

ABSTRACT

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Title of diploma thesis: The use of new *ex vivo* tests to find synthetic compounds with anthelmintic effect

Haemonchus contortus is a parasitic nematode causing disease called haemonchosis in sheep and goats. This worldwide spread parasite feeds on the host's bloodstream, causing anemia and edema that can lead to death of the animal. Anthelmintic drugs are used for haemonchosis treatment, but recently their efficacy has decreased due to development of drug resistance in nematodes. Therefore, it is necessary to look for new drugs that will be effective in resistant nematode strains. In this work the anthelmintic effect of 13 new benzyloxyamide derivatives (BLK) was studied in *H. contortus* eggs and adults. An egg hatch test, in which BLK8 was the most effective compound, was used first. A new method of bioluminescence determination of adenosine triphosphate (ATP) was used in adults of *H. contortus* to monitor the effect of BLK analogues on viability of adult nematodes. The efficacy of BLK analogues was compared with the effect of classical anthelmintic levamisole. It is obvious from the results that several BLK analogues (especially BLK7, BLK8 and BLK12) significantly reduce the viability of *H. contortus* adults, both susceptible strain (ISE) and strains resistant to common anthelmintics (IRE and WR). These compounds will be a subject for next testing of toxicity and *in vivo* efficacy against *H. contortus*.