

THE ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Pharmacology & Toxicology

Candidate: Mgr. Blanka Virtová

Supervisor: Prof. RNDr. Jiří Lamka, CSc.

Title of rigorous thesis: The progression and results of the model parasite culturing liver fluke (*Fasciola hepatica*) in sheep (*Ovis aries*) for the use of biotransformation studies

Anthelmintic resistance (of parasites to commonly used drugs from the group of anthelmintics caused by its long term use in breeding practice) is currently highly discussed parasitological and pharmacological problematic. Mechanisms of origin of this resistance are in great interest of many trials. Various studies are focused on biotransformation abilities of parasites including the influence of drugs that are used for the activity of parasite biotransformation enzymes. Model cultured parasites in their natural hosts (economic or laboratory animals) are commonly used for purposes of these studies. Parasites are later isolated and transmitted to *ex vivo* conditions as some of the biochemical procedures, *in vivo* impracticable, are performed under these conditions. Part of the thesis was to obtain liver fluke (*Fasciola hepatica*) in sheep (*Ovis aries*) for subsequent biochemical examinations and detailed mapping of parasitological, biochemical and pathological changes in the parasite host.

In this experimental work, 5 rams were used. They were dewormed with monepantel suspension at a dose of 9.0 ml per animal and consequently 3 of them were infected with metacercariae of liver fluke (MC 200). All infected rams showed increased levels of IgG antibodies and eosinophils two weeks post infection. Production of eggs *F. hepatica* was observed starting at the 10th week and the 11th week post infection. At the end of the study the animals were euthanized, adult liver fluke *F. hepatica* was isolated and handed over to the Department of Biochemical Sciences Pharmaceutical Faculty UK.