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Sheep and goats tick's infestation in Wasit's districts

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Summary

The study was conducted in 4 districts regions in Wasit province during May – August 2010 to investigate the percentage of sheep and goat infestation ; out of 366 animals , 69 (18.85 %) were infested with total general tick mean 2.15 ; infested sheep were more prevalent 79.71% than goats 20.28% ; Highest no. of infestation were found in August 49.27% and June 24.63% . Two species of ticks , *Rhipicephalus turanicus* 94% on both sheep and goats , while *Hyalomma anatolicum anatolicum* only on sheep 6% were recorded. According to species of animal, sheep in azizia shows highest infestation in august (34.78%) followed by Suwara in june (14.49%) ; and for goat in azizia shows the highest infestation in may (7.24%) . There is significant difference between monthly infested sheep and goats $p \leq 0.028$ .There is significant difference between districts containing infested sheep and goats $p \leq 0.000$. There is no significant difference between infested sheep and goats $p \geq 0.12$. Given data might be aid in epidemiology of ticks and minimize public and veterinary infections.

Key words: ticks; Infestation; animals; Wasit.

إصابة الأغنام والماعز بالقراد في محافظة واسط

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الخلاصة

اجريت الدراسة لمعرفة نسبة اصابة الاغنام والماعز بالقراد في أربع مناطق من محافظة واسط في الفترة ما بين مايس الى اب من عام 2010 حيث كانت النسبة الكلية للاصابة بالقراد 18.85% (69 حيوان مصاب من مجموع 366 رأس منها 55 أغنام و 14 من الماعز) و بمعدل كلي للإصابة 2.165 . كانت نسبة الإصابة في الأغنام 79.71% وهي أعلى منها في الماعز 20.28% . لوحظت أعلى مجاميع الحيوانات المصابة في شهري أب 49.27% و حزيران 24.63% من السنة على التوالي. سجل نوعان من القراد, هما *Rhipicephalus turanicus* بنسبة 94% و *Hyalomma anatolicum anatolicum* بنسبة 6% . أما بالنسبة إلى الحيوانات المصابة فكانت الأغنام هي الأعلى إصابة 34.78% في منطقة العزيزية في شهر أب وتلتها منطقة الصويرة في حزيران 14.49% , إما الماعز فجأت أعلى إصابة لها في العزيزية 7.24% في شهر مايس . وجدت فروقات ملحوظة إحصائيا بين الأشهر التي سجلت الإصابات بها $p \leq 0.028$ و وجدت فروقات ملحوظة إحصائيا بين المناطق التي سجلت الإصابات بها $p \leq 0.000$, إلا انه لم توجد فروقات ملحوظة إحصائيا بين أعداد الأغنام والماعز المصابة $p \geq 0.12$. يمكن أن تكون النتائج المستخلصة في الدراسة الحالية ذات فائدة في مكافحة القراد والتقليل من مضاره الاقتصادية و نشره للأوبئة الصحية والبيطرية .

Introduction

Ticks are surpassed only by mosquitoes as arthropod vectors of disease [1] . Researches on morphology , biology , ecology of ticks and their distribution are of great importance for human and veterinary medicine considering the place and role of these parasites in epidemiology and epizootiology .

The Crimean-Congo Haemorrhagic Fever virus in humans is transmitted by ticks type *Hyalomma marginatum marginatum* , *H. marginatum rufipes* , *H. truncatum* [2] ; *H. asiaticum* [3] ; Congo Crimean haemorrhagic fever was recognized for the first time in Iraq in 1979 from 10 patients , 8 of them gave a history of previous contact with sheep or cattle [4] .

