SOLUBILITY STUDY OF THE INTERACTION BETWEEN PAMAM G4 DENDRIMER AND FLUDARABINE IN AQUEOUS SOLUTION

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Poly(amidoamine) dendrimers (PAMAM) are polymeric macromolecules that can find their use as carriers of drugs both for animals as well as humans. Fludarabine is a potent oncological drug, whose usage is limited because of its relatively high toxicity. The surface groups in PAMAM dendrimers belonging to the forth (G4) generation allow ligand molecules to bind with terminal dendrimer groups and to penetrate the dendrimer interior. That is why the macromolecules of PAMAM dendrimers might be used reduce toxicity of highly toxic drugs.

The aim of our study was to evaluate the number of fludarabine molecules combined by PAMAM G4 macromolecule in aqueous solution. Using the results of the drug solubility in dendrimer solutions (UV spectrometry), the maximal number of drug molecules in the dendrimer-drug complex was evaluated.

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STUDIES OF SERTRALINE HYDROCHLORIDE AND CYCLODEXTRINS IN AQUEOUS SOLUTION

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Cyclodextrins (CDs) – a cyclic oligosaccharides contain mostly six (αCD), seven (*β*CD) or eight (*γ*CD) glucose residues – have a relatively nonpolar cylindrical cavity [1], which can bind and solublize a wide variety of hydro-

phobic molecules [2, 3]. Sertraline hydrochloride is one of them. It is an antidepressant with low solubility in water. To increase the bioavailability of the oral-taken drugs it is worth to check influence of the cyclodextrins on those substances. Cyclodextrins are able to improve solubility of the guest drug inserted into their cavities and make the drug absorption in the gastrointestinal tract more effective.

One of the methods to examine the complex formation between drugs and cyclodextrins is the isothermal titration calorimetry (ITC). The set of parameters of interaction given by this experimental method brings information about the strength and the energetic aspects of complex formation between guest and host molecules.

In this work the interaction parameters from ITC measurements like binding constant, enthalpy, entropy and Gibbs energy of binding cyclodextrin with sertraline hydrochloride in water at 298.15 K are presented. The parameters of complex formation are compared with each other and with available literature and the conclusions are made.

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INTERACTION BETWEEN B-CYCLODEXTRIN AND SELECTED FUNGICIDE AND PESTICIDE IN WATER

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Cyclodextrins are cyclic oligosaccharides. Most popular consist of 6, 7 or 8 glucose units combined with α-1,4-glicoside bonds forming a torus structure. These compounds, due to their characteristic structure, hydrophobic interior and external polar part of molecule, includes hydrophobic ligands. This unique property of CDs which stems from their cavitary structures led to wide uses in pharmaceuticals, foods, chemicals, cosmetics and pesticides.

Pesticides are substances meant for attracting, seducing, and then destroying, or mitigating any pest. They are a class of biocide. These compaunds are necessary in closed cultures where high humidity and favorable temperatures