

ABSTRACT**EFFECT OF ROSEMARY ESSENTIAL OIL TO
CHARACTERISTIC AND PHYSICAL STABILITY (THERMAL
CYCLE) COENZYME Q10 IN NANOSTRUCTURED LIPID
CARRIER
(Combination of Solid Lipid *Beeswax-Oleum Cacao* and Liquid Lipid
VCO)**

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Coenzyme Q10 is antioxidant which has low solubility in water and high lipophilicity, making it difficult to penetrate into the skin. To overcome this problem NLC is used. This study used combination of solid lipid *beeswax-oleum cacao* and liquid lipid VCO as lipid phase. A natural penetration enhancer REO (1-2%) were added to improve CoQ10 penetration. The purpose of this study was to find out changes in characteristic and stability of CoQ10-NLC due to addition of REO. Several characteristic test has been done, show that formula FII with additional of REO 1% has best characteristic from its pH ($6,43 \pm 0,02$), particle size ($195,10 \pm 9,90$ nm), polydispersity index ($0,223 \pm 0,04$), and zeta potential ($- 46,90 \pm 0,30$). Physical stability test were carried out on thermal cycle test based on color, odor, consistency and separation. Stability test was carried out in 3 cycles, each cycle consist of 48 hours at 40°C then transferred at $2-8^{\circ}\text{C}$ for 48 hours. Result showed that formula FII has best stability, which the other formula show a separation since the first cycle, FII remain good until last cycle. This result indicate that addition of REO improve physical stability of CoQ10-NLC up to certain concentration.

Key words: Rosemary Essential Oil, CoQ10, NLC, Thermal cycle, Enhancer.