Formulation and Evaluation of Isabgol and Liquorice-Based Nutraceuticals Floating Tablets for Management of Gastric Ulcer

Ritesh Kumar Tiwari[*, 1], **Lalit Singh**[1], **Shashi Verma**[1], **Vijay Sharma**[2]

[1] Department of Pharmaceutics, Shri Ram Murti Smarak College of Engineering Technology, Pharmacy, Bareilly, India;

[2] Pharmacy Academy, IFTM University, Moradabad, India

Article Information

Identifiers and Pagination:

Year: 2021
Volume: 2
Issue: 1
First Page: 56
Last Page: 61
Publisher ID: CNT-2-56
DOI: 10.2174/2665978601999200930143521
Article History:
Received Date: 24/03/2020
Revision Received Date: 09/08/2020
Acceptance Date: 10/08/2020
Electronic publication date: 2021

[*] Address correspondence to this author at the Department of Pharmaceutics, Faculty of Shri Ram Murti Smarak College of Engineering and Technology, Pharmacy, Bareilly, P.O. Box 243202, Bareilly, India; Tel/Fax: +91 9453198563; Email: riteshkmr19@gmail.com

***Background*:** Floating tablets extend drug residence time, enhance bioavailability and promote the delivery of local drugs to the stomach. With this objective, floating tablets were prepared for the treatment of gastric ulcers containing aqueous extract of liquorice and Isabgol.

***Methods*:** Tablets containing HPMC K100M (hydrophilic polymer), liquorice extract, sodium bicarbonate (gas generating agent), talc, and magnesium stearate were prepared using direct compression method. Physical parameters of formulations such as diameter, thickness, hardness, friability, weight uniformity, drug content, buoyancy time, dissolution, and the mechanism for drug release, were assessed. The formulations have been optimized based on buoyancy time and in- vitro drug release.

***Results*:** The diameter of all formulations was in the range 11.310-11.833 mm; thickness was in the range 4.02-4.071 mm. The hardness ranged from 3.1 to 3.4 kg/cm. All the formulations passed the USP requirements for friability and uniformity of weight. All tablet formulations had a buoyancy period of less than 5 min and throughout the research, the tablet stayed in floating condition. All tablet formulations were accompanied in drug discharge by zero-order kinetics and Korsmeyer-Peppas model.

***Conclusion*:** It was discovered that the optimized formulation was F7, which released 98.5 percent of the drug in 8 hr. *in-vitro*, while the buoyancy time was 3.5 min. For gastroretentive drug delivery systems, formulations containing Isabgol, sodium bicarbonate and HPMC K100 M in combination may be promising.

Keywords: Nutraceutical, floating tablets, isabgol, liquorice extract, gastric ulcer, floating drug delivery system.