

**ABSTRACT**

**THE EFFECT OF LIPID RATIO ON PHYSICAL STABILITY AND  
EFFECTIVENESS OF RESVERATROL IN NANOSTRUCTURE LIPID  
CARRIER SYSTEMS AS ANTI-AGING COSMETICS**

**(Study Conducted by Using Solid Lipids Binary Glyceryl Monostearate +  
Beeswax and liquid lipid Medium Chain Triglycerides)**

Resveratrol is an antioxidant that has been developed as an anti aging cosmetics. However Resveratrol has limitation because of its poor solubility, so it is necessary to do the appropriate delivery system, one of which is lipid nanoparticles. In this study Resveratrol formulation was performed in NLC system with various ratio of binary solid lipids GMS+Beeswax and MCT as liquid lipid. The aims of this study are to determine the effect of lipid ratio in characteristic, physical stability and effectiveness of RSV loaded NLC.

Based on the results, it was found that the difference of lipid ratio did not affect the lipid character shown by XRD and DSC data. But influenced the characteristics by increasing the liquid lipid, particle size and viscosity decrease significantly ( $p < 0.05$ ). In NLC-RSV 4 formula containing higher MCT indicates the presence of nanospoons phenomena, phase separation in the accelerated stability test and good penetration ability. Collagen density scoring data shown high collagen density scores of NLC-RSV 4 formula, whereas NLC-RSV 1 formula has moderate collagen density scores. These results are comparable when associated with the characteristics of each formula.

**Keywords :** Anti aging, Resveratrol, lipid nanoparticle, NLC, binary lipid, collagen density