

SKIN PERMEATION OF DIBUCAINE-LOADED IN BRIJ®97 MICREOMULSIONS

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ABSTRACT

Local anesthetics are used as topical administration to alleviate unpleasant sensations such as pain, itching and burning associated with laser pulses, minor surgical operations, injections and dermatological disorders. The purpose of this study was to investigate the effects of microemulsion types (o/w and w/o) on the skin permeation of dibucaine and its hydrochloride salt used as model hydrophobic and hydrophilic drugs. The microemulsion system consisted of 2:1 Brij®97:1-butanol (45 %w/w), isopropyl palmitate (IPP) and water. The internal/external phase weight ratio was performed at 15/39. The concentration of model drug was kept constant at 1 %w/w. The microemulsion type was determined using conductivity, dilution and dye-solubility tests. The pH and viscosity of the microemulsions were also observed. Permeation of drug from the microemulsions through human epidermis was determined using Franz-type diffusion cells and the permeated amounts of drug were analyzed by HPLC. The permeation data showed that the skin permeation flux of 1 % dibucaine from the o/w microemulsion was significantly higher than that from the w/o microemulsion ($P < 0.05$); however, the skin permeation of 1% dibucaine hydrochloride was not significantly different from both types of microemulsions ($P > 0.05$).

Key words: microemulsion, phase diagram, skin permeation, dibucaine, Brij®97

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