

A comparison of enhancers' efficiency in the transmission of hydrophil drugs through a gel basis material

Z. Rahmati^{1,*}, S. Mortazavi², Z. Jafari azar¹

¹*School of Pharmacy, Azad University . Tehran, Iran*

²*School of Pharmacy, Shaheed Beheshti University of Medical Sciences, Tehran, Iran*

Background and Aims: The transdermal route is a safe and effective way of systemic drug delivery .this paper finds a safe and effective permeation enhancer that highly promotes the percutaneous absorption of hydrophil drugs. In particular, this study examines for an impotent combination of enhancers among 4 families of enhancers including: Polyols, Anionic surfactants, Amids and amines, Terpens.

Methods: To improve the Transdermal permeation of Diclofenac Sodium from Carbopol gel, we produce various formulations with different kinds and percentage levels of enhancers. At the beginning, In this study decide on a basis that consists of Carbopol, distilled water, and drug (Diclofenac Sodium). Next, we choose 2 members of each family of enhancers in different concentrations, while considering the diclofenac Sodium as a Hydrophilic drug (i.e. it is permeated through the pore pathway). Moreover, this study applies the skin penetration approach that is equipped with Franz Cells. Finally, the concentration of the drug in the receptor phase of Franz cells is determined by using the UV spectrophotometer. Significantly, the effect of types and concentrations of the skin penetration enhancer agents (like Azone, Urea, SLS, Menthol) is evaluated on the penetration of drug through rat skin. In the end, after calculating the flux and the EF values and comparing the cumulative graph of the drug penetration through the rat skin, Urea the best enhancers were determined.

Keywords: Diclofenac gel; Hydrophil drugs; Penetration enhancer; Skin penetration