

*ABSTRACT*

**THE EFFECT OF PALMITIC ACID CONCENTRATION ON  
THE SIZE OF NANO STRUCTURED LIPID CARRIERS (NLC)  
COENZIM Q10**

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Skin aging is a complex biological process that is influenced by intrinsic factors, one of which is hormones and extrinsic factors, free radicals. Free radicals can cause premature aging of the skin. To overcome this can be used antioxidants. Coenzyme Q10 is a naturally occurring compound found in the inner mitochondrial membrane, by acting as an ATP-generating agent in the mitochondria.

Nanostructure Lipid Carrier (NLC) is a nanoscale drug delivery system, which usually consists of solid lipids, liquid lipids and emulsifiers. This study aims to determine the effect of palmitic acid concentration on Konezim Q10 Nanostructured Lipid Carriers (NLC) preparations. Coenzyme Q10 combined with palmitic acid solid lipids were prepared in 3 Nanostructured Lipid Carriers (NLC) formulas with varying concentrations of F1 (2.5%), F2 (3.5%) and F4 (4.5%). Where each concentration was replicated 3 times. Particle size evaluation was carried out using a Particle Size Analyzer after 24 hours of preparation.

In the results of the particle size test, the size range varies, namely F1 = 94.13-98.36 nm; F2 = 87.38-90.28 nm ; F3 = 71.98-76.32 nm. The particle size is still in accordance with the specifications of nanoparticle preparations which have a size range between 20-200nm. Statistical test

research data using the One Way Anova test obtained a p-value smaller than 0.05. This shows that the data has a significant difference in the particle size of the Nanostructured Lipid Carriers at the concentration of solid lipids.

Based on the research conducted, it can be concluded that: The difference in the concentration of palmitic acid is 2.5%; 3.5% : 4.5% effect on particle size in Nanostructured Lipid Carriers (NLC) preparations. Where the greater the concentration of solid lipids, the smaller the particle size will be.

**Keryword :** coenzyme Q10, NLC, asam palmitat, PSA.