
Formulation and evaluation of Buccoadhesive patch for treatment of Chronic stable angina pectoris

Submitted By

Bhatt Manthan Tusharbhai
112140810006

Supervised By

Dr. Dipti Patel
M.Pharm, Ph.D.
Associate Professor

Parul Institute of Pharmacy and Research

Limda, Vadodara.

ABSTRACT

Buccal drug delivery system using mucoadhesive polymers has been recently interested due to avoidance of the first pass effect and high blood level. In the present study, an attempt was made to develop buccoadhesive patch of Ivabradine hydrochloride an *If* inhibitor by solvent casting method intended for treatment of chronic stable angina and selection of most satisfactory formulation by *in vitro* evaluation. Drug-excipients incompatibility study was carried out using Infrared spectroscopy (IR) which shows that drug and excipients were compatible to each other. Buccoadhesive patch of Ivabradine hydrochloride containing Hydroxy Propyl Methylcellulose K15, Carbopol 934 and Polyvinyl pyrrolidone K-30 were developed by solvent casting method. An optimized formulation was having excellent % elongation, tensile strength, residence time, folding endurance and bioadhesivity by releasing $93.78 \pm 0.3\%$ drug release in 6 hrs in pH 6.8 phosphate buffer and $84.13 \pm 1.65\%$ release in ex-vivo diffusion using got buccal mucosa in franz diffusion cell. Stability studies of an optimized batch showed no significant change in bioadhesivity, folding endurance and drug release in *in vitro* and as well as *ex-vivo* after storage at $40 \pm 2^\circ\text{C}$ and $75 \pm 5\%$ RH and $30 \pm 2^\circ\text{C}$ and $65 \pm 5\%$ RH for a period of two months. This approach suggested that the buccoadhesive patch of Ivabradine hydrochloride using carbopol 934 and PVP K-30 gives sustained release upto 6 hrs and may increase the bioavailability of the drug in treatment of chronic stable angina.

Key words : Buccal drug delivery, buccoadhesive patch, solvent casting method, Ivabradine hydrochloride, Chronic stable angina.