

ABSTRACT

THE EFFECT OF HPMC 606 CONCENTRATION ON THE CHARACTERISTICS AND PENETRATION OF COENZYME Q10 IN THE NLC SYSTEM ON MEMBRANE TYPE PATCHES

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Coenzyme Q10 has functions of providing and preventing the skin. Reactive oxygen species can be restrained and the peroxidation form of lipid would be slowed and protected by Coenzyme Q10. However, Coenzyme Q10 has limited due to solubility in water is very low (4 ng/ml), causing low bioavailability and permeability of the oral administration.

This research was investigate the effect of concentration of HPMC 10%, 15% and 20% on the characteristics and penetration of Coenzyme Q10 transdermal patch. Coenzyme Q10 NLC system with different lipid ratio 70:30 (cetyl palmitate and alpha tocopheryl acetate) used as drug reservoir dan hydroxypropyl methylcellulose 606 (HPMC 606) as rate controlling membrane. NLC Coenzyme Q10 as drug reservoir were prepared using high shear homogenization method. Transdermal patch was using membrane type with HPMC 606 as rate controlling membrane. This research was investigate the effect of concentration of HPMC 606 (F1=10% ; F2=15% ; and F3=20%) on the characteristics Coenzyme Q10 transdermal patches.

The prepared transdermal patches were evaluated for thickness, weight variation, moisture content, drug content and drug homogeneity. All independent variables had no significant effect on the dependent variables (p-values > 0.05) using *one way* ANOVA, except the weight and moisture content patches. Coenzyme Q10 patches in F1 has better characteristics than other formulas. Coenzyme Q10 levels which penetration the most in F1 at 6 hour with $83,53 \pm 1,34$ %, flux $15,714 \pm 0,257$ %/hour and lag time $0,523 \pm 0,029$ hour.

Variation concentration of HPMC 606 used in the transdermal patches of Coenzyme Q10 give effect to the characteristic and penetration in vivo.

Key words : Coenzyme Q10, Hydroxy propyl methyl cellulose 606, Nanostructured lipid carrier, Characteristic of transdermal patch