

## Research Note

### THE INEFFECTIVENESS OF RAFOXONIDE (3, 5 - DIHODO - 3<sup>1</sup> CHLORO 4<sup>1</sup> - (p-CHLOROPHENOXY) SALICYLANILIDE) AGAINST PLATYNSOMUM FASTOSUM, THE LIVER-FLUKE OF DOMESTIC CATS<sup>1, 2, 3</sup>

*Platynosomum fastosum*, the cat liver-fluke, was first recorded in Puerto Rico by Dikmans.<sup>4</sup> In a survey conducted in 74 towns in Puerto Rico during 1934 to 1935, García-Díaz<sup>5</sup> found 89.5% of the adult cats and 40% of the young adults infected with *P. fastosum*. In 1964 De León and Kolodziej<sup>6</sup> reported that 72% of the cats examined in the municipality of San Juan, Puerto Rico, harbored *P. fastosum*.

The life cycle of *P. fastosum* was studied by Maldonado.<sup>7</sup> The first host is *Subulina octona*, one of the most adaptable and widely distributed tropical mollusks.<sup>8</sup> The second intermediate host is an isopod as shown by Eckerlin and Leigh,<sup>9</sup> and the third intermediate host is *Anolis cristatellus*, the lizard of open fields and roadsides. Cat acquires the infection by preying on infected lizards.

Liver-fluke infection appears to be more common in older cats than in younger ones. Cats can harbor light infection and remain asymptomatic although loss of body condition is more frequently noted. Periodic attacks of diarrhea and vomiting with development of jaundice are later symptoms, and mortality is high.<sup>10</sup> Other manifestations of the disease are

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<sup>2</sup> Portion of a dissertation, Evaluation of Rafoxanide in the Treatment of *Platynosomum fastosum* Infection in Cats, submitted by the senior author in partial fulfillment of the requirements of Masters of Science in the Department of Medical Zoology, School of Medicine, University of Puerto Rico, Río Piedras, P. R.

<sup>3</sup> Thanks are expressed to Dr. J. D. Rivera-Anaya, Former Director, Department of Animal Husbandry, Agricultural Experiment Station, Mayagüez Campus, Río Piedras, P. R., for reviewing the manuscript.

<sup>4</sup> Dikmans, G., Report of the Parasitologist, Annu. Rep. Agri. Exp. Stn., Mayagüez, P. R., 1927.

<sup>5</sup> García-Díaz, J., Occurrence of *Platynosomum fastosum* Kossack, 1910, (Trematoda: Dicrocoelidae) in the Domestic Cats of Puerto Rico, *Stahlia* 1: 1-3, 1961.

<sup>6</sup> De León, D. and Kolodziej, F., Helminth Parasites of Cats, *J. Agri. Univ. P. R.* 53(1): 77-8, 1969.

<sup>7</sup> Maldonado, J. F., The Life History and Biology of *Platynosomum fastosum* Kossack, 1910 (Trematoda: Dicrocoelidae). *P. R. J. Public Health Trop. Med.* 17-60, 1945.

<sup>8</sup> Van der Schalie, H., Land and Fresh-Water Mollusks of Puerto Rico, *Mich. Univ. Press*, 56-57, 1948.

<sup>9</sup> Eckerlin, R. P. and Leigh, W. H., *Platynosomum fastosum*, 1910 (Trematoda: Dicrocoelidae) in South Florida, *J. Parasitol.* 48: 49, 1962.

<sup>10</sup> Sinclair, K. B., Pathogens of *Fasciola* and Other Liver-Flukes, *Helminthological Abstr.*, 36: 128, 1967.

anorexia, rapid weight loss, lethargy, and progressive abdominal distention.<sup>11</sup>

Effective chemotherapeutic agents against *P. fastosum* are not available. "Fuadin" (neo-antimosan) and carbon tetrachloride are toxic to the cat and ineffective against the cat liver-fluke as reported by Leam and Walker.<sup>12</sup>

"Rafoxanide" (3, 5 - Diiodo - 3<sup>l</sup> - chloro 4<sup>l</sup> - (p-chlorophenoxy) salicylanilide), a new anthelmintic, has been found effective against a variety of parasites including *Fasciola hepatica*, and *Schistosoma mansoni*.<sup>13</sup> It was, therefore, deemed worthwhile to determine its anthelmintic activity against *P. fastosum* in cats.

Six cats from the San Juan, P. R. metropolitan area, naturally-infected with *P. fastosum*, were used in this study. The cats were examined, weighed, treated for gastrointestinal parasites and kept in individual cages provided with litter box. Cat chow was given once a day and fresh water was supplied at all times. The initial EPG<sup>14</sup> of *P. fastosum* from all cats was recorded. The first four cats were given "Rafoxonide" *per os* at varying dosages as follow: Cat No. 1, 5 mg/kg; No. 2, 10 mg/kg; No. 3, 15 mg/kg; and No. 4, 20 mg/kg. Cat No. 5 was given polyethylene-glycol orally and Cat No. 6 served as the untreated control.

"Rafoxanide" given orally at varying dosages of 5 mg to 20 mg/kg to six cats naturally-infected with *P. fastosum* did not produce any observable adverse reactions. Administration of "Rafoxanide" did not significantly alter the EPG of *P. fastosum* in the experimental cats throughout the 4 weeks subsequent to treatment. "Rafoxonide" at the dosage schedule tested is ineffective against *P. fastosum* of domestic cats.

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<sup>11</sup> Powell, K. W., Liver-Fluke Infection in a Cat, J. Am. Vet. Med. Assoc., 156-218, 1970.

<sup>12</sup> Leam, G. and Walker, I., The Occurrence of *Platynosomum fastosum* in Domestic Cats in the Bahamas. Vet. Rec., 75: 46-47, 1963.

<sup>13</sup> Campbell, W. C., Ostlind, D. A., and Blair, L. S., Drug Activity vs. *Fasciola*, *Haemonchus* and *Schistosoma*. 19th World's Vet. Cong., Mexico, Vol. 2: 623, Aug. 14-22, 1971.

<sup>14</sup> Maldonado, J. F., Helminthiasis del Hombre en América. Editorial Científico-Médica, Barcelona, España, 1965.