

ABSTRACT

**Effect of HPMC Gel base addition on the Acceptability and Penetration
of Nanostructured Lipid Carrier Containing Ubiquinone
through Rat Skin**

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The aim of this study was to investigate the capability of nanostructured lipid carriers gel deliver Ubiquinone compared to nanostructured lipid carriers(NLC) through the rat skin. In this study, *Nile red* was used as a fluorescence label in NLC and NLCs gel . This study was executed by applying sample test on rat skin in vivo during 2 and 4.5 hours. The interaction between fluorescence labeled, NLC, and NLC gel and rat skin was observed by fluorescence microscopy.

After 4.5 hours, NLC and NLC Gel were penetrated into deeper dermis layer compared to the second hour. Meanwhile,NLC Gel also can penetrated deeper than NLC in both of 2 and 4,5 hours. This could be due to smaller particle size and higher occlusion that can make deeper penetration of Ubiquinone into the rat skin. The acceptability test was used 3 parameters, such as greasy feels on the skin, calmng sensation , and absorption time on skin. This test shows that Ubiquinone NLC more acceptable than Ubiquinone NLC Gel.

Keywords : NLC, NLC Gel, *Ubiquinone*, *penetration*, *rat skin*, *Fluorescence microscope*, *Nile red*, *occlusion*