

دراسات عن فعالية الايفرمكتين فى علاج الطفيليات
الخارجية والديدان الاسطوانية فى الدجاج
٢ - دراسة تأثير العقار على الديدان الاسطوانية فى الدجاج

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تم أحداث العدوى الصناعية فى مجاميع من الدجاج بواسطة البويضات الناضجة
لدودة الأسكارس - وتم علاج هذه المجاميع بجرعات ١٠٠ ، ٢٠٠ ، ٤٠٠ ميكرو
جرام / كج وزن حى عند ١٢ يوم (الطور النسيجى) أو ٤٠ يوم (الطور الـدوى
الكامل) بعد العدوى .

أثبت العقار فعاليته الكاملة والتي أدت الى التخلص من ٩٥ - ١٠٠ % من
الديدان فى الطور الكامل فى حين أنها لم تظهر فعالية فى الطور النسيجى
لذا يتصح بتكرار الجرعة للتخلص من كل الأطوار .

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**INVESTIGATIONS ON THE EFFICACY OF IVERMECTINE AGAINST
ECTOPARASITES AND NEEMATODES IN CHICKEN
II- ANTHELMINTIC EFFICACY OF IVERMECTINE FOR EXPERIMENTAL
ASCARIDIASIS IN CHICKENS**

(With One Table)

By

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SUMMARY

Groups of chickens were experimentally infested with equal doses of embryonated *Ascaridea* eggs. Birds were treated with a single oral dose of 100, 200, or 400 ug/kg. b.w. at 12th day (tissue phase) or 40th day-post infection (mature worms). The drug was unefficient in controlling larval stages in tissue phase. All doses proved to be highly effective against mature worms and lead to 95-100% elimination of the mature worm. A small dose of 100 ug/kg. b.w. is recommended, repeating of the dose is essential for elimination of infection.

INTRODUCTION

Nematodes constitute the most important group of helminth parasites of poultry, both in number of species affecting poultry and in the amount of damage done (HOFSTAD, et al. 1978). Ivermectine was found to be highly effective against established infections of gastrointestinal nematodes in cattle and pigs. (CAMPBELL, 1981; BENZ, et al. 1983 and SCHILLHORN & GIBSON, 1983).

The purpose of the present investigation was to evaluate the anthelmintic activities of ivermectine, given orally to chickens, against induced ascaridiasis in the early tissue phase or the adult stage of development.

MATERIAL and METHODS

Infective eggs:

Ascaridia galli eggs were allowed to develop to infectivity stages in 10 days at 30°C and optimal moisture (ACKERT, 1929). Embryonated eggs were counted using a chamber and stereoscopic microscope. Infective eggs were used for oral infection of experimental birds.

Experimental chickens:

A total of seventy lohman selected leghorn chickens, aged 15 weeks were purchased from a local farm where they had been reared in wire cages. Birds were individually identified by means of numbered wingmarks and were divided into 7 groups of 10 birds each. Each bird was orally infected with an infective dose containing 1000 infective eggs of Ascaridia galli.

S. MOUSA, et al.**Drug:**

Ivermectine (otherwise known as MK-933 or 22, 23 dihydroavermectine B₁; Merck, Sharp & Dohme) was supplied in a formulation containing the drug in a concentration of 10 mg/ml.

Treated birds were given a single oral dose of ivermectine at a dose rate of 100 ug/kg. b.w. for birds of groups 1 & 2, 200 ug/kg. b.w. for birds of groups 3 & 4 and 400 ug/kg. b.w. for birds of groups 5 & 6. Birds of groups 1, 3 & 5 were treated at the 12th day post-infection (p.i.), while birds of groups 2, 4 & 6 were treated at the 40th day. p.i.

All birds were necropsied at the 43th day p.i. and total worm counts were made. The efficacy of anthelmintic activity against the parasite was calculated using the formula after BREMNER, et al. (1983).

$$\% \text{ efficacy} = \frac{(\text{N. in controls}) - (\text{N. in treated birds})}{(\text{N. in controls})} \times 100$$

where N = mean number of parasites.

RESULTS

Faecal examination of the experimental birds for presence of Ascaridia eggs before experimental infection revealed negative. At the 40th day p.i. all birds showed presence of Ascaridia eggs in their droppings. At necropsy, birds of groups 1,3,5 & 7 showed higher count of Ascaris worms in the intestine than those of groups 2, 4 & 6 (Table 1).

Table (1)
Worm counts after treatment with ivermectine

Group	Dose in Ug/kg. b.w.	Day of treatm. (p.i.)	Mean of worm counts X	SE	Efficacy of iverm.
1	100	12 th	222	+3.49	0%
2	100	40 th	11	+1.02	95%
3	200	12 th	210	+2.27	3.6%
4	200	40 th	3	+0.83	99%
5	400	12 th	217	+3.07	0%
6	400	40 th	0		100%
7	-	-	218	+5.40	-

X = geometric mean

SE = standard error.

ANTHELMINTIC EFFICACY OF IVERMECTINE

DISCUSSION

In the present study, ivermectine administered orally was highly effective against adult *Ascaridia galli* worms. Different doses of 100, 200, & 400 ug/kg. b.w. were nearly equally efficient (95, 99 & 100% respectively). These findings are consistent with reports on the efficacy of ivermectine against gastrointestinal nematodes in cattle and pigs (ARMOUR, *et al.* 1980; BENZ and ERNEST, 1981; EGERTON, *et al.* 1981 and BENZ, *et al.* 1983).

Regarding the efficacy of ivermectine on the immature larval stages (tissue phase), the drug proved to be uneficient when administered at doses of 100, 200 and 400 ug/kg. b.w.

The results of these experiments confirm that ivermectine is a highly efficient anthelmintic for chickens by oral route, but retreatment is recommended at 30 days interval for controlling larvae in tissue phase. Low dose of 100 ug/kg. b.w. is recommended as therapeutic dose for treatment of *Ascaridia* infestation.

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