MODIFICATION OF A MIGRATION ASSAY INVOLVING *HAEMONCHUS CONTORTUS* FOR SCREENING THE ANTHELMINTIC ACTIVITY OF ETHANOL-EXTRACTED PLANT PRODUCTS

T. R. Politz, R. N. Reese and M. B. Hildreth
Department of Biology & Microbiology
South Dakota State University
Brookings, SD 57007

ABSTRACT

Kotze et al. (Kotze, A. C., L. F. Le Jambre, and J. O’Grady. 2006. A modified larval migration assay for detection of resistance to macrocyclic lactones in *Haemonchus contortus*, and drug screening with *Trichostrongylidae* parasites. Vet. Parasitol. 137(3-4):294-305) described a migration assay that was useful as a drug screening tool with *Trichostrongylidae colubriformis* larvae. Their assay involves exposing larvae to the drug for a 24 hr period, then counting the numbers of larvae capable of migrating through an agar and filter mesh system over a 48 hr period. As part of larger project to evaluate the biological activity of South Dakota native plants, we evaluated the usefulness of this migration assay as an anthelmintic screening tool for ethanol-extracted plant products involving *Haemonchus contortus* larvae. The assay system consisted of a 96-well, multiscreen mesh filter plate (20 mm filter) containing 75 uL of 0.125% agar. Up to 250 uL of fluid containing the worms could be added above the agar. Water (170 uL) was also added below the agar to “catch larvae that had migrated through the agar. To determine if migration times shorter than 48 hrs could be used with *H. contortus* larvae, approximately 40 larvae were added to multiple wells above the agar, and the number of larvae penetrating through the agar quantified after 1, 3, 6, 12 and 24 hours. With this, we determined that most of the worms had completed the migration by 24 hours. To determine how much ethanol (containing the plant extract) could be added to the assay system without affecting the migration results, 1, 5, 10, 15, 20, 25 uL of ethanol was add to 250 uL of water containing approximately 40 larvae/well. After 24 hrs, the number of larvae that had migrated through the agar was again counted. From this, we determined that up to 10 uL of ethanol could be added without affecting migrations. Results from this project indicate that ethanol extracted plant products could be tested with this migration assay.