

Abstract

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Title of Diploma Thesis: Monitoring of liberation tests

The diploma thesis is focused on the development of an automated method for the monitoring of the dissolution profile of clotrimazole from topical dosage forms. The dissolution profile of formulations containing the antifungal agent clotrimazole are compared. Commercially available formulations Canesten and Clotrimazol AL in the form of creams, are compared with a new formulation called Delcore from Contipro a.s., which contains a complex matrix.

Theoretical part addresses mycotic infections with focus on superficial mycoses and products available on the Czech market for the treatment of those infections. Furthermore, there is a description of selected non-separation flow methods.

The analysis was carried out in a sequential injection analysis system coupled with three attached Franz dissolution cells with a membrane on which the sample was applied. The Franz cells were placed in a water bath at 32 °C. Phosphate buffer with pH 7.4 was chosen as the dissolution medium as it partially imitates the conditions of the human environment. Detection was performed with a UV detector at wavelength of 210 nm. Furthermore, the thesis contains a modification of the system with added monolithic column for a possible separation of tocopherol and clotrimazole present in Delcore formulation directly in the system.

Dissolution was monitored for each of the formulations, first from one cell only to obtain an accurate profile and then from 3 parallel cells to determine the repeatability of the dissolution profile. The commercially available creams were applied directly on the membrane, the Delcore formulation was dissolved in a defined amount of phosphate buffer before being applied on the membrane. This method has been found to be suitable for mass produced creams, but less applicable for Delcore solution with its low viscosity and complex matrix