

ABSTRACT**The Influence of Lipid Ratio (Cetyl Palmitate as Solid Lipid and Soybean Oil as Liquid Lipid) on Stability and Effectiveness of Resveratrol in Nanostructured Lipid Carrier (NLC) System As Anti-aging****CHRISTIN APRILLIAN BEAMA**

Resveratrol is antioxidant of polyphenol class that can counteract free radicals of UV causing premature aging. Resveratrol also works by lowering the transcription factor of *Activator protein 1* (AP-1) and nuclear factor of *kappa beta* (Nf-kB) that plays a role in the pathogenesis of skin aging. Resveratrol is water-insoluble and light-sensitive (Amri *et al*, 2012). Therefore, to overcome the obstacles of resveratrol active substance stability for topical antioxidant preparation, it is necessary to design a delivery system that can effectively protect antioxidant and also support the working mechanism of the antioxidant. In this study, resveratrol was made in NLC delivery system with various comparisons of solid lipid and liquid lipid matrix to observe its effect on characteristics, effectiveness on penetration and collagen density in vivo, as well as stability test of 30-day storage at room temperature (pH, particle size and polydispersity index). The measurement of pH was using pHmeter, viscosity was using cone and viscometer plate, particle size and polydispersity were using Delsa Nano Particle Size Analyzer, particle morphology was using Transmission Electron Microscopy (TEM) and trapping effectiveness was using centrifugation method which then seen using UV spectrophotometer at 306nm. The determination of penetration effectiveness was performed in vivo using male mouse back skin with Rhodamin B marker observed using fluorescence microscope at 2nd, 4th, and 6th hours. The effectiveness on antiaging was performed using the male mouse back skin treated for 28 days, after which preparations were performed to be observed with light microscope and the collagen density was calculated based on histopathology scoring.

Keywords : *Resveratrol, Nano Structured Lipid Carrier (NLC), Collagen*