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PERMEATION ENHANCEMENT OF MODEL ANTI-HYAPERTENSIVE DRUG FROM TRANSDERMAL PATCHES USING ESSENTIAL OILS

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Abstract

The main objective of this study was to develop transdermal Patch of Valsartan using various essential oils which act as permeation enhancer. valsartan is the most widely used antihypertensive drug in the treatment of hypertention and based on physicochemical properties. It is a potential drug candidate for developing a transdermal patch for controlled release. Patches were prepared by solvent evaporation method using different concentrations of linseed oil, pumpkin seed oil, peppermint oil, oleic acid and rose oil. The initial compatibility studies were carried out using FTIR spectroscopy. Patches were evaluated for various physicochemical parameters like thickness, weight variation, folding endurance, tensile strength and % elongation. *In vitro* study was carried out using cellophane membrane and *ex-vivo* drug release study was drug carried out using wister rat skin. An optimized formulation P9 containing 30% w/w of linseed oil having excellent appearance, transparency, % elongation (170±0.08 kg/cm^2), tensile strength (4.43±0.09 kg/cm^2), folding endurance (608±1.6) and *ex vivo* maximum drug release (93.65±0.12%) within 16 hours. Propylene glycol and linseed oil was used as the plasticizer and penetration enhancer which gave good elasticity to the patch. Presence of linseed oil increased the drug permeation rate from the transdermal patch. Stability studies of optimized batch were carried out according to ICH guideline. There was no significant change in folding endurance appearance, elasticity and *ex vivo* drug release after storage at 40±2^{0}C,75±5%RH and 30±2^{0}C and 65±5% RH for a period of six month. This approach suggested that the transdermal patch of Valsartan using HPMC K15M, Eudragit RL 100 and linseed oil gave controlled release up to 16 hrs.

***Key words*:** Transdermal patch, solvent evaporation method, valsartan, linseed oil, controlled drug release