

ABSTRACT

Author: Anežka Nováková

Publishing place: Univerzita Karlova v Praze, Farmaceutická fakulta v Hradci Králové

Supervisor: PharmDr. Iva Boušová, Ph.D.

Title: Interaction of Natural Compounds with the Molecule of HSA

This diploma thesis is concerned with the interaction of chosen natural compounds (apigenin, naringenin, kaempferol) with the molecule of human serum albumin. In initial experiments, I observed the stability of these antioxidants under physiological conditions in time by UV-VIS absorption spectroscopy. Then I observed an influence of different storage temperatures on the stability using the same method. The proper interaction of chosen antioxidants with albumin was studied by UV-VIS absorption spectroscopy and fluorescence spectroscopy. Fluorimetric titration proved that mentioned antioxidants quenched the tryptophan fluorescence in the molecule of human serum albumin. Using the Stern-Volmer analysis I found out that a mechanism of fluorescence quenching was static for all antioxidants in the range of initial concentrations (2,5 - 10 μM) of antioxidants. Calculated binding parameters of antioxidants provided more specific information about their interaction with HSA and revealed the relationship between their chemical structure and affinity to HSA. The presence of 3-OH group with 2,3 unsaturated C ring (kaempferol structure) probably leads to the highest HSA affinity among chosen antioxidants.