Chapter 7

Conclusion

7. Conclusion

7.1 Formulation and evaluation of Mucoadhesive Gastroretentive tablets of Cefpodoxime Proxetil

In conclusion, on the basis of the in vitro drug release studies, it may be concluded that formulation KS7 is most stable. The Mucoadhesive tablets were maintained at 40 °C / 75 % relative humidity in closed high-density polyethylene bottles for 3 months. There were no changes in the physicochemical parameters and drug content of in the formulation KS7. It may possibly concluded that increasing percentage of polymer in formulation the decreased drug release pattern, which was dependent on type of polymer used in the formulation. The observed independent variables were found to be very close to predicted values of most satisfactory formulation which demonstrates the feasibility of the optimization procedure in successful development of Cefpodoxime Proxetil for mucoadhesive tablets containing Sodium alginate with HPMC K100 LV (KS7) which showed controlled drug release up to 12 h and may possibly be a better delivery system for drug like Cefpodoxime Proxetil.

7.2. Formulation and evaluation of Floating Gastroretentive tablets of Cefpodoxime Proxetil

In conclusion, the tablets containing HPMC K4M with HPMC K100 LV (H9) had a short buoyancy lag time, a total floating time of more than 10 h and sustained release up to 12 h. Optimized formulation H9 was stable at 40 °C / 75 % relative humidity for 3 months. This novel gastro retentive dosage form could be fascinating for enhancement of bioavailability and the stomach specific delivery of Cefpodoxime Proxetil. From the above study it could be concluded that floating gastroretentive drug delivery system is most stable system.

The system with Xanthan gum with HPMC K100LV cannot deliver the drug over a prolonged period because of its slower swelling and thick gel formation of the polymers, resulting in a lack of hydrogel formation. These polymers were thus found to be unsuitable for Cefpodoxime Proxetil tablets. HBS may be a better delivery system for drugs like Cefpodoxime Proxetil! The observed independent variables were found to be very close to predicted values of most satisfactory formulation which demonstrates the feasibility of the optimization procedure in successful development of Cefpodoxime Proxetil tablets.
7.3. Formulation and evaluation of Mucoadhesive Gastroretentive tablets of Lafutidine

In conclusion, Lafutidine gastroretentive tablet is developed using naturally occurring plant based polymers showed desirable drug content, mucoadhesive strength, swelling index and release characteristics. Lafutidine mucoadhesive tablets (B3) containing Xanthan gum were selected for stability study on the basis of mucoadhesive properties and In vitro drug released studies. The gastroretentive tablets of Lafutidine were stored at 40°C/75 % RH in closed high-density polyethylene bottles for 3 months showed pleasing results at 40 °C / 75 % RH with total mucoadhesion time was more than 10 h and controlled drug released up to 12 h. The gastroretentive tablets did not showed any significant changes in physicochemical parameters and drug contents. The use of natural gum in pharmaceutical dosage forms is of increasing interest due of their low production cost, lesser toxic effects and regulatory acceptance. Formulation with Xanthan gum showed stronger mucoadhesion than formulation containing Sodium alginate and Karaya gum this may be due to capability of Sodium alginate and Karaya gum to form mucoadhesion bond with mucin and construal of polymer chain in the interfacial region.

The observed independent variables were found to be very close to predicted values of most satisfactory formulation which demonstrates the feasibility of the optimization procedure in successful development of Lafutidine mucoadhesive tablets.

7.4. Formulation and evaluation of Floating Gastroretentive tablets of Lafutidine

In conclusion, from the results of the study, it is evident that the gastroretentive floating tablets prepared from HPMC K4M with the gas generating agent sodium bicarbonate was crucial to achieve in vitro buoyancy also addition of citric acid to achieve buoyancy under elevated pH of the stomach, caused an enhancement of drug release. The gastroretentive floating tablets of Lafutidine were formulated by using gelling polymer HPMC K4M, which showed pleasing results with short buoyancy lag time, total buoyancy time more than 10 h controlled drug released up to 12 h comparing with HPMC K15M and Carbopol 71G.

On the whole, this concluded that viscosity of polymer is a key factor affecting the release and floating properties of drug and this would be a feasible alternative to conventional oral dosage form of Lafutidine in order to retain the drug at the site of...
absorption and to increases the bioavailability of the drug there by reducing the dose or dosing interval. Thus, it was found that the gastroretentive floating tablets of Lafutidine (HF3) were stable at 40°C/75% RH for a period of 3 months results were found satisfactory. Percentage cumulative released of Lafutidine floating tablets comprising of Carbopol 71G of polymers dominates over water sorption after 6h. Hence, the reduction in tablet weight occurs after 7 h because of erosion of matrix. In case of increasing concentrations of Carbopol (CF3) showed an increase in swelling, but not to the extent of HPMC (HF3). The formulation CF3 containing HPMC K4M showed less swelling index at the beginning, but was found higher at the end of 7 h also maintains their matrix integrity upto 6-7 h. The swelling index of Lafutidine floating tablets of formulations HF3 was 140 ± 2-1% and CF3 was 115 ± 2.1% at the end of 7 h.