Abstract

Dihydromyricetin (DMH) is a natural flavonoid compound with positive effects on the human organism. In traditional Chinese medicine, plants containing DMH were used to treat liver diseases and to reduce alcohol intoxication. The effects of DHM on ethanol metabolism are not yet completely understood. Effects of DHM during alcohol intoxication were studied on primary hepatocytes of rats. DCFDA and DHR probes were used to prove that DHM (depending on concentration) reduces the number of reactive oxygen and nitrogen species in primary hepatocytes. However, the hepatoprotective effects of DHM were not achieved when presence of the alanine aminotransferase (ALT) was used to measure the damage of cells exposed to alcohol. Further, the effects of DHM on alcohol metabolism were studied *in vivo*. Rats were administered with single dose of ethanol or ethanol combined with DHM. Measured blood levels of ethanol and acetaldehyde show that DHM has no effects on the rate or levels of alcohol metabolism. The effects of DHM were also studied with repeated alcohol administration. In the group that was administered also DHM, increased blood levels of ethanol were measured. This points that DHM slow down the metabolic rate of ethanol. Obtained results did not prove any positive effects of DHM on alcohol metabolism. After repeated alcohol administration, liver tissue was used to prepare cytosol fractions. Presence of alcohol dehydrogenase (ADH) was measured using the Western blot method with immunodetection. No effects of DHM were detected on the ADH protein level.

Key words: hepatocytes, reactive oxygen species, liver enzymes, flavonoid