Babesia, Theileria, and *Anaplasma* species infecting sheep and goats . *B. ovis* is the most important disease agent, it is transmitted by *Rhipicephalus bursa, R. turanicus, Hyalomma anatolicum excavatum* types , and probably by *R. evertsi evertsi* . *B. ovis* is widely spread in southern Europe, the Middle East, and central Asia. Its geographical distribution in South and East Asia and in Africa is widely unknown. *B. motasi* obviously represents several nosodemes

in separate regions; It is non pathogenic for intact sheep in northern Europe, whereas it is probably more pathogenic than *B. ovis* in India and northern Africa. The known vectors of *B. motasi* are *Haemaphysalis punctata* and *R. bursa* . *Theileria hirci* is transmitted by *H. anatolicum anatolicum* but occurs outside the distribution area of this tick . Malignant theileriosis of sheep and goats is an important disease in Iraq, Iran, and India. An attenuated macroschizont vaccine is successfully being used in Iran. *Anaplasma ovis* is transmitted by *R. bursa* and probably other ticks in the Old World and by *Dermacentor andersoni* in the New World. *A* . *ovis* is widely spread in the Old World [5] . Malignant theileriosis has been recorded in Iraq [6] ; [7, 8] found that *Hyalomma anatolicum anatolicum* is a vector of *T. hirci* and suggested additional investigations to explore if other species of *Hyalomma* could be potential vectors of this parasite.

Nearby Iraq , the work of [9] on goat and sheep ticks infestation , population-dynamics in Saudia , Abha , during 1990-1991, who were concluded that , less ticks infested the goats in 1991 than in 1990 while more ticks infested sheep in 1991 than in 1990 , also detected that in goat the infeststion with *Rhipicephalus turanicus* was (95.1 and 67.1%) , *Haemaphysalis sulcata* (4.0 and 25.8%) , *H. anatolicum anatolicum* (0.2 and 1.0%) and *H. impeltatum* ; while *R. turanicus* (89.2 and 86.2%), *H. sulcata* (5.7 and 4.9%), *H. a. anatolicum* (1.2 and 1.0%), *H. a. excavatum* (0.7 and 1.2%), *H. dromedarii* (0.9 and 0.4%), *H. marginatum rufipes* (1.4 and 4.1%) , *H. marginatum turanicum* (0.0 and 1.2%) and *H. impeltatum* (0.9 and 1.0%) infested in sheep.

The present study was aimed to classify the ticks and it's infestation on sheep and goats in Wasit province districts, in addition to understand the epizootiology and epidemiology of tick parasites.

Materials and methods

From May to August 2010 , 366 Sheep and goats were selected randomly from 4 districts regions Suwara , Shuhimiya , Zubydia and Azizia; The animals were examined and ticks collected from each animal then were placed in glass vials (2X10 cm) containing 70% ethanol. Each vial was labeled with the name of the host and date of collection. Statistical analysis tests were performed using Minitab 11 & spss 13 program soft ware packages.

Ticks were identified In the laboratory of veterinary medicine college of Diyala , where few of recovered adult ticks and larvae were cleared in boiled 10%NaOH(aq) ; or lactophenol for different times periods at room temperature ; mounted in between slide and cover slip by Canada balsam , then placed in 40c◦ oven for few days for drying ; then morphologically identified according to references [10;11;12;13;14;15] ; specimens were personally confirmed by director of Iraqi museum natural history .

Results

Out of 366, 69 (18.85%) animals were infested. According to species, sheep were more infested than goat, n= 55 (79.71%) from 252 sheep , n= 14 (20.28 %) from 114 goat ;with Total general mean 2.15 as shown in Fig.(1) and table (1),

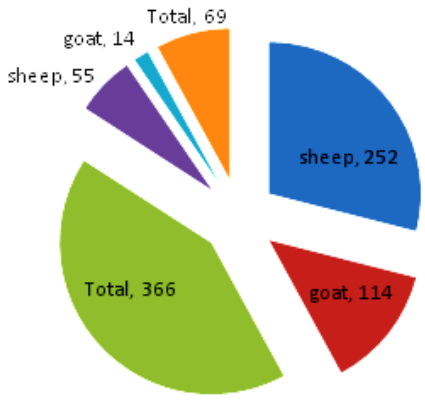

Fig.1: number of examined and infected animals.

Table (1) : percentage of ticks infestation in sheep and goats in different areas in Wasit from May to August months.

