

Anthelmintic resistance in gastrointestinal nematodes of goats in southern Mozambique

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Abstract

Helminth infections are considered to be an important constraint on livestock productivity worldwide. The control of helminth parasites is often essential for the economic production of animals, especially small ruminants, and anthelmintics are used as the primary means of control. Resistance of nematodes to the generally used groups of anthelmintics is an increasing global problem in the production of small ruminants. The objective of the study was, therefore, to assess the occurrence of anthelmintic resistance to the benzimidazoles in 11 randomly selected goat flocks, six in Maputo and five in Gaza province, southern Mozambique, between November and December 2016. The flocks selected had not been dewormed during the preceding 12 weeks at least in order to reflect the naturally acquired helminth population. All the flocks were managed under an extensive or semi-intensive system. On each of the 11 farms, 26 to 30 goats were randomly allocated into two groups of 13-15 animals each: an untreated control group to monitor changes in the nematode egg counts during the test period and a group that was orally administered albendazole (5 mg/kg body weight- Albenol-100[®], Interchemie, Holland). Individual faecal egg counts and pooled larval cultures were done from samples collected on day 0 before treatment and 14 days after anthelmintic treatment. The field faecal egg count reduction test (FECRT) was used to assess the efficacy of albendazole, the most often used in Mozambique. The degree of resistance was calculated using two different methods and varied according to the method used. Resistance to anthelmintic was considered present if the % FECR was less than 95, and the lower 95% confidence limit was < 90 and 80 %, respectively (Coles *et al.* 1992; Dash *et al.* 1988). Resistance to albendazole was detected in five flocks in Maputo and three in Gaza, and % FECR varied from 51% to 97% in Maputo and 0% to 100% in Gaza using the formula of Coles *et al.* (1992), and from 42.1% to 91.4% in Maputo and 44% to 100% in Gaza using that of Dash *et al.* (1988), respectively. When the formula of Dash *et al.* (1988) was used, however, resistance was not detected in one flock in Maputo where it was detected using the formula of Coles *et al.* (1992). In pre-treatment larval cultures, *Haemonchus* spp., *Oesophagostomum* spp, and *Strongyloides papillosus* were the predominant nematode species while *Trichostrongylus* spp. was present in small numbers. Post-treatment faecal cultures indicated that *Haemonchus* spp., and to a lesser extent *Oesophagostomum* spp. and *Trichostrongylus* spp., were resistant to albendazole. Previous studies in 2002 indicated that anthelmintic resistance was an emerging problem in southern Mozambique, and this study provides further evidence that anthelmintic resistance in nematode parasites of goats is currently

a problem of great importance in this region of the country, to which appropriate measures must be taken to reverse the situation.

Keywords: Albendazole, anthelmintic resistance, gastrointestinal nematodes, goats, Mozambique