

Study of the Common Tick Species of Cattle in the North of Basrah Province

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Summary

Two hundred and fifty samples of cattle of different ages and sexes are examined to identify tick infestations. in the north of Basrah Province during the period of September 2020 to February 2021. (715) These samples collected from cattle randomly selected to identify tick infection and determine its genus and species, as well as to study the effect of a hard tick on sex, animal age, and the location of its infection .Samples were collected from nine regions of (Al.Deyar , Majnoon Island, Muzayraa , AL.Shuaffiz , AL.Sharish , AL.Swaib , AL.Shafi , AL.Nashwa and AL.Zarajee). The study revealed that there are differences in ratio of infection between the studied area where Al. dayer recorded a high ratio of infection which is (93.3%) and the least in Majnoon Island (60 %) , There was a significant difference ($p \leq 0.05$) in prevalence rate according to cattle genus which females (88.2%) having a higher prevalence rate than males (62.5 %). It was observed that there were significant differences ($p \leq 0.05$) in infection rates of animal ages, with the highest percentage (84.4%) being in age less than two years old, as well as the lowest percentage (37.6%) to be in the age more than six years old . The study also revealed three types of ticks in cattle, including *Hyalomma* Spp. have a prevalence rate of 44.02 % , *Boophilus* spp. have a prevalence rate of 32.5 % , and *Rhipicephalus* spp. have a prevalence rate of (25.0%). the study showed that the hard ticks were a parasitic on external ear ,udder , perineum and anal region than another part of the body in cattle . Finally, ticks are discarded because of their role in the transmission of diseases to animals, result in economic losses.

Key words: Tick , North of Basrah , cattle

Introduction :

Cattle arthropods have a variety of relationships with the host animal. Since they spend the majority of their lives closely connected with their hosts, survive at the expense of their hosts, and rarely killing it, these arthropods are considered to be obligate parasites. , arthropods depend on the host animals for nutrition, growth and reproduction. (1)

Hard Ticks (*Ixodidae*) are ectoparasites that infest cattle. the effects of tick infestation in livestock blood loss , skin wounds and weight loss, while the other effects are often associated with the role of ticks as vectors of pathogenic diseases. Ticks are important vectors of various diseases that infect cattle, humans, and other vertebrates; nearly 10% of 900 identified tick species can transmit pathogenic micro-organisms to animals and humans (2). Ticks of the genera *Rhipicephalus*, *Boophilus*, *Hyalomma*, and *Amblyomma* are the most economically and veterinary important in tropical and subtropical areas (3)

Ticks suck blood from cattle and injured their skin and hides; and cause Inflammatory infiltration of tissues, oedema , local hyperemia and heamorrhage, as well as secondary infection, can occur as a result of the tick's bite . (4)(5)

Ticks after mosquitoes, are the second most important arthropods that may transmit pathogens like viruses, bacteria including rickettsiae, protozoa (Babesiosis) and filarial nematodes (Onchocerciasis) to other animals and humans (6) The morphological main characters of the mouth parts and adjacent structures have long been used to identify tick species . (7)

this study aimed to identify the common species of ticks infesting cattle in 9 regions in the north of Basrah province in addition to understand the the influence of various factors such as sex, age and ... on the prevalence of infestation.

Materials and methods :

The study on hard tick isolated from cattle was carried in 9 different districts in the north of Basrah province of Iraq (Al.Deyar , Majnoon Island, Muzayraa , AL.huaffiz , AL.Sharish , AL.Swaib , AL.Shafi , AL.Nashwa and AL.Zarajee) between the periods from September 2020 to February 2021. 250 cattle were examined clinically, Clinically, some cattle showed signs of sickness, while others seemed to be healthy. ticks collected from the external ear ,Thigh ,Shoulder ,Udder ,Anal region ,Tail ,Scrotum , perineum, ticks collected from each animal by forceps and cotton which contain alcohol then put in plastic test tubes 70% alcohol. Each vial was labeled with the host's name, region, and collection date. Samples sent to the Department of Parasitology, College of Veterinary Medicine, the University of Basrah for identification of tick species , Ticks were described morphologically using taxonomic keys. according to (8) using a Dissecting microscope and Compound light microscope .

statistics analysis .

The data were entered and controlled using the SPSS 20.0 version software program was employed for the data analysis. The prevalence of tick was determined by dividing the number of positive animals by total sample size and was expressed as a percentage. Chi-square (χ^2) test was used to assess the association in tick infestation between different variables. Effects were reported as statistically significant in all cases if p value is more than 5% ($p \leq 0.05$) (9)

Results:

The results of this study revealed all of the cattle examined were infested with hard ticks at different stages of their life cycle, with several ticks engorged with blood to many times their usual size. Only three genera of hard ticks, *Hyalomma*, *Rhipocephalus* and *Boophilus* were observed. The majority of infested ticks were found on head (external ears , udder , perineum , tail and anal region) while little numbers were observed to parasitized on other parts of body mainly thigh , scrotum , and other parts of body ,figures (1) ,one species belong to the genus (*Hyalomma anatolicum anatolicum*) , genus of *Rhipocephalus* (*Rhipocephalus turanicus*) and then the genus *Boophilus* (*Boophilus annulatus*) were identified according to the morphological features as showed in figures (2,3,4,5,6,7).

