**Mucoadhesive Polymeric Micropellets by Extrusion Spheronization Technique for Vaginal Candidiasis and its Evaluation**

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**Abstract**

The objective of the study was to formulate and evaluate miconazole nitrate loaded mucoadhesive pellets by extrusion spheronization for vaginal drug delivery. The concept was designed to enhance the residential timing of miconazole nitrate pellets by incorporating mucoadhesive polymers in the formulation. This consequences in increased availability of drug at the site of action which reduces the dosing frequency hence increases the patient compatibility. The mucoadhesive pellets of miconazole nitrate are prepared by extrusion spheronization technique employing the polymers like HPMC K4M, HPMC K15M, HPMC K100, MCC, Chitosan. Characterization of pellets was carried out by FTIR and DSC studies. The formulated mucoadhesive pellets were characterized for percentage yield, particle size, carr’s index, angle of repose, drug content, Ex-Vivo mucoadhesive timing, In-Vitro drug dissolution studies, drug release kinetics, swelling index, In-Vivo X-Ray studies. The FTIR and DSC studies confirmed that there was no any interaction between drug, polymers and excipients. Also from DSC studies it was clear that the crystalline nature of miconazole nitrate was remain unchanged in the optimized formulation of mucoadhesive pellets. Formulation 7 (Miconazole nitrate, chitosan, MCC) retarded the drug release up to 8 h with the optimum concentration of chitosan. The results supported that the mucoadhesive pellets of miconazole nitrate could be an alternative for the normal therapy of vaginal candidiasis.

**Keywords:** Mucoadhesive Pellets, Extrusion, Spheronization, Vaginal candidiasis