ABSTRACT

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Title of thesis: Gene expression analysis of selected UDP-glucosyltransferases from *Haemonchus contortus*

Haemonchosis is one of the most important parasitical diseases in small ruminants caused by *Haemonchus contortus*. Resistance to anthelmintics causes several problems in therapy of the disease and it increases costs of the therapy. With an effective therapy of resistant parasites the economical situation in agriculture would improve. Resistance mechanisms in *H. contortus* are still insufficiently understood. The resistant *H. contortus* isolate forms significantly more glucose conjugates of benzimidazole anthelmintic albendazole (ABZ) than the susceptible one. More than 40 UDP-glucosyl transferases (UGT) genes were identified in the genome of *H. contortus*, which displays a great variety in this family of enzymes. This thesis is a part of a systematic research focused on studying UGT enzymes, by which ABZ is detoxified. To investigate, which one of the UGTs is responsible for the increased metabolism of ABZ, mRNA levels of eight selected genes were analyzed by real-time PCR in adults of resistant isolate and compared with susceptible isolate. There was observed a higher expression of the UGT8N enzyme (GenBank ID: HCISE00244800) in resistant isolate. However, the difference was quite small and did not fully reflect higher amount of glucose conjugates of ABZ. Therefore we have analyzed inducible changes of selected UGTs upon ABZ treatment.