FINAL COMBAR CONFERENCE
Combatting anthelmintic resistance in ruminants: options for the future

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In vitro evaluation of novel benzimidazole derivatives against *Fasciola hepatica*

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Fasciiosis is an important parasitic disease affecting significantly the ruminant production by means of reducing the growth, conversion rate, milk production, quality and quantity of meat and reproduction. The triclabendazole and albendazole resistance phenomenon is already present in many countries. Because of the absence of novel drugs against fluke infections, it is necessary to test and compare the efficacy of new compounds with potential anthelmintic activity against *Fasciola spp*. The aim of this study was to test a total of 53 compounds, benzimidazole derivatives, against *Fasciola hepatica* eggs collected directly from gall bladder of naturally infected cattle, susceptible to albendazole. All compounds were tested with the in vitro test “Egg Hatch Test” (EHT), including albendazole at a dose of 0.5 μM. To determine the ovicidal activity of these compounds, they were tested at an initial concentration of 50 μM, and those whose activity was greater than 90% were evaluated again at a concentration of 10 μM. Then, compounds with an efficacy greater than 80% at 10 μM were tested at 5 μM using eggs from albendazole-susceptible and albendazole-resistant strains. Of the 53 compounds evaluated, 11 showed ovicidal activity between 91.2 and 100% at 50 μM and 3 of them between 83.7 and 89.9 at 10 μM. Finally, 2 benzimidazole derivatives showed an ovicidal activity of 71.2% and 89.2% at a concentration of 5 μM in an albendazole-susceptible strain.

Anthelmintic resistance of horse strongyle nematodes to fenbendazole in Lithuania

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**Background:** with intensive use of anthelmintic drugs in recent decades, anthelmintic resistance (AR) in horse nematodes is becoming a growing issue in many countries. However, there is little available information about the parasites, treatment practices or AR in the horse population in Lithuania. The aim of this study was to assess the current situation of fenbendazole AR on horse farms in Lithuania. **Results:** the study was conducted in six stables and only the horses with a strongyle faecal egg count (FEC) of ≥ 200 eggs per gram were selected. One hundred and twenty-one faecal samples were examined with McMaster technique Faecal egg count reduction tests (FECRT) were performed on the 89 horses that met the inclusion criteria. Resistance to fenbendazole (FBZ) was found in three stables (50% of all tested herds). The FEC showed a significant (P<0.01) difference between the treatment and control groups. Only cyathostomin larvae were detected in larval cultures derived from strongyle-positive faecal samples collected 14 days after treatment of a test group with FBZ. **Conclusions:** this in vivo study showed that resistance to FBZ is prevalent on horse farms in Lithuania. These findings should guide the implementation of more sustainable management of strongyle infections in horses in Lithuania.