Conclusions

Famotidine is a competitive inhibitor of histamine H₂ receptors used in the treatment of gastric and duodenal ulcers. It was reported that this drug absorbed only in stomach and its biological half-life is 3.5 to 4.5 hours with a bio-availability of 40 to 45%. Hence, to increase the drug concentration at the gastric mucosa over an extended period of time, famotidine was formulated into a Floating drug delivery system. Floating dosage form helps in better absorption of drug by releasing the drug before it reaches the site of absorption and prevents the degradation of famotidine in colon.

In the present study, an attempt was made to develop multi-particulate oil entrapped floating drug delivery system which can deliver the drug for more than 18 hrs. From this study it can be reasonably concluded that famotidine can be formulated into floating beads to prolong its release characteristics.

The result of this study indicates that the floating beads of famotidine prepared with different blends of polymer and have different floating agent was promising in its in-vitro release characteristics. Among the different batches of beads formed formulation F₁ shows best in vitro dissolution characteristics and promising pharmacokinetic characteristic and thus hold potential for sustained drug delivery system. As far as mechanism of dissolution is concern the good fit of the Higuchi model to the dissolution profiles of optimized formulations suggested that diffusion is the predominant mechanism. Stability studies reveal that the storage conditions had not significantly influenced the characteristic of optimized formulation I.R spectroscopy shows that there was no incompatibility between drug, polymers and exipients.

Study performed on different oils of different densities indicate the fact that oil with lower relative densities a very small amount of oil was required to keep the beads afloat, and if we use the oil of high density then more amount of oil is required for beads to float. So density of oil plays an important role in floating characteristics. The beads prepared from calcium, barium, & lead ions as curing agent were found to be more acceptable in terms of shape, wall strength and formation. As no fraction was observed in these preparations and they are also having uniform in shape & size. highest amount of drug entrapment was seen in beads formed by CaCl₂ as curing agent in comparison to other curing agent.it has also been observed that as we make
the difference in concentration between polymer and CaCl$_2$ the entrapment efficiency also decrease.

As far as comparative study of capsule filled floating beads and pure drug is concern, pure drug capsule dissolves almost completely in early 2.5 hrs. And capsules filled with floating beads dissolves only 75% in 12 hrs of study suggesting that oil entrapped alginate pactinate gel beads were promising as a carrier for intragastric floating drug delivery.

The techniques employed were practically simple economic and can commercially exploited. From the present study we can conclude that this H$_2$ antihistaminic drug Famotidine could be successfully formulated as floating beads.