% of Total Sum			Mean			Sum			District	month
Total	goat	Sheep	Total	goat	sheep	Total	goat	sheep		
5.797101	0	5.797101	2	0	4	4	0	4	suwara	may
2.898551	0	2.898551	1	0	2	2	0	2	shuhimiya	
0	0	0	0	0	0	0	0	0	zubydia	
10.14493	7.246377	2.898551	3.5	5	2	7	5	2	azizia	
18.84058	7.246377	11.5942	1.625	1.25	2	13	5	8	Total	
15.94203	1.449275	14.49275	5.5	1	10	11	1	10	suwara	June
0	0	0	0	0	0	0	0	0	shuhimiya	
1.449275	0	1.449275	0.5	0	1	1	0	1	zubydia	
7.246377	5.797101	1.449275	2.5	4	1	5	4	1	azizia	
24.63768	7.246377	17.3913	2.125	1.25	3	17	5	12	Total	
2.898551	0	2.898551	1	0	2	2	0	2	suwara	July
1.449275	0	1.449275	0.5	0	1	1	0	1	shuhimiya	
0	0	0	0	0	0	0	0	0	zubydia	
2.898551	2.898551	0	1	2	0	2	2	0	azizia	
7.246377	2.898551	4.347826	0.625	0.5	0.75	5	2	3	Total	
4.347826	0	4.347826	1.5	0	3	3	0	3	suwara	august
0	0	0	0	0	0	0	0	0	shuhimiya	
7.246377	0	7.246377	2.5	0	5	5	0	5	zubydia	
37.68116	2.898551	34.78261	13	2	24	26	2	24	azizia	
49.27536	2.898551	46.37681	4.25	0.5	8	34	2	32	Total	
28.98551	1.449275	27.53623	2.5	0.25	4.75	20	1	19	suwara	Total
4.347826	0	4.347826	0.375	0	0.75	3	0	3	shuhimiya	
8.695652	0	8.695652	0.75	0	1.5	6	0	6	zubydia	
57.97101	18.84058	39.13043	5	3.25	6.75	40	13	27	azizia	
100	20.28986	79.71014	2.15625	0.875	3.4375	69	14	55	Total	

The results, revealed 2 peaks of infestation ; the highest in August (49.27%) followed in June (24.63%) ; then lower infestation in May (18.84 %) and the lowest in July (7.24 %) as shown in table (1) and fig.(2); according to species of animal infested , sheep in Azizia showed highest infestation in August (34.78%) followed by Suwara in June (14.49%) ; while in Azizia , the goats showed the highest infestation in May (7.24%) , then (5.79%) in June (table 1 and fig.2), according to districts, Azizia showed highest of infestation (57.97%) followed by Suwara (28.98%), then Zubydia(8.69%), as shown in table (1) and fig.(3, 4) .

All sheep and goat in the study were infested with *Rhipicephalus turanicus* (94%) , except 4 sheep with *Hyalomma anatolicum anatolicum* (6%) as shown in table (1) & fig.(5 , 6,7) .

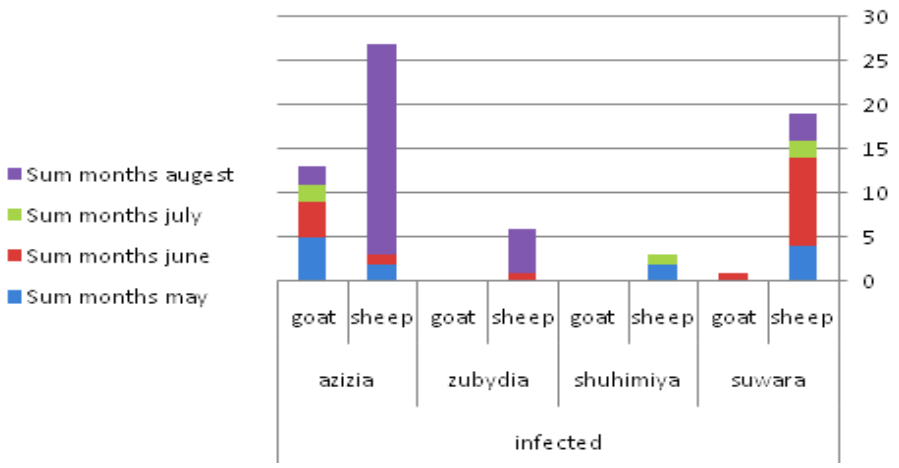

Fig.(2): shows districts and monthly infested sheep and goats.

