

Design and evaluation of miconazol nitrate mucoadhesive tablet

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Background and Aims: At present one of the most interesting drug delivery system is mucoadhesive drug delivery system. The bioadhesive polymers were used in drug delivery at least for two distinct purposes; to control the release rate of the drug as means of sustaining of the release of drug to attain an efficient constant plasma concentration for systemic drug delivery and concentrating of drug in site of action with maximum absorption and effect of the site of administration. Miconazole is an imidazole antifungal drug with broad-spectrum activity against the most common candida species involved in candidiasis. It has been formulated as a muco-adhesive buccal tablet to be applied to the upper gum and vagina, providing local antifungal activity with low systemic bioavailability of miconazole (25-30%). The aim of this study was to examine various polymers considered to have mucosa-adhesive properties for the preparation of buccal and vaginal bioadhesive tablet and its in vitro physicochemical evaluation.

Methods: This tablet containing various ratios of carbapol (CP)934, NaCMC, HPMC50cps and constant amount of magnesium stearate and lactose powder. The formulations were prepared and studied for their physical properties, pattern of in vitro drug release and adhesion of tablet.

Results: The composition of HPMC50cps and Cp934 has the most effect in reducing of drug's release rate and also adhesion power in surface unit. However their release pattern has less fluctuation. The composition of NaCMC and Cp934 from these aspects is in next consideration. In both of these compositions, increasing of relation Cp934 to HPMC50cps or NaCMC cause reducing in rate of release and increasing in adhesion power.

Conclusions: In the whole of formulation with increasing of polymer percent, a decrease in release rate and an increase in adhesion power were observed.

Keywords: Miconazole; tablet; Mucoadhesive; Polymer.