are designed so as to retain in the acidic media where its solubility is more and also helps to minimize first pass effect leading to increased bioavailability of Noscapine.

Gastro retentive floating tablets of Noscapine were successfully prepared with polymers like HPMC K4M, HPMCK100M and Hydroxy ethyl cellulose. FTIR studies have shown that there is no incompatibility between the polymers and excipients selected. Noscapine floating tablets were prepared by direct compression method and are evaluated for various parameters like weight variation, hardness, thickness, friability, swelling index, Buoyancy lag time, floating duration and *in-vitro* dissolution studies. The buoyancy lag time of all the formulations were in the range of 35 sec to 1.33 mins and exhibited good swelling properties over a period of time. From the *in-vitro* dissolution analysis it was found that the batches containing HPMC K4M and K100M showed greater release than the batches with polymer HEC. It was observed that the increasing concentration of polymers had a retarding effect on the drug release from the polymer matrices. Based on these evaluation results it was concluded that formulation F_2 is the best formulation among all the developed formulations fulfilling the objective of the study.

Keywords: Gastro retentive drug delivery system, Floating tablets, Noscapine, Bioavailability, First pass effect.