



## To study the effect of iontophoresis on transdermal patch of DiltiazemHCl

Garala Jasmin<sup>1\*</sup>, Dr. H. M. Tank<sup>2</sup>

<sup>1</sup> School of Pharmacy, RK University, Rajkot, Gujarat, India

<sup>2</sup> V. B. Manavar College of Pharmacy, Dumiyani, Rajkot, Gujarat, India

**Abstract:Purpose:** The objective of this study was to evaluate the effect of iontophoresis on transdermal patch of DiltiazemHCl prepared using different types of polymers.

**Method:** Transdermal patch of DiltiazemHCl was prepared by using different types of matrix forming polymers like Hypromellose K15M (5%), Eudragit RLPO (5%), Eudragit RSPO (5%), Ethyl cellulose (2%) and combination of Ethyl cellulose(1%)+Polyvinyl pyrrolidone K90 (0.5%) by solvent casting method. Polyethylene glycol or glycerin were used as a plasticizer. All prepared formulations were evaluated for its physico-chemical parameters like Appearance, Thickness, Weigh uniformity, Assay, Folding endurance, Percentage moisture absorbance, Loss on drying, Water vapor transmission per unit area and Water vapor transmission per unit area. Iontophoretic *in vitro* diffusion of DiltiazemHCl from prepared patches was studied using three chamber modified diffusion cell. Silver- silver chloride electrode was used for Iontophoretic study and a constant current of 0.3 mA/cm<sup>2</sup> for 6 hours was applied. Passive diffusion of drug was determined without application of electric current. Enhancement ratio was calculated to determine the effect of iontophoresis.

**Results:** Enhancement ratio 2.07 and 1.69 was observed with a patch prepared using ethyl cellulose and a combination of ethyl cellulose and polyvinyl pyrrolidone, respectively. Very less enhancement ratio was observed with Acrylate polymer.

**Conclusion:** The result indicates feasibility of iontophoresis to enhance transdermal drug delivery of DiltiazemHCl using cellulose polymers.

**Key words:** Iontophoresis, DiltiazemHCl, Transdermal patch, Invitro diffusion.