Abstract:

Glipizide is one of the drugs, which is used for the management of type-2 diabetes. Moreover, the site of absorption of glipizide is in the stomach and has a short half life 3.3 h. Therefore, the present investigation was concerned with the development of the floating matrix tablets, which after oral administration were designed to prolong the gastric residence time and thus, to improve the bioavailability of the drug as well as its half life. Glipizide showed maximum absorption at wavelength 276 nm in 0.1N HCl. Drug-polymer compatibility studies by FTIR gave conformation 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) in single by direct compression method with the incorporation of sodium bicarbonate as gas generating agent. All the formulations had floating lag time below 37 seconds and constantly floated on dissolution medium for more than 12 h. Swelling studies indicated significant water uptake and contributed in drug release. From among all the developed formulations, formulation F2 prolonged the drug release for longer period of time and it had minimum floating lag time as compare to other formulation. So, it was selected as the best formulation. It was concluded that the release followed zero order kinetics, as the correlation coefficient (R2 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, floating properties, swelling index and *in vitro* drug release profile requirements for a floating drug delivery system.

**Key words:** Glipizide; floating drug delivery system; floating matrix tablet; HPMC