

ABSTRACT**THE EFFECT OF HYALURONIC ACID CONCENTRATION ON CHARACTERISTICS, PHYSICAL STABILITY AND EFFECTIVENESS OF COENZYME Q10 IN NANOSTRUTURE LIPID CARRIER (NLC) SYSTEMS AS ANTI AGING****NURHIDAYAH SARIFUDDIN**

Coenzyme Q10 is, often also known as ubiquinone, coenzyme Q10 or Q10, is fat soluble and naturally present in plants, animals and mitochondria. Coenzyme Q10 functions as an antioxidant that can protect the body from damage caused by free radicals. Hyaluronic acid is known as a hydrophilic polymer derived from polysaccharides which has the ability to increase percutaneous penetration by changing the composition of tightly arranged stratum corneum cells to increase skin permeability. Hyaluronic acid is also functions as a moisturizer. The Nanostructured Lipid Carrier is a modification of the SLN system, which consists of a mixture of solid and liquid lipids (oil), stabilized with aqueous surfactant solution, is one method to increase drug penetration through the stratum corneum because it has several advantages. The purpose of this study was to see the effect of adding hyaluronic acid to the characteristics, physical stability and effectiveness of the Nanostructure Lipid Carrier (NLC) as anti aging. Examination of characteristics including organoleptic, pH, viscosity, particle size, polydispersity index, entrapment efficiency, morphology. The effectiveness is in vivo penetration, physical stability includes pH, particle size, polidispersity index and viscosity. pH measurements using pH meters, viscosity using brookfield, particle size and polidispersity index using Delsa Nano Particle Size Analyzer, examination of particle morphology using Transmission Electron Microscopy (TEM) and trapping effectiveness using centrifuge method then seen using UV spectrophotometer at 273 nm. Determination of penetration effectiveness was carried out in vivo using the back skin of male mice with Rhodamin B markers using a fluorosense microscope. In this study 4 formulas were used with different HA amounts: (F1) NLC coenzym Q10 without HA; (F2) NLC 0.5% coenzym Q10-HA; (F3) NLC 1% coenzym Q10-HA; (F4) 1.5% NLC coenzym Q10-HA. From the results of the additional characteristic test HA affects the coenzym Q10 NLC to the viscosity and particle size, where F4 produces greater viscosity 16.6 ± 1.385 cps, particle size 120.5 ± 8.69 nm. The penetration effectiveness test in vivo using the back skin of mice shows that all formulas are capable of penetrating from the 2nd hour. But F4 with the smallest particle size, shows the ability to penetrate deeper than other formulas. Physical stability test (pH, particle size and viscosity index polidispersity) performed by the storage for 30 days at room temperature. The measurement results showed that pH, particle size, polydispersity index and viscosity were stable during storage.

Keyword : Coenzym Q10, Hyaluronic Acid , Nanostruture Lipid Carrier (NLC)