ABSTRACT

PENETRATION NIOSOME SYSTEM OF SODIUM DICLOFENAC - SPAN 60 - CHOLESTEROL WITH MOLAR RATIO 1:6:6

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The aim of this research was to determine the penetration niosome system of diclofenac sodium - Span 60 - cholesterol with molar ratio 1:6:6. Niosome was prepared by Reverse Phase Evaporation Technique. The physical mixing of the same composition was used as a control. The evaluation include organoleptics test (odor, color and consistency), morphology used Scanning Electron Microscopy (SEM), entrapment efficiency, and in-vitro drug penetration across abdominal skin from male Wistar rat using dissolution test apparatus 5 (paddle over disk). The drug assay was performed by UV-Vis spectrophotometry. Result of organoleptics test were it had specific odor, the color was milky white, and the consistency was thick suspension. The evaluation of morphology used SEM with 2500 times magnification showed shape of niosome was spherical with a range of size 1.303 -14.00 µm. The average of entrapment efficiency evaluation was 65.50±0.04%. The result of penetration study is flux and permeability. Flux for niosome and control were 0.5003±0.0076 and 0.8627±0.1094 µg/cm²/min. Permeability for niosome and control were 4.3960.10^{-5}±2.3663.10^{-6} and 6.5533.10^{-5} ±7.8476.10^{-6} cm/menit. It was analyzed by statistic programmed of SPSS 17.0 using independent sample t-test. The result showed that there was a significant difference between niosome and control. In the conclusion that flux and permeability of niosome were lower than control.

Keywords: diclofenac sodium, Span 60, cholesterol, niosome, Reverse Phase Evaporation, SEM, entrapment efficiency, flux, permeability.