

Abstract

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Title of diploma thesis: Biotransformation of selected anthelmintics in sheep tapeworm (*Moniezia expansa*)

Biotransformation of anthelmintics is a process that prevents the parasite from adverse effects of xenobiotics. Therefore, it is the main factor that causes the reduction of an anthelmintic effect, resistance development and thus the failure of drug therapy of helminthosis. Therefore many studies focused on anthelmintics biotransformation in helminths have been published.

This experiment was aimed at the biotransformation of albendazole, flubendazole and mebendazole in the sheep tapeworm (*Moniezia expansa*) and the activity of its biotransformation enzymes.

Tapeworms were obtained from sheep intestines. Biotransformation of benzimidazoles was determined in *in vitro* and *ex vivo* experiments. Flubendazole and mebendazole were metabolized in much greater extent than albendazole. The activity of antioxidative enzymes, which also can participate in drug biotransformation, was detected mainly in the cytosol. Neither cytochromes P 450 nor flavin-containing monooxygenases were detected. Reductive enzymes were determined by means of specific substrates, the reduction occurred mostly in the cytosol. The conjugation enzymes UDP-glucuronosyltransferase and UDP-glucosyltransferase were detected in microsomes and mitochondria; glutathione-S-transferase was detected in the cytosol.

Key words: biotransformation, anthelmintics, sheep tapeworm, *Moniezia expansa*, biotransformation enzymes