

## **ABSTRACT**

**Objective:** The objective of the present study is to develop colon targeted drug delivery system for Ivermectin using guar gum as a carrier in the treatment of Helminthiasis.

**Method:** Matrix tablets containing various proportions of guar gum were prepared by wet granulation technique using starch paste as a binder. The idea was that the enteric coating would prevent drug release and absorption in the upper gastrointestinal tract. Use of organic acids as additional excipients might further delay drug dissolution and absorption. All the formulations were evaluated for hardness, drug content uniformity and were subjected to in vitro drug release studies. The amount of ivermectin released from the matrix tablets at different time intervals was estimated by a UV Spectroscopy method.

**Results:** Colon targeted matrix tablet of ivermectin containing 45% Guar gum released no Ivermectin in the physiological environment of stomach (0.1N HCL) and small intestine (phosphate buffer 7.4pH). When the dissolution study was continued in simulated colonic fluids (Phosphate buffer 6.8 pH) the matrix tablets released 94% and in simulated colonic fluids (rat caecal content medium) the matrix tablets released another 98% of ivermectin after degradation into 2-3 pieces at the end of the 24 h study.

**Interpretation & conclusion:** The result of the studies showed that colon targeted matrix tablet containing 45% of guar gum was most likely to provide targeting of ivermectin for local action in the colon. The colon targeted matrix tablet of ivermectin showed no

change either in physical appearance, drug content or in dissolution pattern after storage at  $30^0 \pm 2^0\text{C}$  /  $65\% \pm 5\%$  RH for 2 month. FT-IR spectrum showed no interaction between Ivermectin and guar gum.

**Keywords:** Colon targeted matrix tablet, Ivermectin, Guar gum, Rat caecal content.