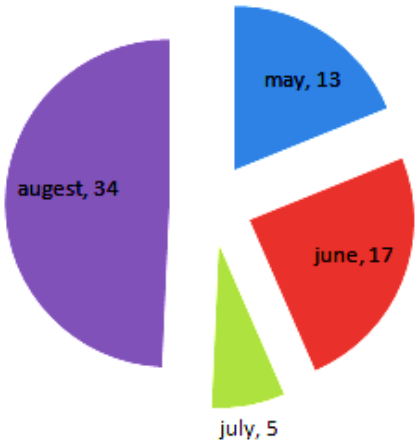

Fig.(3) : shows sum of numbers infested animals in months .

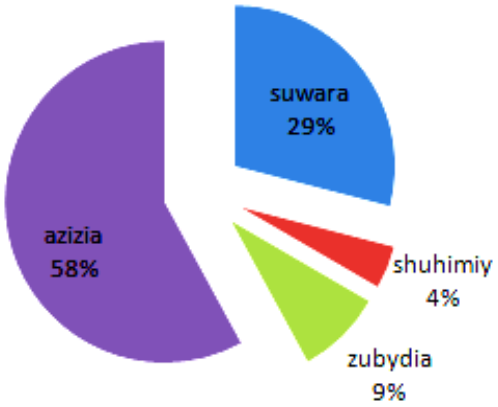

fig.(4): shows sum of numbers infested animals in districts.

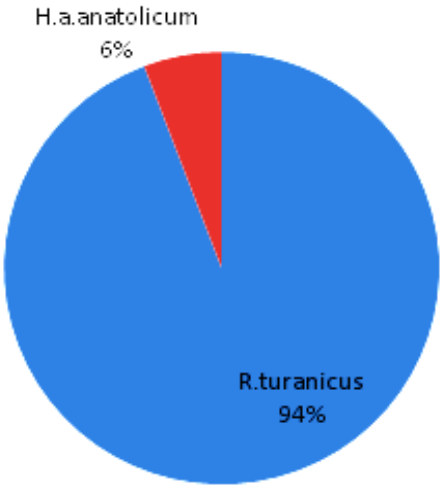

Fig.(5): shows sum of numbers ticks infested animals.

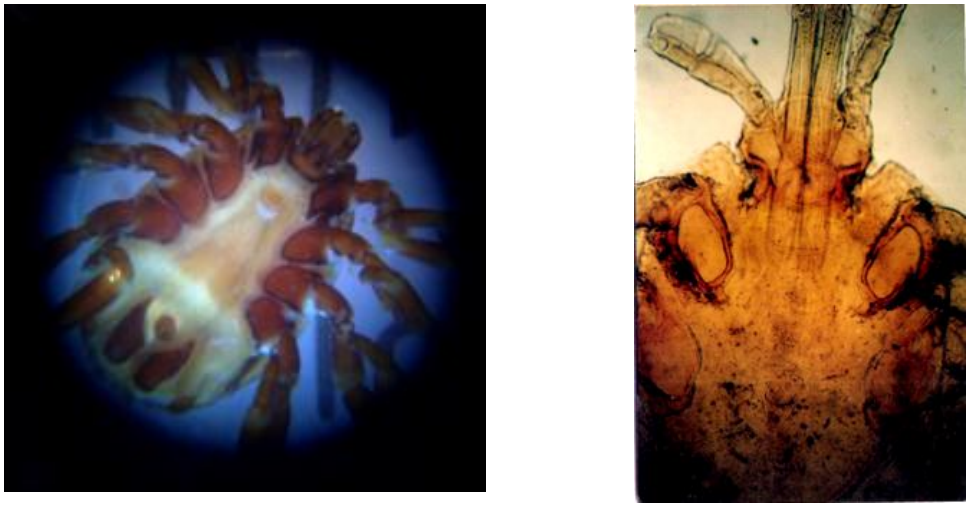

Fig.(6): *Hyalomma anatolicum anatolicum* (ventral view).

