

KARAKTERISASI SEDIAAN DAN UJI PENETRASI NATRIUM DIKLOFENAK DENGAN SISTEM MIKROEMULSI W/O DALAM BASIS GEL CARBOMER 940 (Mikroemulsi W/O dengan Surfaktan Span 80-Tween 80 : Kosurfaktan Etanol 96% = 6:1)

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ABSTRACT

The aim of this study is to observe characterization dosage form and penetration of diclofenac sodium with microemulsion w/o system which contained ratio surfactant Span 80 – Tween 80 and cosurfactant ethanol 96% = 6:1 in Carbopol 940 gel base through Wistar rat skin membrane. Diclofenac sodium gel with emulsion system was used as control. The evaluation included characteristics of dosage form (organoleptis, pH, spreadability) and penetration test. Data from pH test, spreadability, and spread diameter of zero load, were evaluated based on independent sample t test

According to the characteristic evaluation from each formula, microemulsion system in gel base (formula I) showed thicker consistency than emulsion system in gel base (formula II). Different system gave no effect on pH but it gave effect on spreadability and spread diameter of zero load. Data analysis showed that pH of formula I was $6,00 \pm 0,02$ and formula II was $5,97 \pm 0,03$. Spreadability of formula I was $0,0120 \pm 0,0020$ cm and formula II was $0,0480 \pm 0,0100$ cm. Spread diameter of zero load for formula I was $4,97 \pm 0,50$ cm and formula II was $11,30 \pm 1,05$ cm. Dissolution test was carried out with apparatus 5-paddle overdisk in phosphate buffer $7,4 \pm 0,05$, temperature 37°C , 100 rpm. The result of diclofenac sodium penetration test were flux and membrane permeability. The rate of flux in formula I ($0,679 \pm 0,116 \mu\text{g}/\text{cm}^2/\text{min}$) and formula II ($0,830 \pm 0,217 \mu\text{g}/\text{cm}^2/\text{min}$) while the rate of permeability membrane in formula I ($6,5006 \pm 1,1064 \text{ cm}/\text{min}$) and formula II ($8,0022 \pm 2,0916 \text{ cm}/\text{min}$). It was analyzed by statistic programmed of SPSS using independent sample t-test with degree of confident 95% ($\alpha=0,05$). The result showed that there was no significant difference between each formula

Keyword (s) : diclofenac sodium, microemulsion, Carbopol 940 gel base, characteristic, penetration test.