ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Biochemical Sciences

Candidate: Bc. Valentýna Funioková

Supervisor: Doc. Ing. Petra Matoušková, Ph.D.

Title of diploma thesis: **Construction of plasmid and probes for detection of P-glycoprotein in *Haemonchus contortus***

Anthelmintic resistence in parasitic nematodes has become an alarming issue worlwide. *Haemonchus contortus*, a pathogenic nematode of small ruminants, has become resistant to all types of anthelmintic drugs. Important players of the anthelmintic resistence are ABC transporters, most notably P-glycoproteins. In *Haemonchus contortus*, 10 homologues of Pgp have been identified. Research of individual P-glycoproteins could reveal particular transporters involved in anthelmintic resistence mechanisms.

The diploma thesis focuses on P-glycoprotein-9.2, whose constitutive expression is higher in resistant strains of *H. contortus* than in susceptible strain. The opening chapters of the diploma thesis deals with the topic of parasitic nematode *H. contortus*, anthelmintic resistence and description of ABC transporters. The main part of this thesis is dedicated to construction of plasmids for *in vitro* preparation of digoxigenin-labelled RNA probes, and detection of P-glycoprotein-9.2 mRNA by chromogenic RNA *in situ* hybridisation. Target mRNA of P-glycoprotein-9.2 was found in hypodermis, intestinal tissue, ovaria and uterus including eggs.