

ABSTRACT

The effects of natural antioxidants in the model of protein glycation

In my diploma thesis, I was concerned with direct and indirect effects of antioxidants of natural origin (hydroxycinnamic acids, HCAs) on the catalytic activity of aspartate aminotransferase as well as structure-activity relationship of individual HCAs. I used new model of methylglyoxal-induced glycation of aspartate aminotransferase, which has not been tested at the Department of Biochemical Science, Faculty of Pharmacy so far. I observed the structure-activity relationship of selected HCAs. Their antiglycation effect increased with the increasing number of hydroxyl groups. The methylglyoxal model of glycation proved to be suitable for farther research of other compounds.

Further, I observed the interactions between HCAs and the molecule of enzyme itself using absorption and fluorescence spectroscopy. Those interactions were apparent at the acquired spectra. HCAs bind most probably only to the protein part of the enzyme and not to the coenzyme. The effect of all HCAs was concentration-dependent.