

ABSTRACT

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Title: Effect of compounds with antioxidant properties on glycation of aspartate aminotransferase

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In this diploma thesis, I was concerned with the direct and indirect effects of uric acid, aminoguanidine, and hydroxycitric acid on enzymatic activity of aspartate aminotransferase and on its glycation by methylglyoxal. The catalytic activities were measured by kinetic UV method. Stabilities of aminoguanidine and uric acid, their interactions with the molecule of enzyme and influence on formation of glycation products were observed by absorption spectroscopy. Although aminoguanidine decreased enzymatic activity in higher concentration, it showed positive indirect effects on glycation of aspartate aminotransferase and it also decreased amount of rising glycation products. Hydroxycitric acid did not have negative direct effect on enzyme activity and was partially able to protect enzyme from glycation by methylglyoxal. Uric acid exerted neither negative direct nor positive indirect effects. Aminoguanidine and uric acid were stable during experiment and reacted with molecule of protein, which was expressed by modifications of its UV-VIS spectra in the area of aromatic amino acids. Effects of all tested substances were concentration-dependent