ABSTRACT

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Title of rigorous thesis: Biotransformation enzymes and metabolism of drugs in *Fascioloides magna*

Biotransformation of xenobiotics including drugs is detoxifying ability of all organisms and it leads to positive and/or negative effects of pharmacotherapy. Each animal species is distinguished by quantitative and qualitative differences in biotransformation enzymes. Knowledge of these differences is crucial for effective and safe pharmacotherapy. It has become vital particularly when drug resistance is becoming a worldwide problem. This study was focused on parasite species *Fascioloides magna* which is responsible for extensive deaths of ruminants. In spite of this fact, there is lack of detailed information on its metabolism of anthelmintics or metabolism in general. The aim of this study was to find out biotransformation of anthelmintics in *F. magna* and activity of biotransformation enzymes in subcellular fractions from *F. magna* in the presence of model substrates. On the basis of fact that there were obtained activities of oxidative enzymes (FMO, GPx, CAT, Px, TrxR and NQO-1) and conjugation enzymes (GST, SULT, UGT and UGLcT) there was a presumption that *F. magna* might be able to metabolise anthelmintics. Ordinarily used anthelmintics (albendazole, triclabendazole, closantel and rafoxanide) were used in *ex vivo* and *in vitro* incubation. Phase I and phase II metabolites were searched by (U)HPLC-MS/MS analytical method. Albendazole sulfoxide was the only metabolite which was found in all subcellular fractions and also in cultivation medium but just in very small amounts. The occurrence of other drugs in homogenate from fluke´s bodies and in cultivation medium shows their ability of transtegumental transport.