ABSTRACT
EFFECT OF ISOPROPYL MYRISTATE AND CETYL ALCOHOL IN THE ANTIOXIDANT STABILITY OF TOMATO EXTRACT IN SLN AND NLC SYSTEM

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Tomato extract has antioxidant activity that comes from lycopene. To avoid degradation, tomato extract was made in Solid Lipid Nanoparticle (SLN) and Nanostructured Lipid Carrier (NLC) system. SLN and NLC can protect materials that has poor stability by entrapping mechanism. Liquid lipid in NLC system can affect less ordered NLC matrix. The aim of this study was to compare the antioxidant stability of tomato extract in SLN and NLC system which made at solid lipid cetyl alcohol and liquid lipid isopropyl myristate in ratio 10:0, 9:1, and 7:3. SLN and NLC was prepared using high shear homogenization method at 24000 rpm for 7 minutes. Characterization for SLN and NLC include pH (pH meter), particle size and particle distribution (Delsa^{TM} Nano), viscosity (Brookfiled Cone and Plate viscosimeter), and intensity of diffraction pattern (X-Ray Powder Diffraction). pH of the samples doesn't significantly different. There's a significant difference of particle size between SLN and NLC formula after UVB irradiated. The viscosity of SLN ratio 10:0 was higher than other NLC which had no significant difference. The intensity of peak diffraction pattern decreased with the increasing of liquid lipid ratio. The stability of tomato extract tested by DPPH method after UVB irradiated during 2 hours, 5 hours, 9 hours, 15 hours, and 21 hours. Stability of tomato extract was known from percent scavenging activity rate over time (k value) over time. The result showed that SLN system on 10:0 ratio had highest k value than other formulas. However, NLC system on 9:1 and 7:3 ratio had no significant difference. Higher k value means formed crystal lattice had more ordered matrix.

Keywords : lycopene, tomato extract, solid lipid nanoparticles, nanostructured lipid carriers, ratio solid lipid and liquid lipid, antioxidant stability, DPPH.