

FORMULATION AND EVALUATION OF TIME DEPENDENT PULSATILE  
DRUG DELIVERY SYSTEM FOR TREATMENT OF ASTHMA

Submitted By

Mehta Vishal J.

Supervised By

Mr. Nishit A. Gohel

Assistant Professor

Parul Institute of Pharmacy & Research  
Limda

Abstract

**Objective:** To formulate and evaluate time dependent pulsatile drug delivery system of Montelukast sodium to deliver the drug with biological rhythm of asthma after predetermined lag time 6hours.

**Experimental work:** The core tablet of Montelukast sodium was prepared using wet granulation containing Na CMC, Carbopol 934. Eudragit S100 was used as pH dependent for coating the core tablets. Total 9 batches were formulated as per  $3^2$  full factorial design applied to check the effect of polymer (Na CMC, Carbopol934) and level of Eudragit S100 coating on dependent variable lag time of rupture of PRTs. These formulations were evaluated for physical parameters of tablet, drug-excipient compatibility study, lag time of rupture of PRTs and *in-vitro* drug release study.

**Result and Discussion:** The optimize formulation F7 (Na CMC 30mg & Carbopol 934 10mg in 6% Coating solution) provide lag time of rupture of PRTs was 6:10hr and release the drug after rupture of outer coat. Stability study of the optimized formulation indicates no significant differences in release profile and drug content after a period of one month.

**Conclusion:** Pulsatile drug delivery system of Montelukast Sodium formulated using Carbopol 934 as swelling polymer and Na.CMC as disintegrate. Formulation F7 can provide site specific delivery with zero-order release kinetics.

**Key words:** Montelukast sodium, lag time, Na.CMC, Carbopol 934, Eudragit S100.