

دراسة كفاءة الدورسبان - الديازينون - اللندين و ال د. د. ت في علاج  
مرض الجرب في الجاموس والجمال

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الملخص

بعد دراسة مقارنة لبعض المبيدات في علاج مرض الجرب في الجاموس والجمال أثبتت  
البحث مدى فاعلية الدورسبان في تركيزي ٠.١٢ ر - ٠.٢٥ ٪ وكذلك الديازينون في تركيزي  
٢٥ ر - ٥٥ ٪ أما اللندين فكان أقل كفاءة في تركيز ٠.٥ ٪ بينما لم يثبت ال د. د. ت في  
تركيزي ٠.٥ ر - ١ ر ٪ أى تأثير فعال في مقارنة المرض في الجاموس والجمال .

والتجارة من بلاد الهند إلى بلاد فارس  
والبحر من بلاد فارس إلى بلاد الهند

في سنة ١٠٠٠ هـ

بسم الله

الحمد لله الذي جعلنا من هذه البلاد  
مركزا للتجارة والعلوم والسياسة  
والدولة من بلاد الهند إلى بلاد فارس  
والبحر من بلاد فارس إلى بلاد الهند

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## EFFICACY OF DORSBAN, DIAZINON, LINDAN AND D.D.T. FOR TREATMENT OF MANGE IN CAMELS AND BUFFALOES

(with 2 tables)

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### SUMMARY

The efficiency of different insecticides was tested for treatment of Sarcoptic mange in camels and Sarcoptic, Psoroptic mange in buffaloes.

Dorsban (0.012-0.025%) and Diazinon (0.025-0.05%) were most effective for treatment of Sarcoptic mange or mixed infection of Sarcoptic and Psoroptic mange in buffaloes and Sarcoptic mange in camels. Lindane (0.05%) was comparatively less effective while DDT, at 0.05 and 0.1 percent concentration was ineffective.

No ill effects due to these insecticides were noticed in any of the treated animals.

### INTRODUCTION

Mange is a most common and wide spread highly contagious disease of buffaloes and camels. It is found in various countries including Egypt.

Mange frequently affect animals occurring in flock which kept under poor hygienic conditions (Rathore and Lodha, 1973). Over crowding, malnutrition, fatigue, Lack of grooming of the skin are the main predisposing factors (Lodha, 1966).

Both Sarcoptic and Psoroptic mites are the causative agents of mange in buffalo "Sarcoptes scabiei var bubulus and Psoroptes communis var bubulus (SRIVASTAVA AND KHAN, 1973), while the causative agents of mange in camels is Sarcoptic Cameli "Sarcoptes Scabiei var Cameli" (RATHORE AND LODHA, 1973).

In the last decade many trials were done by many workers to find out an effective remedy for controlling and getting rid off mange disease affecting animals especially sheep, dog and cattle using various types of insecticides but little is known about the control of mange affecting buffalo and camel.

DOWNING ET AL (1952) stated that 0.013% gamma BHC as a dip was quite effective against sheep mange but DDT was ineffective. FIEDLER AND DU TOIT (1953) in their trials to treat sheep infected with *Psoroptes communis* Var *Ovis* mention that the application of gamma BHC and dieldrin in 0.03% and 0.05% proved very effective where as using aldrin was ineffective. Fiedler (Cited by Lapage 1962) considered all species of Sarcoptidae were susceptible to treatment with gamma BHC, dieldrin and toxaphene. CHAUDHURI (1963 a - 1963 b) treated Sarcoptic mange in goat with 0.25% neguvon, 0.5% coumaphos and 0.05% Lindane, Sarcoptic mange in buffalo with 0.15% neguvon and demodectic mange in calf with 0.75% asuntol. LODHA (1966) found that lindan in 0.05% concentration was effective against Sarcoptic mange in camel and recovery occur after second application while DDT at 0.05% and 0.1% concentrations were ineffective. KELLER ET AL (1972) mentioned that mange in pig was eradicated by spraying animals 3-4 times by 0.028% Lindane and 0.025% diazinon. RATHORE AND LODHA (1974) found that Lindane cured mange in camels with two sprays 10 days apart at a concentration of 0.75% while at 0.5% cures were achieved in three applications while sumithion and malathion at the same concentrations were less effective than Lindane.

