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**A Study of Drug Delivery Systems for The Management of Gastroesophageal
Reflux Disease (GERD)**

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ABSTRACT

Gastroesophageal Reflux Disease (GERD) is a chronic gastrointestinal disorder characterized by the backward flow of stomach contents into the esophagus, resulting in symptoms such as heartburn, acid regurgitation, chest discomfort, and, in severe cases, esophageal inflammation and ulceration. Effective management of GERD depends not only on the selection of appropriate therapeutic agents but also on the efficiency of the drug delivery system employed. Conventional oral dosage forms, including tablets and capsules, are widely used; however, they often exhibit limited gastric residence time, variable drug absorption, and the need for frequent dosing. To overcome these limitations, advanced drug delivery systems have been developed to improve therapeutic efficacy and patient compliance. These include gastroretentive drug delivery systems, floating tablets, mucoadhesive formulations, raft-forming systems, and controlled-release dosage forms that prolong gastric retention and maintain sustained drug release. Such systems enhance the local availability of proton pump inhibitors (PPIs), H₂-receptor antagonists, and antacids, ensuring prolonged acid suppression and better symptom control. Nanotechnology-based carriers, liposomes, microspheres, and polymeric nanoparticles are also being investigated for targeted and sustained drug delivery to improve bioavailability while minimizing systemic side effects.