

Gastroretentive Drug Delivery System GRDDS

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Abstract: *The oral route is considered the most convenient method of drug delivery because of its high patient compliance, reliability, ease of administration, and formulation flexibility. Gastro-retentive drug delivery systems (GRDDS) offer several advantages, including prolonged gastric residence time, improved bioavailability, reduced drug wastage, and enhanced solubility for drugs that are poorly soluble in high pH environments. Another key feature of gastro-retentive systems is their ability to facilitate localized drug delivery to the stomach and proximal small intestine. This technology represents an innovative approach for drugs with a narrow absorption window in the gastrointestinal tract. GRDDS are specifically designed to remain in the stomach for an extended period, allowing controlled and sustained drug release to the upper gastrointestinal tract. Over the past few decades, growing interest in this system has been driven by its potential to improve solubility, enhance bioavailability, and achieve site-specific drug release—ultimately leading to better therapeutic outcomes. Given its reliability and effectiveness, gastro-retentive drug delivery holds significant promise for future pharmaceutical applications.*

Keywords: Gastro-retentive drug delivery, Solubility, Gastric residence, Bioavailability

