ABSTRACT

ANALGESIC ACTIVITY OF INCLUSION COMPLEX p-METHOXYCINNAMIC ACID (p-MCA)-HIDROXYPROPYL-β-CYCLODEXTRYN (Prepared Using Slurry Method)

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Para-methoxycinnamic acid (p-MCA) is an active compound that is hydrolyzed from Kaempferia galanga Linn and has various activities, one of them as an analgesic. However, it has low solubility in water (0.712 mg / mL at 25 ° C), hence the bioavailability of p-MCA in the body is low. One of the method to increase the solubility and rate of dissolution of drugs is by the formation of complex. Inclusion complex is one of the complex system formed by the guest molecule that trapped in the host molecule. Hydroxypropyl-β-cyclodextrin (HPβCD) is a host with an ability to form inclusion complex. The inclusion complex is prepared using slurry method, by dissolving HPβCD into a water solvent then add p-MCA 1: 1 molar, then mixing it on the stirrer for 5 hours at 40 °C and 500 rpm. The inclusion complex formed is deposited in the oven at 40 °C for 1 day and then stored in the exicator. There are DTA, FTIR and X-ray diffraction examination of p-MCA-HPβCD inclusion complexes prepared by the slurry method showed that there was a change in the characteristics of the initial compound APMS and HPβCD. This shows that the inclusion complex has been formed. The test of analgesic activity is done by writhing test method. The p-MCA-HPβCD inclusion complexes prepared by the molar ratio (1: 1) slurry method show the same activity as the initial compound APMS, as well as the physical mixture. As for % pain inhibition of inclusion complex, the physical mixture and p-MCA were 48.24%; 46.34% and 32.24%.

Keyword: Inclusion Complex, p-MCA, HPβCD, Analgesic Activity, Slurry