Abstract

Charles University in Prague
Faculty of Pharmacy in Hradec Králové
Department of Pharmacology & Toxicology
Student: Zdeňka Čermáková
Supervisor: Prof. RNDr. Jiří Lamka, CSc.
Title of diploma thesis: The progression and results of the model parasite culturing liver fluke (*Fasciola hepatica*) in sheep (*Ovis aries*)

Fasciolosis is a parasitic disease caused by liver fluke (*Fasciola hepatica*). This parasitosis is a significant disease in livestock, wild animals and in some parts of the world in humans. It causes a decrease in livestock performance and fertility, weight loss and high economic losses in livestock.

The aim of this work was to describe in detail the course of artificial infection of sheep infected with *F. hepatica* metacercaria. Specifically, changes in blood count, egg excretion, and response of the immune system of infected individuals were monitored. The observed values were compared with the studies already performed.

The demonstration of fasciolosis in artificially infected sheep was performed using the coprological sedimentation method, the differential determination of leukocytes from the blood layers, the determination of hematocrit and the immunological method ELISA (enzyme-linked immunosorbent assays). Three lambs of Texel breeds infected with 200 metacercaria were used for the experiment.

Differential leukocyte diagnostics provided the earliest evidence of the status and condition of the artificial infection, where elevation of eosinophils can be observed from the 3rd week after the infection. Hematocrit showed a slow decrease in all infected animals up to 1/4. The first excretion of eggs occurred in the 10th and 11th week of the infection. In the 11th post-infection week, elevated IgG antibody levels were detected by 35 %. After 16 weeks of the study, the animals were discarded and *F. hepatica* adults were isolated from their liver for further studies.