ABSTRACT

Objective: The objective of the present study is to develop mucoadhesive vaginal drug delivery system for Metronidazole using mucoadhesive polymers in the treatment of bacterial vaginosis.

Methods: Vaginal tablet containing various proportion of Carbopol 934P and other polymers (HPMC, EC, sodium CMC) were prepared by direct compression technique using PEG 6000 as a binder and permeation enhancer. All the formulations were evaluated for hardness, drug content uniformity, stability study, and were subjected to *in vitro* drug release and *in vitro* diffusion studies. The amount of Metronidazole released from the vaginal tablet at different time interval was estimated by UV method.

Results: Mucoadhesive vaginal tablet of Metronidazole containing Carbopol and ethyl cellulose in 2:1 ratio released the drug 94.72% within 12 h. When the diffusion study was carried out (Pig vaginal mucosa) the vaginal tablet containing Carbopol and EC in 2:1 ratio diffused 81.78% of Metronidazole within 12 h.

Interpretation & conclusion: The result of the studies showed that vaginal tablet containing Carbopol and EC in 2:1 ratio was most likely to provide targeting of Metronidazole for local action in the vagina. The mucoadhesive vaginal tablet of Metronidazole showed no change either in physical appearance, drug content or in dissolution and diffusion pattern after storage at 30 ± 2ºC (65 ± 5 % RH) and 40 ± 2ºC (75 ± 5 % RH) for 2 months. IR spectrum showed no interaction between Metronidazole & other polymers

Keywords: Mucoadhesive vaginal tablet, Metronidazole, Bacterial vaginosis.