Abstract

Flavonoids are natural compounds synthesized in plants as secondary metabolites. Due to broad range of their biological effects, for example we can mention antioxidant, hepatoprotective or antibacterial effects, flavonoids are increasingly used as a component in dietary supplements. Besides positive effects, some negative effects were observed, especially mutagenic and pro-oxidative properities. The biotransformation is an important process which is affected by flavonoids. Interactions between flavonoids and biotransformation enzymes in both phases of biotransformation are essential for the metabolism of drugs and carcinogenesis processes.

In this bachelor thesis the influence of selected flavonoid compounds, myricetin and dihydromyricetin, on the activity of *N*-acetyltransferase 1 and 2, enzymes of second phase of biotransformation, was studied. Mainly the mechanism of this influence was tested.

The inhibition of human recombinant and of *N*-acetyltransferase 1 and 2 by myricetin and dihydromyricetin was proved. The more in-depth study of interactions of *N*-acetyltransferase 1 and 2 with selected flavonoids shows that raising concentration of second substrate (*p*-aminobenzoic acid, sulfamethazine) does not lead to reduction of inhibition effect. Thus, it is highly probable that both flavonoids already inhibit the first step of the reaction, the acetylation of enzyme by acetylcoenzyme A.

Key words:dihydromyricetin, myricetin, inhibition, acetylation

(In Czech)