Abstract

In recent years, there has been increased emphasis on healthy lifestyle, which includes, among others, consumption of natural nutrients in a form of various food supplements. These compounds, usually of a flavonoid character, show different chemopreventive effects such as anti-oxidant or anti-carcinogenic. The excessive consumption of these compounds can also have a negative impact on human health. Flavonoids may for instance influence the content of biotransformation enzymes, cytochromes P450, in the cells and thus influence the metabolism of foreign compounds. Such an influence might, as a result, lead to a development of carcinogenesis or inefficacy of certain medications.

The main focus of this bachelor thesis is to study capabilities of two flavonoid compounds (myricetin and dihydromyricetin) to induce and inhibit cytochromes P450 of 2B family. By the Western blot method it was found that neither of the investigated flavonoids increased expression of CYP2B1/2 in livers, myricetin, or in any part of small intestine. In the case of dihydromyricetin there was noticed an induction of cytochromes P450 2B in the middle part of small intestine. The inhibitory potency of flavonoids was examined *in vitro* as an inhibition of 7-pentoxyresorufin *O*-dependentylation catalyzed by CYP2B. Values of IC_{50} 8,8μM and 0,5mM were determined for myricetin and dihydromyricetin, respectively.

Key words: xenobiotics, cytochromes P450, induction, metabolism