ABSTRACT

Lornoxicam, a potent non-steroidal anti-inflammatory drug which has short half life, makes the development of sustained release (SR) forms extremely advantageous. However, due to its weak acidic nature, its release from SR delivery systems is limited to the lower gastrointestinal tract which consequently leads to a delayed onset of its analgesic action. Therefore, the present investigation of this study was to develop Lornoxicam SR matrix tablets that provide complete drug release that starts in the stomach to rapidly alleviate the painful symptoms and continues in the intestine to maintain analgesic effect. Lornoxicam showed maximum absorption at wavelength 373 nm in 0.1N HCl and 379 nm in pH 6.8. Drug-polymer compatibility studies by FTIR gave confirmation about their purity and showed no interaction between drug and selected polymers. Various formulations were developed by using release rate controlling and gel forming polymers like HPMC (K4M, K15M, K100M) by direct compression method. From among all the developed formulations, F1 formulation sustained the drug release for longer period of time as compared to other formulations. So, F1 was selected as the best formulation. It was concluded that the release followed zero order kinetics, as the correlation coefficient (R^2 value) was higher for zero order release, so the drug release mechanism is controlled release. The best formulation was found to be stable during stability studies for two months. Thus, best formulation satisfied physicochemical parameters and *in vitro* drug release profile requirements for a sustained drug delivery system.

Keywords: Lornoxicam, Sustained release drug delivery system, Matrix tablets, HPMC