The aim of this work is to find out the efficiency of some insecticides in the control of buffalo mange caused by *Sarcoptes* and *Psoroptes* species as well as for treatment of Sarcoptic mange in camels, and if they could be used as insecticides and acaricides at the same time.

## METHODS

### 1. Animals :

Seventy animals (41 buffalo and 29 camels) were used in this investigation. These animals were chosen from the veterinary clinics in Assiut province among those suffering from skin lesions, a history of pruritic and itching. (in the period from September 1974 to April 1975).

Scrabings from skin lesions on various parts of the body were collected and subjected to laboratory examination for a detailed study of the causal agent.

The severity of the infection were classified according to the number of mites found in the microscopic field using low power lens. As light infection if one mite, medium infection if 2-4 mites or heavy infection if 5 or more mites were present.

### 2- Treatment of affected animals :

The affected animals were divided into groups (Table 1 and 2) each containing animals having light - heavy infection, a control group for buffaloes and other for camels were left untreated. Each group of the animals were treated with a known concentration of insectide and three applications were made at 10 days interval.

TABLE 1. Results of the treatment of Sarcoptic or mixed infection of Sarcoptic and Psoroptic mange in buffaloes with insecticides .

Insecticides concentration	Total no. of animals treated	No. of animals cured after 1st application	no. of animals cured after 2nd application	no. of animals cured after 3rd application	no. of animals not respond for treatment
Dorsban 0.012% . . .	6	5	1	—	0
Dorsban 0.025% . . .	6	6	—	—	0
Lindane 0.05% . . .	5	0	3	2	0
DDT. 0.05% . . . .	4	0	0	0	4
DDT. 0.1% . . . . .	4	0	0	1	3
Diazinon 0.025% . .	6	3	2	1	0
Diazinan 0.05% . . .	7	4	3	—	0
Control . . . . .	3	0	0	0	3

TABLE 2. Results of treatment of Sarcoptic mange in camels with insecticides .

Insecticides Concentration	Total no. of animal treated	no. of animal cured after 1st application	no. of animals cured after 2nd application	no. of animals cured after 3rd application	no. of animals not respond for treatment
Dorsban 0.012% . .	4	3	1	—	0
Dorsban 0.025% . .	5	5	—	—	0
Lindane 0.05% . . .	4	0	3	1	0
DDT. 0.05% . . . .	3	0	0	0	3
DDT. 0.1% . . . . .	3	0	0	0	3
Diazinon 0.025% . .	4	2	1	1	0
Diazinan 0.05% . . .	4	3	1	—	0
Control . . . . .	2	0	0	0	2

All treated animals were constantly observed and scrabings were examined microscopically within 7 days of each treatment, at the end of the first, second and third times of application for presence of mites.

Insecticides were applied by direct rubbing of the used material using a stiff brush.

### 3- The insecticides used :

The insecticides used were emulsifiable concentrates of the following commercial formulations

#### 1- Organophosphate

- a- Dursban (R) (40.8% emulsifiable concentrate in water)
- b- Diazinon (60% emulsifiable liquid concentrate)

#### 2- Chlorinated hydrocarbons

- a - lindane (25.0 % wettable powder )
- b - DDT. (30.0% emulsifiable concentrate)

The desired concentrations of the insecticides prepared in tap water, used to wet the whole body of the animals and about 10 liters was required for each buffalo or camel.

## RESULTS

Severe pruritis with intense itching and loss of hair in the affected areas were the chief characters found in most of the examined cases.

In buffaloes, the lesions were on the neck, thorax and abdomen, sometimes lesions were seen at the tube ischii, at the base of tail. In severely infested buffaloes skin lesions were present on the fore and hind limbs from the outer sides.

In case of camel, the lesions were found around the chest bad, on the abdomen and the hind limbs while in severe cases skin lesions are covering all the body even the lips, eye lids and supra orbital fossa, lesions were not observed on the dorsal aspects of neck or on the hump. Thickening of the skin folds and tunnels were characteristic on the hind quarters, thighs, hock joint and axillary region. The skin was dry and doughy to touch. Blood oozing from the affected areas was seen occasionally.

*-Treatment of Sarcoptic mange or mixed infection of Sarcoptic and Psoroptic mange in buffalo (Table 1).*

Dorsban at a concentration of 0.012% was effective in treating 83% of affected animals after the first application, all animals were cured, whereas by using concentration of 0.025% only one application proved to be curable.