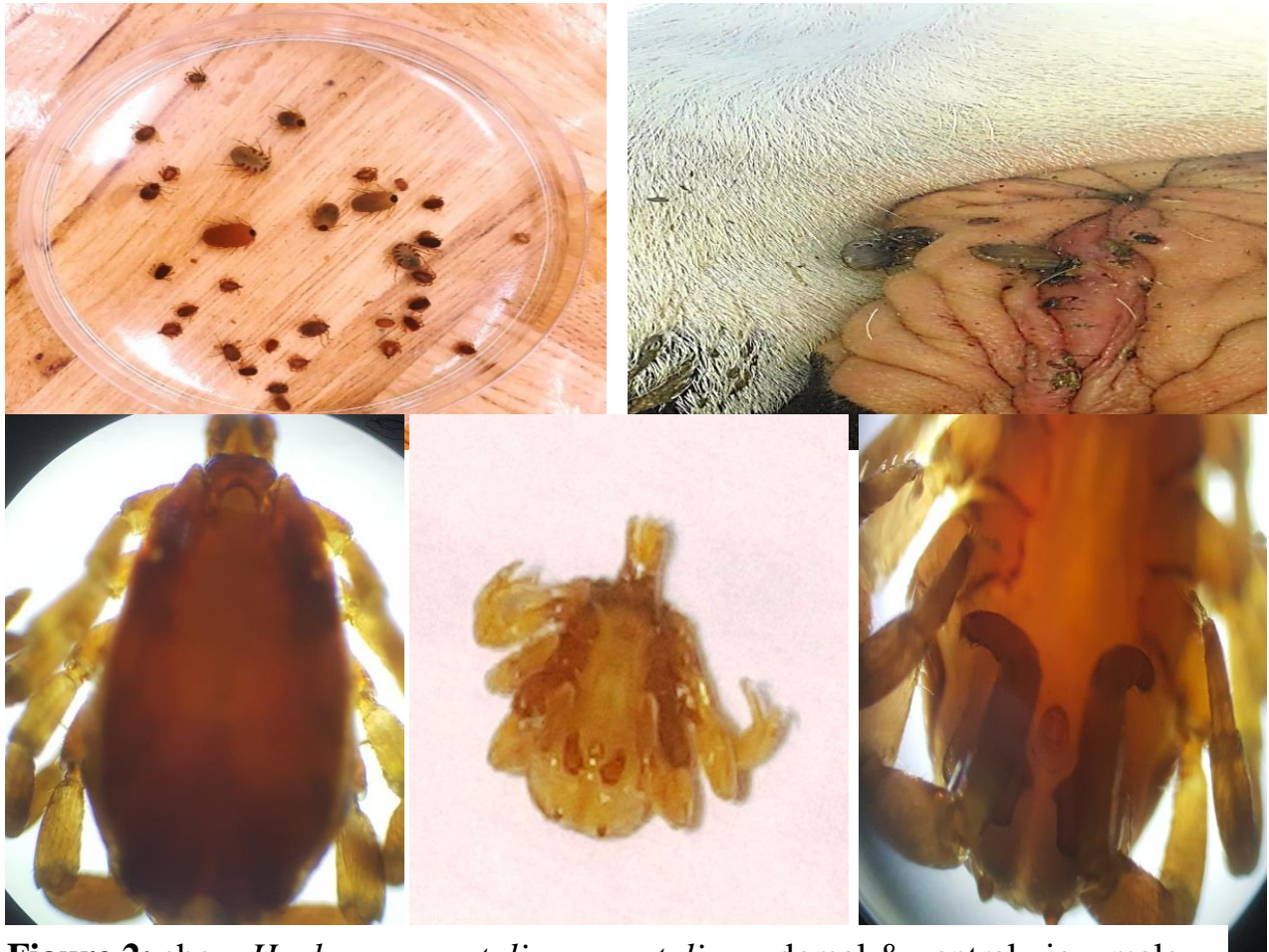


Figure 2: show *Hyalomma anatolicum anatolicum* dorsal & ventral view male and posterior end adanal and accessory shields.



Figure 3 :*Hyalomma anatolicum anatolicum* dorsal & ventral view female and mouth part.



Figuer 4: show *Rhipicephalus turanicus* male dorsal & ventral view.



Figure 5 : *Rhipicephalus turanicus* female dorsal & ventral view.



Figure 6: *Rhipicephalus (Boophilus) annulatus* male.dorsal & ventral view
(engorged with blood).



