ABSTRACT

STUDY IN VIVO OF *p*-METHOXYCINNAMIC ACID-β-CYCLODEXTRIN INCLUSION COMPLEX (Prepared By Slurry Method)

Annita Putri Agustina

p-methoxycinnamic acid (*p*MCA) is an active compound obtained from hydrolysis of ethyl p-methoxycinnamate acid (E*p*MC) which is synthesized from *Kaempferia galanga* Linn. *p*MCA has low solubility in water (0,712 mg/mL at 25 ^{o}C), hence absorption and bioavailability *p*MCA in the body becomes imperfect and slow. One of the method to increase the solubility of drug is by forming inclusion complex of *p*MCA with β-siklodekstrin (βCD) (1:1). The inclusion complex is prepared using slurry method. Slurry method has advantage of reducing the amount of water used, the manufacture is easy, and the production costs is cheap. The *p*MCA-βCD inclusion complex formed was characterized using DTA and FTIR. The aim of this study was determine the bioavailability (t_{max}, C_{max}, and $AUC_{0-\sim}$) *p*MCA-βCD inclusion complex prepared by slurry compared to *p*MCA and *p*MCA-βCD physical mixture. Bioavailability test is performed using 5 New Zealand male rabbits per treatment group. There are three treatments: *p*MCA, *p*MCA-βCD physical mixture, and *p*MCA-βCD inclusion complex. Rabbits are given treatment by oral using sonde and blood samples are taken at minutes 0, 5, 10, 15, 30, 60, 90, 120, 150, and 180. Blood samples of each rabbit are prepared and determined sample concentration using HPLC. Sample concentration in each treatment group are calculated and analyzed parameters bioavailability (t_{max}, C_{max}, $AUC_{0-\sim}$, K_a, K_{el} and $t_{1/2}$) using One way ANOVA ($\alpha = 0,05$). The result of One way ANOVA ($\alpha = 0,05$) is bioavailability (t_{max}, C_{max}, $AUC_{0-\sim}$, K_a, K_{el} and $t_{1/2}$) *p*MCA-βCD inclusion complex increased significantly compared to *p*MCA and *p*MCA-βCD physical mixture.

Keyword: inclusion complex, *p*MCA, β-siklodekstrin, bioavailability, slurry method