



BIOLOGICAL CONTROL OF TICKS IN SMALL SCALE DAIRY FARMS IN THE SUDAN

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ABSTRACT

Twenty dairy cows belonged to four small holder were put under study, to investigate the efficiency of using scavenger chicken (baladi) as biological control of ticks and their borne diseases. The cows were divided to two groups first and second, they were infested with ticks, Laboratory diagnosis for babesia was carried out. All samples showed positive reaction.

Cloxon 2.5 gm/kg/ body weight (BW) was used to treat the cows of the two groups with the presence of ticks, and all cases were recovered. Gamatox was used to control the ticks on the cows in the first group, while scavenger chicken (5 baladi chicken in each farm), were used to control ticks in the second two farms. After seven days no tick was observed on the cows in the second group. It also showed negative result for babesia test. On the other hand, nymphs were noticed on the cows of the first group. The research recommended to use scavenger chicken to terminate the life cycle of ticks and to get rid of its pathogenic diseases in small scale dairy farms.

INTRODUCTION

Biological control is a natural practice used to control vectors and to inhibit the multiplication of the pathogenic agents of diseases with biotic mortality agents by microbial or macrobial methods (Sullivan, 1978). Macrobial controls are always carried out through scavengers both invertebrates like ants and spider or vertebrates like lizards and birds that can feed on insects (Bennet, 1981).

The family Ixodiadae (hard ticks) is the most dangerous type of ticks. It sticks on the host (animal), suckles its blood (ten times over its size) all over the day and leaves the host at egg laying or exsheathment stage (Walker, 2003). Some of the hard ticks are (one host ticks) like *Boophilus sp.* which transmit babesia to cows, the second types is (two host ticks) like *Hyalomma anatolicum* which transmit *Theileria mutans* and the third types is (three host ticks) like *Rhipicephallus sanguineus* and *R. turanicus* which transmit dog babesiosis and rift valley to people and ticks paralysis to the animals (Musa, 2000).

Control of ticks is commonly practiced with chemicals especially Gamatox or DDT compounds, but they remain as residues in foods, crops, pasture, meat and milk of animal, and absolutely they fate in metabolic disorders to human (Abbadi and Elzorgani, 1981).

So far, no effective vaccine against ticks or ticks borne diseases are produced till now (Nabila and Sabri, 2006).

This study attempts to know the efficiency of using poultry as biological control of ticks in small scale dairy farms, to reduce the use of chemical control and the injury of ticks and some other pathogens which are transmitted by the ticks to the animal farms.

RESEARCH METHODOLOGY

- 1- Twenty dairy cows belonged to four small holder to be kept in four separated fences infested with ticks.
- 2- Babesia test is carried out for all cows at the beginning of the trial.
- 3- Cloxon drug is to be used for curing the cows from babesiosies in presence of ticks.

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- 4- Gamatox was used to control ticks of group (1) in addition to Cloxon.
- 5- Ten scavenger chicken (baladi) were used to control ticks in group (2).
- 6- Babesia test is carried out after seven days.
- 7- Results to be recorded and discussed

RESULTS

Table 1. Ticks types observed %

Type of ticks	Rhipicephallus decoloratus	<u>Amblyomma sanguineus</u>	<u>Hyalomma anatolicum</u>
%	30%	45%	25%

Table 2. Response to Babesia test/group

Group No.	1		2	
Farm	1	2	3	4
No. of cows	5	5	5	5
Response to Babesia test	+	+	+	+

Table 3. Effect of type of control on ticks infestation and babesiosis / group

Group	1	2
Type of control	Chemical (Gamatox) (500 gm)	Biological scavenger chicken (5 bird / cow)
Presence of ticks	+	-
Babesia infestation	+	-

DISCUSSION

Three types of ticks were observed *Rhipicephalus*, *Amplyomma* and *Hyalomma* (Table, 1), Hence the cows showed positive to babesia test, they were given Cloxon injection for treatment. Ticks which were considered as vector for tick-borne diseases and may infest the cows again and this means that cows may be re-infected with babesiosis unless the life cycle of ticks is terminated or inhibited. The cows in group one were reinfected with babesiosis due to the activity of ticks during their life cycle. On the other hand, the growth and the life cycle of ticks in group two were delayed due to the scratching and digging of chicken in the soil to feed the tick larvae. The research concluded that using of chicken may be a good helpful factor to reduce the injury of ticks and its borne-diseases (Tables 2 and 3).

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