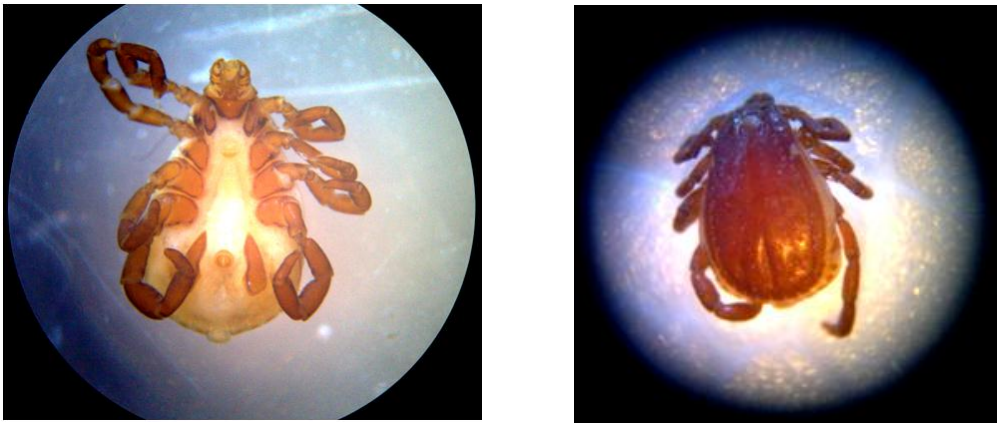

Fig. (7): *Rhipicephalus turanicus* (ventral and dorsal view).

Discussion

There are several factors affecting the production potential of livestock. Among these, parasitic infestations are widespread, affecting different livestock species throughout the world. These cause considerable economic losses in terms of low productivity and mortality in small ruminants.

Sheep and goats were found to be infested with 2 species of ticks in present study, almost all by adult *Rhipicphalus turanicus* (n=55) 94%, then sheep only infested with *H. anatolicum anatolicum* (n=4) 6%. These findings agreed somewhat with results of [16] in that *Rhipicephalus turanicus, Hyalomma anatolicum anatolicum* and Hyalomma nymphs are widespread. Thus, in mixed infestation, *Rhipicephalus turanicus* and *Hyalomma anatolicum anatolicum* were most dominant, the former infesting both wild and domestic animals and the latter confined to livestock ; the results also agreed with [9] work , in that *R. turanicus* was found to be the most abundant species infesting sheep and goats, although it seemed to prefer sheep ; our study sheep's and goats infestation percentage were 79.71% , 20.28% respectively in Wasit disagreed with [17] Who found moderate infestation percentage in both sheep and goats 66-48.6% , 65-51.4% respectively in Iraq.

The results, revealed 2 peaks of infestation in hot months of the year study; the highest in august, followed in June; and the lowest in July (7.24%); these findings generally agreed with [18] who recorded that in Pakistan, The high prevalence rate during (May-July) may be attributed to hot and humid during these months. Prevalence of ticks infestation is influenced by temperature, rainfall and relative humidity; that Hot and humid season favors the propagation and multiplication of ticks [19].

According to districts and species of animal infested, Azizia shows highest infestation n=40 (57.97%) followed by Suwara n= 20 (28.98%), then zubydia n= 6 (8.69%), generally in favor of sheep, these variation in tick prevalence in different areas can be attributed to a variety of factors like geo climatic conditions, association and life style of different species of animals, awareness/ education of the farmers and farm managemental practices [20].

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