Abstract

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Title of diploma thesis: The influence of solubility and adsorption on plastic materials on transport experiments

From transport experiments on cell culture models we get valuable information about transport mechanism of drugs in organism. *In vitro* experiments are conducted for example on Transwell type inserts. During the experiment it was discovered that the results are not homogeneous, and the quantity of a substance in the solution decreases apparently, the reason behind this is inadequate solubility of lipophilic substances or their adsorption on the surface of plastic materials used in the experiment. Due to these problems we experience significant bias.

This thesis is focused on antivirotics that did not perform well during transport experiments. First, HPLC/MS methods were developed, and they were used for concentration measurement of samples containing individual antivirotics. The drugs were tested under wide range of conditions so possible changes in effects of adsorption on plastic surfaces and solubility of drugs could be observed.

The substances were divided into groups based on their behaviour in experimental conditions. Samples aquired from transport experiments were judged as well. Finally, methods that could increase the accuracy of experiments on cell culture models were evaluated. Among the tested options there was verification of the influence of different kind of plastic material, addition of organic solvent (methanol) or β-cyclodextrin.