Figure7: *Rhipicephalus (Boophilus) annulatus* engorged female. dorsal & ventral view.

Table (1):Percentage rate of examined cattle according to the region in north of Basra province .

	Region of sample collection	Number of examined Cattle	Number of infected Cattle	Percentage rate %
1	Al. dayer	30	28	93.3
2	Majnoon Island	25	15	60
3	Muzayraa	15	12	80
4	AL.Shuaffiz	20	17	85
5	AL.Sharish	30	25	83.3
6	AL.Swaib	40	30	75
7	AL.Shafi	35	28	80
8	AL.Nashwa	25	22	88
9	AL.Zarajee	30	32	76
	Total	250	200	

Table(2) :The percentage rate of infested cattle with tick species according to the age.

Sex	Number of examined Cattle	Number of infected Cattle	Percentage rate %
Male	80	50	62.5

Female	170	150	88.2
Total	250	200	

*There are significantly different ($P \leq 0.05$).

Table (3): The percentage rate of infested cattle with tick species according to the age .

	Age	Number of examined Cattle	Number of infested Cattle	Percentage rate%
1	1-2 year	90	76	84.4
2	2-3 year	55	43	78.1
3	3-2 year	38	28	37.6
4	4-5 year	40	23	80
5	5-6 year	27	21	77.7

*There are significantly different ($P \leq 0.05$).

Table (4) : Distribution of hard ticks species in north of Basra province

Region of sample collection	No .of <i>Hyalomma</i> spp (%)	No. <i>Rhipicephalus</i> spp. (%)	No. of <i>Boophilus</i> spp. (%)	Total No.
Ad dayer	55	20	80	165
Majnoon Island	42	9	27	78
Muzayraa	27	0	14	41
AL.Shuaffiz	15	26	19	50
AL.Sharish	62	38	0	100
AL.Swaib	0	11	38	59
AL.Shafi	42	15	17	66
AL.Nashwa	25	32	17	74
AL.Zarajee	35	27	20	82
Total	303	178	232	715

*There are significantly different ($P \leq 0.05$).

Table (5): Genera of ticks and their distribution on body regions of cattle in north of Basra province .

Body region	<i>Boophilus</i> spp	<i>Rhipicephalus</i> spp	<i>Hyalomma</i> spp
Ear	0	27	39
Thigh	33	16	25
Shoulder	15	12	20
Udder	48	22	31
Anal region	67	30	48
Tail	45	28	36

perineum	54	23	33
Scrotum	39	20	0
Total	301	178	232

*There are significantly different ($P \leq 0.05$).

Discussion:

The results revealed (Table 1) that Al. dayer recorded the highest infestation 93.3%, while Majnoon Island recorded the lowest percentage 60% , these variations in tick infestation in cattle in the study area can be attributed to a variety of factors including geo-climatic conditions such as temperature, rainfall, and relative humidity, lifestyle of different species of cattle, and farm management practices which are the principal factors of the prevalence and survival of the different stages of the tick species this result agreed with (10, 11) and disagreement with (12) That Hard ticks record a difference in infection rates by region Geography is similar to the same environmental conditions.

In the current study, There were 80 male and 170 female cattle examined , 50 and 150 were infested in the ratio 62.5% and 88.2% of male and female respectively, there is statistical variation in the ratio of infection between male and female , which is agreed with (13) (14) females were more commonly infected than males which may be related to the reason that breeders prefer to breed females in large numbers rather than males, resulting in a decreased number of males being eliminated by sale or slaughter after being fattened for human consumption.

The table (3) In the present study, among the considered variables as a factor for tick prevalence, age had a significant difference ($p \leq 0.05$) with the prevalence of tick. the number of tick was significantly ($p \leq 0.05$) higher in small cattle than in the other age groups. This is probably due to small cattle are more vulnerable to tick infection and do not have the ability to prevent infection because their low immune response is inadequate compared with the other age groups, and this result agree with (15 , 16) and disagree with (17).

The result in the table (4) The study recorded cattle infestation with the following tick species: *Hyalomma anatolicum anatolicum* , *Boophilus annulatus* and then *Rhipocephalus turanicus* at the rates of infestation with these three species were 303%, 232% and 178% respectively with significant difference ($P \leq 0.05$) , There were studies that support all these species in the north of Basrah, by AL-Fatlawi *et al.*, (18) they recorded that *Hyalomma* spp. were more predominant in the south of Iraq, A study disagreed with this results done by (19) The differences May be determined by the variety of weather climate. rate of infestation with the age of infested cattle, which may be related to the accumulation nature of the infection.

This table (5) show .The majority of infested ticks were found on head (external ears , udder ,tail and the perineum and anal region) while little numbers were observed to parasitized on other parts of body such as thigh , scrotum and others may be due to Ticks have favorite sites on their host animals, which may assist ticks in obtaining and collecting the blood meal for nourishment and heavy infestation, and do not treated infected cattle this agree with (20)

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