ZAGAZIG UNIVERSITY
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جامعة الزقازيق
كليـة الطب البيطرى

ZAGAZIG VETERINARY JOURNAL

VOL. XII No. 2 December 1985

Arab Republic of Egypt

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Zagazig Vet. J. Vol. 12, No.2 (1985) pp. 485-489

EXPERIMENTAL EVALUATION OF 4 ANTICOAGULANT RODENTICIDES IN THE CONTROL OF RODENTS

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INTRODUCTION

Rats and mice are endemic animals in Egypt since ancient times, they are still important and as dangerous as they were at that time, whether from agriculture or health point of view.

Rats kill baby chickens and even adult poultry and gnaw into buildings and start fires by damaging electric wiring.

They have filthy habits by gatting access to filthy places and thus considered as potential disseminators of disease germs. They also serve as reservoirs and carriers for a number of diseases which can be spread to man and animals by their filthy habits, their droppings and their ectoparasities. The most important of these diseases are plague, murine typhus, leptospirosis, trichinosis, tularemia and salmonella food infection, **(Samaan, 1960; Hoog straal, 1957; W. H. O. Magzine, 1967; Hull,1955 and El Bahay et al., 1971).**

The present experiment has been done evaluate some of the rodenticides already present in the Egyptian markets. These rodenticides are the following 4 anticoagulants, chlorophacinone, coumatetralyl, warfarin and coumachlor.

MATERIAL AND METHODS

Rodenticides used:

1- Chlorophacinone $C_{23}H_{15}ClO_3$

Trade names, Caid, Liphadione, Raviac, Quick, CX_{14}

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2- Coumatetralyl $C_{19}H_{16}O_3$

Trade name, Racumin 57.

3- Warfarin $C_{19}H_{16}O_4$

Trade names, Warfarin, coumafene.

4- Coumachlor $C_{11}H_{15}ClO_4$

Trade name, Tomorin.

Animal tested:

Adult male albino mice (Mus musculus) weighing 18-22 grams each, obtained from a strain reared at the central Agricultural Pesticides Laboratory, Ministry of Agriculture Cairo, Egypt were used.

Methods

A bait composed of a mixture of wheat and barley flowers (50% each) was used.

One of each of the rodenticides was mixed with the two concentration (a-Recommended dose and b-tenth of the recommended dose) as shown in Table (1).

The baits were given to eight groups of adult albino male mice (each group was of 10 mice). They were fed on the prepared baits ad. lib. Morbidity and day of death were recorded in table (1).

RESULTS

Table (1): The effect of dipferent rodenticides against male albino mice.

Rodenticide	Killing dose	Time needed to kill mice	1/10 of the killing dose	Time needed to kill mice
Chloro-phacinone	0.005%	3 days	0.0005%	15 days
Coumatetralyl	0.0375%	4 days	0.00375%	15 days
Warfarin	0.05%	5 days	0.005%	25 days
Counachlor	1.0%	10 days	0.1%	More than 30 days

DISCUSSION

The effect of different rodenticides against male albino mica is recorded in table (1).

Mice given 0.005% clorophacinone in male died at the 3rd day after administration, while 0.0005% in male caused death of mice at the 15th day.

Concerning coumatetralyl 0.0375% in meal, it caused death at the 4th day, while 0.00375% at the 15th day.

Warfarin 0.05% was effective at the 5th day, while 0.005% at the 25th day after administration.

Coumachlor 1% resulted in death of mice at the 10th day after given it, while 0.1% caused death after 30 days of administeration.

Heinz (1979) reported that, chlorophacinone is used as a solution (2.5 g a.i/l oil) or as prepared bait (50 mg/kg), coumachlor used as bait (300 mg/kg) or as tracking powder (10 g/kg), and warfarin used as a dust (10 g/a.i/kg) or (1 and 5 g.:kg).

From the obtained results, it is clear that, chlorophacinone has the shortest killing time of tested mice followed by comatetralyl, warfarin and then coumachlor.

The use of rodenticides should be accompanied with rat-proofing of the buildings and disposal of garbage as the golden rule of rat control is to deny food and dwelling for them.

SUMMARY

The effect of 4 anticoagulant rodenticides aginst male abino mice were studied. The rodenticides tested are chlorophacinone, coumateralyl, warfarin and coumachlor.

It was found that, chlorophacinone (0.005%) in meal has the shortest time (3 days) ok killing the tested mice following by coumatetralyl (0.0375%) in 4 days, warfarin (0.05 %) in 5 days and coumachlor (1%) within 10 days.

Moreover, the uses of tenth the forementioned doses caused killing of mice within 15 days for chlorophacinone and coumatetralyl, while these were 25 days and more than 30 days for warfarin and coumachlor respectively.

The use of rodenticides should be accompanied with rat - proofing of the buildings and disposal of garbage as the golden rule or rate control is to deny food and dweling for them.

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الملخص العربـــــى

التقييم الاختبارى لأربعة مبيدات مانعة للتجلط تستخدم فى مكافحة القوارض

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أجريت هـذه الدراســة لمعرفــة تـأثير أربعــة مبيدات مانعة للتجلط فى مقاومة الفئران واستخدم فى ذلك ذكر جرز المختبر الابيض٠

وقـد أثبتت الدراســة أن الكلوروفاسينون بتـركيز ٠٠٥ ر٪ فى العليفـة قضـى علـى جرز المختبـر الأبيـض فى أقـل وقـت وهو ثلاثـــة أيـام بينما قضـى الكوماتترالييـــل ٠٣٧٥ ٪ عليها فى أربــعة أيـام ثـم الوارفـارين ٠٥ ر٪ فى خمســة أيـــام وأخيـرا الكـومـاكلور ١٪ خلال عشرة أيـام٠

وبـاستخدام عشر التركيزات السابقة المميتة وجد أن الفترات اللازمة للقضـــــاء على جرز المختبر الابيض بـدأت تطول وأصحت خمســة عشر يوما فى كل من الكلوروفاسينون والكوماتترالييل بينما خمســة عشر يوما وأكثر من ٣٠ يومـا فى الوارفـارين والكوماكلور على التوالى

وتشير الدراسـة الى أن استخدام المبيدات فى القضـاء على الفئـــران لابـــــد وأن يكـون مصاحبا أبنية غير قابلة لايـواء الفئران وكذلك بالتخلص الصحى من النفايات٠