

Formulation and Evaluation of Gastro-retentive Floating Drug Delivery System of an Anti-psychotic agent

Submitted By
Patel Dhavalkumar S.

Supervised By
Mrs. Akanksha Tiwari
M.pharm
Associate Professor

Parul Institute of Pharmacy & Research
Limda, Vadodara

Abstract

In the present study, an attempt was made to develop floating beads of Ziprasidone hydrochloride by simple ionotropic gelation method intended for treatment of Schizophrenia. Sodium alginate was used as matrix forming polymer, NaHCO₃ was used as floating agent and Glacial acetic acid was used as cross linking agent. Drug loaded floating beads were subjected to various characterizations like Size measurement, flow properties study, % drug entrapment, floating study, swelling study and dissolution study. Formulation containing 250mg sodium alginate and 250 mg pectin: and formulation containing 500 mg sodium alginate and 150 mg HPMC K100 M were optimized by 3² factorial design and response surface modelling. An optimized formulation of sodium alginate-pectin beads and sodium alginate-HPMC K100 M beads showed lag time of 10sec and 36sec in 0.1 N HCl respectively. Drug release was found to be 88.78% and 95.40% in 8 hours respectively. Stability studies of an optimized batch showed no significant change in drug entrapment efficiency, floating time, swelling index as well as drug release behaviour after storage at 40 ±2⁰C and 75±5% RH for one month. Hence, it can be concluded that floating beads loaded with Ziprasidone hydrochloride prepared using sodium alginate could prove to be a promising gastro-retentive drug delivery system for treatment of schizophrenia.

Key words: Floating beads, Ionotropic gelation, Ziprasidone HCL, Gastro-retentive drug delivery system, Schizophrenia.