Dorsban (R) 0,0- dimethy 10-3, 5, 6,- trichloro- 2 pyridyl (Dow chemical company)

Diazinon-0,0-Diethyl-0(2- Isopropyl-6-methyl -4- pyrimidinyl phosphorothioate (CIBA-GEIGY)

Lindane- gamma Benzene Hexa chloride.

DDT. Dichloro- diphenyl trichloroethane

Two applications of 0.05% *Lindane* cured 60% of the cases while the rest 40% were cured after third application. DDT. 0.05% concentration was ineffective while 0.1% cured 25% of the animals after three application. *Diazinon* in 0.025% concentration cured 50% of the effected animals after the first application and 83% after the second application while all the animals were cured after the third application while 0.05% concentration of *Diazinon* cured 66.6% of the affected animals after first application and all animals were cured after second application.

The control animals remained positive for mites throughout the experiment.

#### *Treatment of Sarcoptic mange in Camel (Tabl 2).*

Using *Dorsban* at a concentration of 0.012% proved efficient in 75% of the affected treated animals after the first application while the remained 25% were cured after the second application. *Dorsban* at a concentration of 0.025% cured all animals after first application.

Two applications of 0.05% *Lindane* gave positive results in 75% of treated cases, using a third application it gave a 100% efficiency results.

Application of DDT. at 0.05% and 0.1% concentrations were ineffective *Diazinon* at a concentration of 0.025% cured 50% of the affected animals after first application and 75% of the animals after second application, while all animals were cured after the third application. Using a higher concentration of *Diazinon* 0.05% cured 75% of the affected animals after first application and all animals were cured after the second application.

The control untreated animals remained positive for mites throughout the experimental period.

### DISCUSSION

Unhygienic conditions associated with malnutrition and overcrowding of animals are the main predisposing causes of mange infestation among animals. Moreover, environmental factors as climatic conditions and seasonal variations may favour the spread and propagation of the disease.

Many insecticides which have shown promising result in the control of arthropods have also been tested for the control of mange in livestock.

Of the insecticides, tested against mange caused by *Sarcoptes* and mixed infection of *Sarcoptes* and *Psoroptes* in buffaloes, 0.025% concentrations of *Dorsban* were found to be the most effective followed by 0.05% and 0.025% concentration of *Diazinon*, and 0.05% *Lindane* while DDT. at 0.05% and 0.1% concentrations proved ineffective.

The results obtained from using the various insecticides for treatment of Sarcoptic mange in affected camels proved that *Darsban* in 0.25% and 0.12% concentration was the most effective. *Diazinon* in concentration 0.05% and 0.025 as well as 0.05% *Lindane* needed 2 or 3 applications to be curable. While using DDT. at a concentration of 0.05% and 0.1% proved be ineffective even after the third application.

No ill effects due to the use of the different insecticides in various concentrations were noticed on the animals after treatment, the lesions also showed improvement and in due course of time the skin blemishes had disappeared.

The results recorded in this investigation are in agreement with those obtained by *Downing et al* (1952) who found that DDT was ineffective against sheep mange. While *CHOUDHURI* (1963) found that 0.1 and 0.2% dieldrin were better than 0.05% lindane. *LODHA* (1966) found that lindane at 0.05% concentration was the most effective against Sarcoptic mange in camel and recovery occur after second application. He stated also that DDT at 0.05% and 0.1 percent concentration were ineffective. *KELLER et al.* (1972) mentioned that mange in pigs was eradicated by spraying animals 3-4 times by 0.028% lindane and 0.025% diazinon. *Srivastava and Khan* (1973) cured mixed infection of Sarcoptic and Psoroptic mange in buffaloes by using lindane at a concentration of 0.05%.

In addition to the above mentioned results concerning efficiency of Dorsban and lindane in treatment of mange in buffaloes and camels, they are also used in control of ticks in animals (*PARRA* 1969) and brown dog tick *NELSON* 1969 AND *MUSTAFA et al* 1973)

As a conclusion it must be recommended that application of the mentioned insecticides used for eradicating mange among animals should be done 3 times with a week interval except in case of Dorsban in concentration 0.25% only one application is sufficient and in 0.012% concentration it should be repeated twice. The above mentioned trials proved that known insecticides could be also used as acaricides, not only against tick infestation, but also against mange infection in animals.

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