

Abstract

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Title of the thesis:

Flufenamic acid (FFA) belongs to the group of non-steroidal anti-inflammatory drugs. Medicines from the group of non-steroidal anti-inflammatory drugs are the most widely used drugs worldwide. The range of uses is very extensive. The effect of the drugs is anti-inflammatory, they also serve against pain and fever. The problem with their use, especially orally, lies in the large number of side effects. To reduce the incidence of adverse effects, FFA can be administered topically.

The transfer of substances through the skin barrier is demanding. The substances must meet certain criteria so that the molecules are able to penetrate through the hydrophilic and at the same time hydrophobic part of the lamellar lipid multilayer contained in the epidermis. To improve the solubility of FFA in water, we used the advantageous properties of poly(amidoamine) (PAMAM) dendrimers.

PAMAM dendrimers are spherical macromolecules with a very well-organized structure. They work well as skin permeation accelerators or skin enhancers. A group of these excipients temporarily reduces the skin barrier and facilitates the transdermal administration of drugs. Other advantageous properties include excellent water solubility and high binding capacity.

In this work, PAMAM dendrimers were shown to increase the solubility of FFA in aqueous media in a concentration- and generation-dependent manner. Furthermore, aqueous preparations containing PAMAM dendrimers were prepared for topical application of FFA.