# EFFECT OF COMBINATION LIQUID LIPID (SOYBEAN OIL AND OLEIC ACID) TO CHARACTERISTIC, PENETRATION, PHYSICAL STABILITY AND IRITABILITY NLC RESVERATROL

**(Review Of Usage As Anti Aging Cosmetic)**

**ROHMAWATI HIDAYAH**

## ABSTRACT

Resveratrol (RSV) is an antioxidant used to treat skin aging. Resveratrol as an antioxidant has several disadvantages: low solubility to water 0.03 g / L and is an unstable material to light. To overcome the disadvantages of resveratrol is made topical delivery system that can protect antioxidant degradation and maintain stability of the preparation. A topical delivery system with a lipid base carrier that can improve the stability of resveratrol is a nanostructure lipid carrier (NLC). In this study NLC resveratrol was made from concentration of solid lipid (cetyl palmitate), and combination of liquid lipid (soybean oil and oleic acid) with the ratio of F1 (4: 4: 0), F2 (4: 0: 4), F3 (4: 3: 1), F4 (4: 2: 2), F5 (4: 1: 3), in 30% lipid. The objective is to create a ratio of liquid lipid combination to improve entrapment efficiency, penetration, fix irritation and stability of NLC resveratrol. NLC is made by high shear homogenization (HSH) method. NLC resveratrol in particle size evaluation, polidispersity index, pH, viscosity, potential zeta, morphology and entrapment efficiency. NLC F5 with ratio of ratio (4: 1: 3), able to improve NLC characteristic, with particle size 304,36 ± 35,82 nm with polidispersity index value 0,243 ± 0,03, having spherical morphology shape, viscosity 420,00 ± 16.3 cPs, pH value 4.85 ± 0.03 in skin pH range, potential zeta value 47.9 ± 1.26 and entrapment efficiency 95.08 ± 0.09. In the penetration depth and irritation test selected F4 as combination formula of lipid liquid soy bean oil and oleic acid, because it has a high potential zeta value, which describes long term stability NLC. In the in vivo penetration effectivity test on the back skin of 2 h, 4 h and 6 h hour mice, NLC F1 (4: 4: 0) showed a deeper penetrating skin capability of 651,77 μm ± 78.23 than NLC F2 (4: 0: 4) 498.50 μm ± 33.92 and NLC F4 (4: 2: 2) 468.32 μm ± 49.04. Furthermore, the results of the irritation test scores on histopathologic preparations with Hematoxilin Eosin staining after 24 hours of dosage application showed NLC F2 (4:0:4) does not iritation the skin compare NLC F1 (4: 4: 0) and NLC F4 (4: 2: 2) In a 60-day stability storage trial, NLC F2 (4: 0: 4) and F5 (4: 1: 3) were more stable during storage than NLC F1 (4: 4: 0), F3 (4: 3: 1) and F4 (4: 2; 2).

**Keywords:** Resveratrol, Nanostructured Lipid carier (NLC), Antiaging, Soy bean oil, Oleic acid, Cetyl Palmitate, Penetration, Iritation, Stability