OBJECTIVE OF PRESENT INVESTIGATION:

- Ranitidine hydrochloride is a histamine H2-receptor antagonist. It is widely prescribed in active duodenal ulcers, gastric ulcers, Zollinger-Ellison syndrome, gastroesophageal reflux disease, and erosive esophagitis. The recommended adult oral dosage of ranitidine is 150 mg twice daily or 300 mg once daily. The effective treatment of erosive esophagitis requires administration of 150 mg of ranitidine 4 times a day.\(^1\) A conventional dose of 150 mg can inhibit gastric acid secretion up to 5 hours but not up to 10 hours. An alternative dose of 300 mg leads to plasma fluctuations; thus a sustained release dosage form of ranitidine hydrochloride is desirable.\(^2\) The short biological half-life of drug (~2.5-3 hours) also favors development of a sustained release formulation. A traditional oral sustained release formulation releases most of the drug at the colon, thus the drug should have absorption window either in the colon or throughout the gastrointestinal tract. Ranitidine is absorbed only in the initial part of the small intestine and has 50% absolute bioavailability.\(^3,4\) Moreover, colonic metabolism of ranitidine is partly responsible for the poor bioavailability of ranitidine from the colon.\(^5\) These properties of ranitidine hydrochloride do not favor the traditional approach to sustained release delivery. The floating or hydro dynamically controlled drug-delivery systems are useful to increase the retention time of the drug-delivery systems for more than 12 h. Unfortunately floating devices administered in a single unit form (such as hydrodynamically balanced system)are unreliable in prolonging the GRT owing to their “all-or-nothing” emptying process and thus they may causes high variability in bioavailability and local irritation due to large amount of drug delivered at a particular site of the GIT. Glipizide is a second-generation sulfonylurea having short biological half-life (3.4 ± 0.7 hours). Moreover, the site of absorption of glipizide is in the stomach\(^2\)

- Therefore, the gastro retentive drug delivery of ranitidine and glipizide can be retained in the stomach and assist in improving the oral sustained delivery of drugs that have an absorption window in a particular region of the gastrointestinal tract. These systems help in continuously releasing the drug before it reaches the absorption window, thus ensuring optimal bioavailability. It is also reported that oral treatment of gastric disorders with an H\(_2\)-receptor antagonist like ranitidine or famotidine used in combination with antacids promotes local delivery of these drugs to the receptor of the parietal cell wall. Local delivery also increases the stomach wall receptor site bioavailability and increases the efficacy of drugs to reduce
acid secretion. This principle may be applied for improving systemic as well as local delivery of ranitidine hydrochloride, which would efficiently reduce gastric acid secretion. Percentage buoyancy, Incorporation efficiency, Production yield and Micromeritic properties. is better in Floating dosageform of Glipizide.