

ABSTRACT

**PENETRATION OF DICLOFENAC SODIUM IN NIOSOME
SYSTEM DICLOFENAC SODIUM - SPAN 20 - CHOLESTEROL
(1:6:6)**

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This study was designed to determine the profile and penetration rate of diclofenac sodium in the niosome system. Niosome system prepared by the diclofenac sodium, Span 20 and cholesterol with molar ratio of 1:6:6. There were two formulas in this study, in which formula I was diclofenac sodium in the niosome system and formula II was diclofenac sodium that is not in niosome system. Formula I and formula II had a whitish color and a distinctive odor Span 20. Formula I was thicker than formula II. Formula I that used niosome system was not looked spherical and the diameter was between 116,6 nm to 3,754 μm . pH of formula I was $6,84 \pm 0,02$ and formula II was $6,67 \pm 0,02$. Entrapment efficiency was $43,68\% \pm 0,06$. The flux formula I was $1,3062 \pm 0,0929 \mu\text{g}/\text{cm}^2/\text{minute}$ and while formula II was $1,1010 \pm 0,1553 \mu\text{g}/\text{cm}^2/\text{minute}$. The permeability of membrane to diclofenac sodium in formula I was $1,0985 \cdot 10^{-4} \pm 5,9919 \cdot 10^{-6} \text{ cm}/\text{minute}$ and the formula II was $9,1736 \cdot 10^{-5} \pm 1,3089 \cdot 10^{-5} \text{ cm}/\text{minute}$. The results were analyzed statistically by using independent sample T-test with degree of freedom 4 (df) and degree of confident 95% ($\alpha = 0,05$). The results revealed that the flux and permeability of membranes formed on diclofenac sodium niosome systems are not different from diclofenac sodium that is not formed system.

Keyword: diclofenac sodium, Span 20, niosomes, penetration, permeability