REVIEW ARTICLE

MICROBALLOONS: A PROMISING APPROACH FOR GASTRORETENTIVE DRUG DELIVERY SYSTEM AND THEIR ADVANTAGES, LIMITATIONS, RECENT ADVANCEMENT IN DRUG DELIVERY SYSTEM, PATENTS AND FUTURE ASPECTS

Prashant Kumar[a]*, Sumel Ashique[b], Sugandha Varshney[c], Surya Nath Pandey[a], Anjali Jain[a] and Anurag Verma[a]

(Received 31 October 2021) (Accepted 28 February 2024)

ABSTRACT

The key objective of the present review was to collect the latest literature on technological advancements towards microballoons as novelistic buoyant drug delivery systems. Microballoons are hollow microspheres with a potential approach for gastric retention, offering controlled release of the drugs. It offers prominent targeting of drugs in the stomach. More significantly, it is an anticipated drug delivery system in the gastrointestinal tract's upper section. At a high pH environment, this drug delivery system improves the solubility of less soluble drugs. It is an innovative and authenticated drug delivery system, specifically for those drugs which are unable to tolerate the acidic pH. The microballoons are developed by several techniques like Solvent Evaporation, Solvent Diffusion-Evaporation, Solvent Diffusion and Spray Drying techniques, to develop the space of empty inner core. Moreover, this manuscript covers significance, limitations, applications, list of polymers used, characterization, formulation design and evaluation parameters of microballoons.