

Formulation and Preparation of Metronidazole Floating Drug Delivery System [FDDS] for Peptic Ulcer

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Abstract: Gastric fluids, allowing it to remain buoyant in the stomach for a prolonged period. This system is used to: Prolong gastric residence time (GRT) to improve drug absorption, especially for drugs that are absorbed in the upper part of the gastrointestinal tract. Provide a slow, continuous release of the drug at a desired rate. Better control fluctuations in plasma drug concentrations.

These systems work by using effervescent reactions or low-density materials to remain buoyant in the stomach without affecting the normal gastric emptying rate.

A floating drug delivery system (FDDS) is a type of gastroretentive drug delivery system designed to have a bulk density lower than

While floating, the system slowly releases the drug at a controlled rate, which enhances the drug's bioavailability and therapeutic effect by increasing the time it stays in the upper gastrointestinal tract. FDDS have a lower density than gastric fluids ($\sim 1.004 \text{ g/cm}^3$), so they float on the stomach contents.

While floating, the drug is released slowly, and the system gradually empties from the stomach once the release is complete. The development of Floating Drug Delivery Systems (FDDS) represents a promising approach to achieve prolonged gastric retention and controlled drug release..

Keywords: Floating Drug Delivery System (FDDS), Gastric residence time (GRT), Buoyancy, Upper gastrointestinal tract, Drug absorption

