# Effects of Glycerol on the In Vitro Percutaneous Absorption of All-Trans Retinoic Acid

Published in Pharmaceutical Development and Technology , Volume 8 , Issue 3
Print ISSN: 1083-7450
Online ISSN: 1097-9867

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Journal Article | Print Published: 07/01/2003 | Online Published: 06/23/2003
Pages: 229 - 237 | PDF File Size: 171 KB
DOI: 10.1081/PDT-120022152

Keywords

Percutaneous absorption, All-trans retinoic acid, Lipophilic compounds, Osmotherapeutic agents, Solubilizers, Receptor solution

Abstract
The nature of the receptor solution plays an important role in in vitro percutaneous absorption of highly lipophilic compounds having limited solubility. In vitro permeation studies of a lipophilic compound, all-trans retinoic acid (RA), through the rat dorsal skin were performed with the presence of glycerol (0–20% v/v) in the receptor solution, and the results were compared with those with the presence of albumin (4%). The results showed that an addition of glycerol (20%) into the receptor solution significantly increased the permeation rate of RA through the rat dorsal skin (0.0068±0.0041 vs. 0.0014±0.0010 g/cm2/hr). It was also found that RA tends to accumulate in the lipophilic layer, and its log P value between the epidermis and the receptor solution significantly decreased with the presence of glycerol (20%) (1.48±0.14 vs. 2.45±0.21). An addition of glycerol, an osmotherapeutic agent, in the physiological receptor solution seemed to enhance the percutaneous absorption of RA by affecting the partition coefficient of RA.
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