

Abstract

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Title of diploma thesis: The changes in expression of selected drug-metabolizing enzymes in parasites after exposition to sublethal doses of drugs

The parasite, which causes significant losses of small ruminants through a disease called haemonchosis, is the abomasal nematode *Haemonchus contortus*. IVM is one of the anthelmintics used in veterinary medicine to eliminate haemonchosis. The main problem with this parasite is the presence of drug resistance to almost all administered anthelmintics including IVM. It is believed that xenobiotic-metabolizing enzymes such as cytochromes P450 (CYPs) and membrane efflux transporters P-glycoproteins (P-gps), play the role in resistance in *H. contortus*. This study focuses on the effect of sublethal doses of IVM on expression of selected CYPs and P-gps. Females and males of susceptible ISE strain *H. contortus* were separated before our experiment. After incubation of nematodes with three different concentrations of IVM, RNA was isolated and the changes in expression of selected genes were analyzed using qPCR. Significant sex-differences were observed in inducibility of tested genes. Significant IVM-induced changes in *H. contortus* were found in expression of CYP and P-gp genes. The induction effect of IVM was most pronounced in P-gp genes.