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Field: Patobiochemistry and xenobiochemistry

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Title:

**The activity of biotransformation enzymes
in mouflons with dicrocoeliosis and in healthy mouflons**

Abstract

In vitro activities of **cytochromes P450** (7-alkyl/aryloxyresorufin dealkyl(aryl)ases, testosterone hydroxylase/oxidase, 7-methoxy-4-trifluoromethyl-coumarin demethylase), **flavine monooxygenases** (toward thiobenzamide), **reductases** of carbonyl group (toward oracin, 4-pyridine-carboxaldehyde, 1-acenaphthenol, DL-glyceraldehyde, ketoprofene, naloxone, daunorubicin, metyrapone) and **cojnugation enzymes** (*p*-nitrophenol-UDP-glukuronosyl transferase, UGT, 1-chloro-2,4-dinitrobenzene glutathione-S-transferase, GST) in old, female mouflons (*Ovis musimon*, *Bovidae*), both in healthy ones and those suffered from dicrocoeliosis were studied and compared. This parasitary disease is caused by *Dicrocoelium dendriticum*. Various methods were used, especially spectrophotometry, spectrofluorimetry, and method based on incubation of enzymes with relative specific substrate followed with HPLC analysis of biotransformation products. The amount of proteins was determined using methods with reduction of BCA. As results show, protein quantity both in microsomal and cytosolic fraction statistically decreased ($P < 0.05$) in mouflons suffered from dicrocoeliosis. The effects on activities of CYPs were detected in the only enzyme, CYP3A, it was decreased in diseased animals. The influence of dicrocoeliosis on flavine monooxygenase activity was not proved. Among reductases of carbonyl group tested in this study, the cytosolic activities toward acenaphthenol were significantly decreased; microsomal activities toward 4-pyridine-carboxaldehyde, both microsomal and cytosolic activities toward oracin were increased. Conjugation enzyme (UGT, GST) activities were decreased in animals with dicrocoeliosis. Only GST activities were influenced by disease in old female mouflons in the same manner as in young male mouflons, as studied previously (Štorkánová, 2004). The more enzymes in old mouflon eves might be affected due to the age of animals, gender and parasite burden of the host.