

## ABSTRACT

### **RELEASE OF DICLOFENAC SODIUM IN NIOSOME SYSTEM SPAN 20-CHOLESTEROL FROM HPMC 4000 GEL BASE (Niosome System of Diclofenac Sodium - Span 20 - Cholesterol with Molar Ratio 1:6:6)**

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The aim of this study was to determine the release of diclofenac sodium from HPMC 4000 gel base with niosome formed which consist of diclofenac sodium - Span 20 - cholesterol with molar ratio 1:6:6. There were two formula this study. The first was HPMC gel without niosome system and the second was HPMC gel with niosome system. The evaluation of each formula are included by organoleptic, pH, spread diameter, and release test. The result showed that niosome system had effect on the organoleptic, pH and spread diameter at zero load. Data analyze showed that pH of formula I was  $5,94 \pm 0,05$  and formula II was  $6,57 \pm 0,02$ . Spread diameter at zero load formula I was  $6,1 \pm 0,1$  cm and formula II was  $7,6 \pm 0,2$  cm. Drug release was determined using a diffusion cell and cellophane membrane in phosphate buffer saline pH  $7,4 \pm 0,05$ ; temperature  $32 \pm 0,5^{\circ}\text{C}$  during 6 hours. The drug release (flux) of diclofenac sodium from HPMC gel without niosome system and with niosome system were  $155,6201 \pm 4,9729 \mu\text{g}/\text{cm}^2/\text{min}^{1/2}$  and  $49,0925 \pm 0,8684 \mu\text{g}/\text{cm}^2/\text{min}^{1/2}$ . The result was analyzed by statistic programmed of using Independent sample T-test with degree of confident 95% ( $\alpha = 0,05$ ). Research result revealed that diclofenac sodium release in niosome system from HPMC gel was lower than release of diclofenac sodium from formula without niosome system.

Keywords : Niosome, diclofenac sodium, Span 20, HPMC 4000, drug release