FORMULATION AND DEVELOPMENT OF BIOADHESIVE PELLETS FOR MANAGEMENT OF *HELICOBACTER PYLORI* INFECTION

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ABSTRACT

Helicobacter pylori, a gram-negative bacterium, is a group I carcinogen which is responsible for duodenal ulcer, gastric ulcer, and gastric cancer. The existing treatment is based on the use of proton pump inhibitors, but is inadequate owing to factors such as low concentration of drug reaching the target site, short residence time, and resistance to activity. Intending to mitigate these limitations, bioadhesive pellets of tinidazole and pantoprazole sodium sesquihydrate for the management of *H. pylori* infection were developed. Tinidazole-loaded pellets will act on gastric mucosa and pantoprazole-loaded pellets will release the drug in the intestine. Readily dispersible bioadhesive pellets were formulated by extrusion spheronization using Noveon® AA and hydroxypropyl methyl cellulose (HPMC) as the matrix-forming polymers and microcrystalline cellulose as the core-forming agent. The size of placebo pellets was 1.192±0.017mm. Pantoprazole pellets were coated with Eudragit® S100 to achieve sustained drug release in the intestine. *In vitro* release studies of pellets showed that 98.331±0.456% and 99.438±0.465% of tinidazole and pantoprazole, respectively were released by the end of 8 h. *Ex vivo* mucoadhesion study on the gastric mucosa of goat demonstrated a mucoadhesive force of 2.3544±0.02 N. The study thus indicates that the developed formulation sustains the release of tinidazole as well as pantoprazole sodium and could prove to be efficacious and promising for *H. pylori* eradication at lower doses, reduced adverse effects, and enhanced bioavailability.