

ABSTRACT

DETERMINATION OF PARTITION COEFFICIENT OF *p*-METHOXYCINNAMIC ACID AT VARIOUS pH AS A PREFORMULATION STUDY FOR TOPICAL DOSSAGE FORM

WENING INTAN KARTIKA

The purpose of this study was to determine the apparent partition coefficient (log APC) of *p*-methoxycinnamic acid at various pH (pH 3,0; 4,0; 5,0; 6,0; and 7,0). Research carried out by mixing the water phase in the form of various pH buffer solution and the oil phase in the form of octanol. Previously included in the water phase APMS with a certain degree in the water phase. Partition coefficient determination method performed by the shake flash method and sampling carried out at $37 \pm 0.5^{\circ}\text{C}$ after reaching the equilibrium time at the fifth hour with the three times of replications. The degrees of APMS in the water phase can be calculated by using a standard curve at each pH and the value of apparent partition coefficient can be known. After the calculation of APMS in the water phase, can be obtained the value of apparent partition coefficient at pH 3.0: 4.0: 5.0: 6.0, and 7.0 was equal to 2.416 ± 0.0098 ; $2.249 \pm 0, 0140$; 1.987 ± 0.0162 ; 0.760 ± 0.045 , and 0.639 ± 0.095 . From these data it could be shown the influence of pH on the partition coefficient with reduction of log APC along with the increase in pH. Thus, at pH 5.0 log APC APMS was 1.987 ± 0.0162 was the closest log APC optimum to penetrate the stratum corneum that was equal to 1 to 2. This data can be used as a reference for the formulation of topical dosage APMS at pH 5, that preparations are made on the pH was still within the range of skin pH is at pH 4 to 6.8.

Keywords : *p*-methoxycinnamic acid, spectrophotometry, preformulation study, partition coefficient, pH.