

# ABSTRACT

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Title of diploma thesis: Constitutive expression of UDP-glucosyltransferases from *Haemonchus contortus*

Haemonchosis is one of the most frequent parasitic disease on small ruminants caused by gastrointestinal nematode *Haemonchus contortus*. Attack of this blood sucking parasite does not mean only serious health damage but also lower productivity and economic losses. Anthelmintics are used as a medical treatment of haemonchosis however they are often insufficient because of worldwide developing resistance. Knowledge of mechanisms causing resistance is still not sufficient, therefore much effort is spent in order to find the factors which could be their source. It appears that changes of biotransformation enzymes and their expression might be one of the reason for resistance. At *H. contortus* more than 40 genes which code a different types of UDP- glucosyltransferases (UGTs) have been found. UGTs are the main enzymes in nematode which are connected with a deactivation of drugs (glycosylation). Therefore this thesis is focused especially on UGT family with the main goal to analyse changes in expression of these genes of susceptible (ISE) and resistant (WR) strains of *H. contortus* by qPCR. 11 UGT genes of strains ISE and WR, divided by sex, were analysed by Real-Time PCR method and their expression was monitored. Significant increase of expression was observed for UGT366A1 of both sexes in resistant WR strain. The experiment had shown that higher expression occurs primarily in males. Lower expression was observed in two UGTs of both sexes in resistant WR strain, UGT365B4 and UGT365B5 specifically. These changes of expression could mean the possible participation of UGT during changes in anthelmintics metabolism and occurrence of resistance.