Resistance to benzimidazoles and levamisole in nematode parasites of sheep in Nyandarua District of Kenya

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Abstract

The occurrence of anthelmintic resistance on 25 sheep farms in the Nyandarua District of Kenya was investigated, using the faecal egg count reduction test (FECRT), the egg hatch assay (EHA) and a larval development assay (LDA). In the FECRT, resistance to both benzimidazoles (BZs) and levamisole (LEV) was detected on four farms, resistance to LEV only on three farms and to BZs, only on two farms. Haemonchus contortus was the predominant nematode species in both pre-treatment and post-treatment faecal cultures. Out of the six farms where BZ resistance was detected in the FECRT, only isolates from one farm had an LD50 value higher than 0.5 microM thiabendazole (TBZ) (0.1 microgram TBZ/ml) in the EHA indicating resistance. Isolates from three other farms, where susceptibility to BZs was detected and four with suspected BZ resistance in the FECRT, had LD50 values higher than 0.5 microM TBZ in the EHA. The LD50 values for TBZ in the LDA for four of the six isolates with BZ resistance in the FECRT were higher than 0.5 microM (0.59-2.07) TBZ. There were disagreements in ascribing resistance for various farms, between methods of calculating and interpreting the faecal egg count reduction percentages (FECR%) based on the arithmetic mean, and those where the geometric mean eggs per gram (EPG) of faeces are used. Inclusion of pre-treatment EPG or control group EPG in the calculation of FECR% resulted in similar variations.

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