

## ABSTRACT

***p*-METHOXYCINNAMIC ACID RELEASE IN  
SOLID LIPID NANOPARTICLES SYSTEM FROM  
HYDROXYPROPYL METHYLCELLULOSE 4000 GEL  
(System of SLN *p*-Methoxy Cinnamic Acid – Cetyl Alcohol 10% –  
Tween 80 12%)**

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The research objective is to investigate effect of SLN (*p*-methoxycinnamic acid – Cetyl Alcohol 10%– Tween 80 12%) system on the release of *p*-methoxycinnamic acid from HPMC 4000 gel. Drug release measured with apparatus 5- paddle overdisk in phosphate buffer  $7,4 \pm 0,05$ , temperature  $32^{\circ}\text{C}$ , 100 rpm, with diffusion cell using celophan membrane within 6 hours. The drug release named flux, which calculated from slope of linear regression between  $\sqrt{t}$  versus the cumulative amount of *p*-methoxycinnamic acid gel. Flux of *p*-methoxycinnamic acid gel without addition of Cetyl alcohol and Tween 80, with addition of Cetyl alcohol and Tween 80 without SLN formed, and with addition of Cetyl alcohol and Tween 80 in SLN formed were  $56,2545 \pm 2,6288 \mu\text{g}/\text{cm}^2/\text{min}^{1/2}$ ;  $39,5650 \pm 1,2156 \mu\text{g}/\text{cm}^2/\text{min}^{1/2}$ ;  $29,6240 \pm 0,2522 \mu\text{g}/\text{cm}^2/\text{min}^{1/2}$ . All research data was evaluated using one way ANOVA statistical test continued with HSD test. Research result shows *p*-methoxycinnamic acid gel with addition of Cetyl alcohol and Tween 80 without SLN formed and *p*-methoxycinnamic acid gel with addition of Cetyl alcohol and Tween 80 in SLN formed decreased *p*-methoxycinnamic acid release compared with *p*-methoxycinnamic acid gel without Cetyl alcohol and Tween 80.

Key words: *p*-Methoxycinnamic Acid, solid lipid nanoparticles (SLN), HPMC, drug release