ABSTRACT

The aim of this Bachelor thesis is the study of the effect of two carcinogenic compounds, benzo[*a*]pyrene and Sudan I, co-administered to rats individually or in combination, on the expression and the activity of important biotransformation enzymes cytochromes P450 of subfamily 3A in liver – a main organ of xenobiotic metabolism, in which the amount of CYP3A is especially high.

Using the quantitative PCR method, the decrease of the gene expression of *CYP3A1/2* in the livers of rats exposed to benzo[*a*]pyrene and Sudan I individually or in combination, was observed. Using the Western Blot method with a consecutive immunodetection, we found the decrease of the protein expression of CYP3A in the livers of rats treated with benzo[*a*]pyrene and Sudan I alone. Specific activity of CYP3A, determined by marker reaction of CYP3A, which is 6β-hydroxylation of testosterone, did endorse the previous results only in some of the premedicated groups of rats.

It can be concluded that the exposure of rats to both studied compounds with carcinogenic potential resulted in a decrease in the expression of hepatic CYP3A *in vivo*.

(In Czech)

Keywords: cytochromes P450, benzo[*a*]pyrene, Sudan I, expression, enzyme activity