

ABSTRACT

EFFECT OF CHITOSAN ON RELEASE OF *p*- METHOXYCINNAMIC ACID IN NANOEMULSION VEHICLES

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The aim of this study was to know how much the influence of chitosan as a thickening agent, toward release of *p*-methoxycinnamic acid in nanoemulsion contained virgin coconut oil. Four formulas were made based on the difference chitosan concentration, i.e FI (0%), FII (0,05%), FIII (0,15%), and FIV (0,3%). Drug release was determined using Franz diffusion cell with cellophane were used as a membrane. The result of this study showed that drug release rate (flux) of *p*-methoxycinnamic acid from formula I, II, III, and IV were $0,6275 \pm 0,02$; $0,4816 \pm 0,06$; $0,3634 \pm 0,02$; dan $0,2913 \pm 0,02$ ($\mu\text{g}/\text{cm}^2 \cdot \text{min}$). Based on ANOVA one way test, could be concluded the flux of $\text{FI} > \text{FII} > \text{FIII} = \text{FIV}$. There was no significant difference between FIII and FIV. The drug release rate not in accordance with viscosity result. Because of the ionic repulsion on FIV stronger than the inhibition as a result of higher viscosity. The ionic repulsion among the droplets, because of the interaction between cationic polymer of chitosan and surfactant that present on the surface of the droplets, that made the droplets became positively charged.

Keywords : *p*-methoxycinnamic acid, Franz diffusion cell, nanoemulsion, drug release, chitosan.