

ORAL POSTER SESSIONS

A walk on the wild side

All about tapeworms

Bite me! ectos as parasites

Divide and Conquer

The Joe Boray Session

Resistance is futile!

Ticked Off!

Who and How Many?

All about Crypto

All about Flukes

All about Sheep

Cause and Effect

Drugs - do they REALLY work?

Parasites in my blood!

Pets, Pits and People

Size really doesn't matter - enteric protozoa

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25-29 August 2013

Perth Convention Exhibition Centre Western Australia

24th International Conference of the World Association for the Advancement of Veterinary Parasitology

Hosted by The Australian Society for Parasitology Inc.

Session Details:

8/27/2013

Resistance is futile!

11:40 - 12:40

Meeting Room 6

Poster with 2 minute Oral Presentation Details:

Identification and quantification of polymorphisms responsible for the resistance to benzimidazoles in *Haemonchus contortus* isolated in the state of Ceara, Northeastern of Brazil

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Poster Number:

125

Haemonchus contortus is the most prevalent nematode in the Northeast region of Brazil. Control based on benzimidazole utilization is widespread and its inadequate use quickly selects the parasite population for resistance. Phenotypic methods such as faecal egg count reduction test (FECRT) and egg hatch assay (EHA) are widely used to characterize anthelmintic resistance (AR). PCR based methods are also used to diagnose resistance to benzimidazoles in *H. contortus*. These methods detect SNPs (F167Y, E198A and F200Y) in the beta tubulin isotype 1 gene. The objective of this study was to select populations of *H. contortus* for benzimidazole resistance and characterize it using Real-time PCR for each known SNP. Real-time PCR was done using DNA from a pool of 10 adult male *H. contortus* from a single animal per farm. FECRT and EHT were used to determine the original resistance. Tested samples were obtained from 6 farms located in 5 counties in the Ceará State: Tauá (TA1, TA2), Boa Viagem (BV), Quixadá (QX), Santa Quitéria (SQ) and Solanópole (SO). Dr. J. Cabaret (INRA, France) kindly provided the inbred-susceptible-Edinburgh (ISE) isolate, previously reported as benzimidazole susceptible, as reference for comparison purposes. Benzimidazole resistance was detected by FECRT and EHT in all farms. Real time PCR results showed high frequencies of the resistant SNPs F200Y and F167Y. The most frequent resistant allele in the studied populations was in SNP F167Y and resistance in SNP E198A was not detected. Resistant allele frequencies for the ISE isolate were 1.7%, 0% and 0% for SNPs F200Y, F167Y and E198A respectively. Our results suggest that the SNPs F167Y and F200Y are both important for benzimidazole resistance in the studied populations. We plan to keep using the developed real time PCR test in future studies to assess benzimidazole resistance in natural *H. contortus* populations in Brazilian farms.

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