

# CATEDRA DE PARASITOLOGIA Y PATOLOGIA INFECCIOSA

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## **ANTHELMINTIC EFFECT OF MARETIN - BAYER AGAINST *Trichinella spiralis* INFECTION IN RATS AND MICE**

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### RESEARCH NOTE

Maretin (N-(dietoxy-phosphoriloxy)-naphthal-imide) is an organo phosphate which is commonly used to treat the parasitic gastroenteritis in ruminants. The present paper describes experiments in which single doses at different levels of Maretin were administered to experimentally infected rats and mice, covering the enteral and parenteral life cycle of the worms.

### MATERIALS AND METHODS

Wister albino rats and albino mice kept in our laboratory were experimental animals. The strain of *T. spiralis* was GM-1, registered in the WHO International Register. Larvae for infections were obtained by digesting infected rat muscle in acidified pepsin. The digested material was passed through sieves (320 on 40 microns) to remove debris and then cleaned and selected by baermannization. Larvae were counted in McMaster slides and dosage was adjusted to the desired concentration with 10 % gelatin. Doses of 1,000 larvae in a volume of 1 ml were given to rats. Mice received 500 larvae in 0.1 ml, in either case by means of a stomach-tube. Throughout the period of counting and administration of the infective doses, the suspension of larvae was magnetically stirred.

The drug was given by means of a stomach-tube, as a water suspension magnetically stirred. Drug concentration was adjusted in each treatment level in such a form that 0.1 ml of suspension was given to each 10 g of liveweight for rats, and 0.1 ml to each 5 g of liveweight in mice. By this procedure each animal was treated according to its own weight.

Results were ascertained by determining the number of adult worms present in the intestine on the 7th or 8th day p. i. and the number of muscle larvae by digesting muscles.

Adults in the intestine were counted by slitting open and cutting into short pieces each intestinal tract, and allowing them to undergo autolysis in saline for 5-6 hours at 37°C. Afterwards, adult *T. spiralis* were retained and cleaned by screening through sieves of 320 on 125 microns (washing the pieces in the wider sieve and retaining the worms on the narrower one). From this latter worms were washed into the counting chamber.

Haloxon and Methyridine were used as a comparative basis in some experiments.

## RESULTS

Experiments were conducted to study the effect of drug during the period of maturation of the parasite in the gut, from 2 to 52 hours p. i., parallelly with the effect of Haloxon at the same intervals.

The effect on adult worms was determined by testing with several doses in decreasing amounts from 100 mg/kg on the 3rd and 5th day p. i. and counting the number of helminths which persisted on day 8th p. i. as compared with results given by Methyridine.

The effect on migrating larvae was determined by medicating at different period after the 3rd day p. i. in double groups of animals, one for ascertaining the number of persistent adults before the selfcure phenomenon, and a second one to evaluate the number of muscle larvae at the end of the cycle.

Activity on encysted larvae was studied by dosing previously infected animals and then submitting them to further observations in order to study the condition of the larvae and their infectiveness for other experimental animals.

Doses of 50 mg/kg have the effect of reducing 99 % the adults persisting of the 7th p. i. when this treatment was administered against preadult worms.

Doses of 100, 80, 60 and 50 mg/kg have an effect of reducing 100 % of adult worms.

So far as we know at present, no effect has been found against migrating larvae, even with the highest doses used. The effect of encysted larvae is under study at present.

### RESUMEN

Maretin (N-(dietoxi-fosforiloxi)-naftal-imida) es un fosforado orgánico, que con dosis de 50 mg/kg de peso, administrado a ratas experimentalmente infestadas, provoca la reducción del 99 % de los adultos de *T. spiralis*, cuando la medicación se administra contra la fase de preadultos, y 100 % cuando se aplica contra adultos. No se ha demostrado actividad contra las larvas emigrantes.

### RESUME

Le Maretin (N. dietoxy-phosphoryl-oxy-naphtal-imide) est un produit phosphoré organique qui, administré à une dose de 50 mg/kg de poids, à des rates expérimentalement infestées, provoque la réduction du 99 % des *T. spiralis* adultes quand la médication est administrée contre la phase des parasites préadultes, et 100% aussi contre les adultes. Aucune activité contre les larves émigrantes n'a été démontrée.