

ABSTRACT

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Department of Department of Pharmaceutical Technology

Candidate **Mgr. Pavla Dvořáková**

Consultant **Doc. RNDr. Pavel Doležal, CSc.**

Title of Thesis **Transdermal permeation in vitro study of creams containing transkarbam 12**

The topics of skin barrier function and transdermal permeation enhancers, particularly their structure – action relationship, are covered in theoretical part of this work. It also deals with transkarbam 12 and its mechanism of action, transdermal application of active substances and electrical resistance as a physical unit.

Experimental part of this work describes setup used for permeation in vitro experiments on pig ear skin of full thickness.

The aim of this work was to find experimental evidence and interpretation of relation between electrical resistance of the skin and flux of caffeine from donor suspension or creams containing transkarbam 12 and also evaluate feasibility of the correction of the variability of the permeation experiments results using preceding infinite dose experiment.

It was found that the higher the skin electrical conductivity, the higher the permeation of caffeine from donor samples.

For the logarithmic approximation of the relation between caffeine fluxes from creams and skin electrical conductivity, the following correlation coefficients were acquired for uncorrected flux values: $r = 0,5666$ (series P3), $r = 0,5106$ (series P4) and $r = 0,5302$ for summary of both series ($n = 41$)

and for corrected flux values: $r = 0,6263$ (P3), $r = 0,6060$ (P4) and $r = 0,6202$ (both together).

The correction of the measured values of caffeine flux from cream using its flux from suspension from immediately preceding measurement has notable impact on final interpretation of the results.

Keywords: dermal electrical conductivity, transdermal permeation, caffeine