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MEETING ABSTRACTS

FLUBENDAZOLE-INDUCED CHANGES IN THE EXPRESSION OF SDR GENES IN *HAEMONCHUS CONTORTUS*

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Drug-metabolizing enzymes represent the main defense system against xenobiotics in all organisms. Long-term exposure to drugs can lead to changes in the expression of specific enzymes and to development of drug resistance. The previous studies have shown that increased anthelmintics inactivation via increased expression of certain drug-metabolizing enzymes belongs to a significant mechanism of drug resistance in *Haemonchus contortus*.

H. contortus, a gastrointestinal parasite of ruminants, has developed resistance to all used anthelmintics. As short-chain dehydrogenases/reductases (SDRs) catalyze the deactivation of carbonyl-containing anthelmintics (e.g. flubendazole, mebendazole), the increased expression of these SDRs could promote decreased susceptibility of *H. contortus* to these anthelmintics.

For these reasons, the present study was designed to follow the changes in the relative expression of selected SDR genes in adults of *H. contortus* exposed to different concentrations of flubendazole (FLU). FLU-mediated responses in adults from drug-susceptible strain (ISE) and drug-resistant strain (IRE) were compared. The adult nematodes were incubated *ex vivo* with or without FLU (0.01 µM, 0.1 µM, 1 µM, and 5 µM) in a culture medium for 4 h or 12 h. After incubation, total RNA was isolated and the expression level of individual SDRs were analyzed using qPCR. The results have shown the variability in the expression of individual SDR genes in *H. contortus* adults after contact with sub lethal doses of FLU.

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Keywords: drug resistance; flubendazole; short-chain dehydrogenases/reductases; nematode; gene expression