

ABSTRACT

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Title of diploma thesis: Localisation and characterisation of enzymes oxidising anthelmintics in lancet fluke

Dicrocoeliosis is a worldwide disease caused by lancet fluke (*Dicrocoelium dendriticum*). It has a negative impact mainly on livestock farming and animal production. Benzimidazole anthelmintics, especially albendazole, are widely used for its treatment. In comparison with other parasitoses, it is necessary to administer these drugs repeatedly with gradually increasing dosage, which may support drug resistance development, to ensure effective treatment. One of the fluke's defense mechanisms is a biotransformation of potentially toxic substances to an inactive metabolite.

The aim of this project was to find out and describe oxidative enzymes, which are involved in the anthelmintic albendazole biotransformation in lancet fluke. In this experiment, subcellular fractions (mitochondrial, cytosolic and microsomal) of lancet flukes isolated from the liver of mouflons (*Ovis musimon*) were prepared. In subcellular fractions, activities of peroxidase, catalase, superoxide dismutase, glutathione peroxidase, and thioredoxin reductase towards relatively specific products were assessed. At the same time, measurement of individual enzymes' inhibition using specific inhibitors was performed and also inhibition of these enzymes by albendazole was monitored.