Ticks infesting some domestic animals in Thi-Qar Province, Southern Iraq

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Abstract:

Four species of Ticks namely, *Hyalomma rufipes*, *H.trancatum*, *Boophilus annulatus* and *Ornithodoros savignyi* were isolated in present study from four species of domestic animals in Thi-Qar Province during the period from January 2002 until December 2004. Infestation percentage were 48.2 %, 96.8 %, 23 % and 30 % for Cattle, sheep, Goats and Chicken respectively. Seasonal variations were observed in the Sheep infestation with tick *H.rufipes*, the highest peak was cleared in July (87.8 %), while the lowest was (10.2 %) during February. The medical and economic importances of recorded ticks were discussed

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Introduction:

Ticks are belong to the subclass Acari, order Parasitiformis, and suborder Ixodida, which includes two major families, Ixodidae (hard ticks) with 13 genera and approximately 645 species and Argasidae (soft ticks) with 5 genera and approximately 170 species distributed worldwide (22), All are parasitic during some parts of their lives. The majority of them infest mammals, though many species attact bird and some found on cold-blooded animals (5). These arthropods are important to human through the direct effects of their feeding and as vectors of various agents of diseases in both man and livestock (6). Diseases transmitted by ticks to livestock constitute a major factor which limits animals production in many tropical and subtropical areas of the world (16), and responsible for high cattle mortalities compared to other diseases (3). Besides their role as disease control vectors , ticks cause physical damage such as injury to hides and loss of blood through their feeding (20).

In human, ticks can cause severe toxic condition such as paralysis and toxicosis, irritation and allergy, forty three species of ticks have been found to cause ticks paralysis with engorging adult female (15), moreover their ability to transmit agreat variety of infectious diseases is a major public health concern, notably those of viral origin, characterized by encephalitis and hemorrhagic fever cause the highest morbidity and mortality(8).

Tick bites may also cause a severe allergic response, mediated by IgE specific for tick allergens (10). The insertion of the mouthpart (gnathosoma) into the skin produce an inflammatory reaction, and in many cases the mouthparts are torn of and left in the wound-such an injury

often becomes infected, producing an inflamed sore or ulcer (19).

The aim of present study is to gain informations of ticks in Iraq and to understand its seasonal dynamics.

Materials and Methods:

During the period from January 2002 to December 2004 a large numbers of ticks were collected from domestic animals (Cattle, Sheep, Goats, Chicken) from several localities in Thi-Qar province. Ticks were isolated by forceps, store in clean glass vials tightly lidded containing small pieces of cotton moistered with 1% mycostatin solution, to prevent desiccation and mould growth and labeled with date, location and name of host. The collected ticks were fixed and preserved into 70% ethylalcohol, as cited in Daniel (1993).

Ticks identification made based on six major features which are shape, size, mouthparts (capitulum), color, dorsal shield (scutum), and festoons (posterior abdominal markings). To determine the six major identifying features, the ticks compared with (1).

Results and Discussion:

1607 domestic animals were examined from different areas in Thi-Qar province which include : 319 Cattle, 946 Sheep, 162 Goats and 180 Chicken. Out of these animals 928(57.7 %) were found be infected with four species of ticks identified as: *Hyalomma rufipes*, *H. trancatum, Boophilus annulatus and Ornithodoros savignyi* (Table 1).

Table 1: Infestation percentages of isolated ticks in present study.

Ticks	Cattle			Sheep		
	Exa.	Inf.	Per. %	Exa.	Inf.	Per. %
Hyalomma rufipes	319	154	48.2	946	599	63.3
Hyalomma trancatum		-	-		277	29.2
Boophilus annulatus		-	-		3	0.3
Ornithodoros savignyi		-	-		37	3.9

Exa. : Examined Inf. : Infected Per. : Percentage

Goats			Chicken		
Exa.	Inf.	Per.%	Exa.	Inf.	Per.%
162	-	-	180	-	-
	38	23.4		-	-
	-	-		6	3.3
	-	-		48	26.6

Hyalomma rufipes, H. trancatum:

H. rufipes were isolated from 753(46.8 %) of examined animals distributed as 154(48.2 %) from cattle and 599(63.3 %) from sheep, while *H. trancatum* isolated from 315(19.6 %) of examined animals, 277(29.2 %) from sheep and 38(23.4 %) from goats.

Ticks of the genus *Hyalomma* are well-known vectors of viruses and avid parasites of man. Although many species are not involved in disease transmission, the considerable length of *Hyalomma* mouthparts provokes a painful bite. One of the most important disease transmitted by this ticks is Crimean-Congo-Hemorrhagic Fever (CCHF) which occur sporadically throughout vast area of Africa, Asia and Europe, but can cause mortality(8), moreover the genus *Theileria*, is the most important being the causative agent of East Coast Fever in cattle (5), the economic impact of Theileriosis can be expressed in term of mortality, loss of production(live-wieght gain, milk production and draught potential)(4).(17) were divide this genus to three subgenus: *Hyalomma*, *Hyalommina* and *Hyalommosta* and givin the complete characteristics and classification keys.

Boophilus annulatus

This ticks were collected from 9(0.5 %) of total number of animals, it is collected from 3(0.3 %) sheeps and 6(3.3 %) chicken.

Boophilus among the genera of ticks using large mammals as host and feed primarily on cattle, less frequently on other large herbivores (6) and constitute amajor problem for the cattle industry in tropical and subtropical areas of the world (9), but rarely attack man (23). *B.annulatus* still survives in the west Indies, Mexico and in the Mediterranean region, these arthropods transmit various viruses responsible for encephalitis which have a zoonotic origin, *Babesia* infection

also in *Boophilus* are transmitted from one generation to next transovarially(5).

Ornithodoros savignyi:

This ticks were collected from 85(5.2 %) of total number of animals distributed as 37(3.91 %) sheeps and 48(26.6 %) chicken.

The widely distributed argasid genus *Ornithodoros* has several representative involved in the parasitism of human. Atotal of 22 species of this genus have been reported on human, and 12 species are found frequently, *O. savignyi* is found in human habitation in India, Africa and some parts of of Asia (18) and cause intense local irritation (13), moreover in dry areas of these countries,the ticks is commonly attacks human resting under shady trees and around well where animals gather, etc. The bite of this species can cause long-lasting intense pruritus (8). Members of this genus has a characteristic full oval body shape(1), its larva is retained in the egg shell and become nymph a few hours after hatching, before partaking of their first meal(5). Experimental transmission by West Nile Virus(WNV) has been observed in *O.savignyi* (14) and virus antibodies have detected in human sera from Iraq(1). Specie of *Ornithodoros* can also harbor and transmit leptospiras(5).

Seasonal variations in infestation percentages of sheep with *Hyalomma rufipes*

The collection results of 732 sheep during one year (2004) as a monthly samples that the infestation were found with ticks *Hyalomma rufipes* in all months of this year in different percentages.These differents were calculated to determine the seasonal variations in this infestations (Table 2).

Table (2): Infestation percentages of sheep with ticks *Hyalomma rufipes* depending on monthly samples

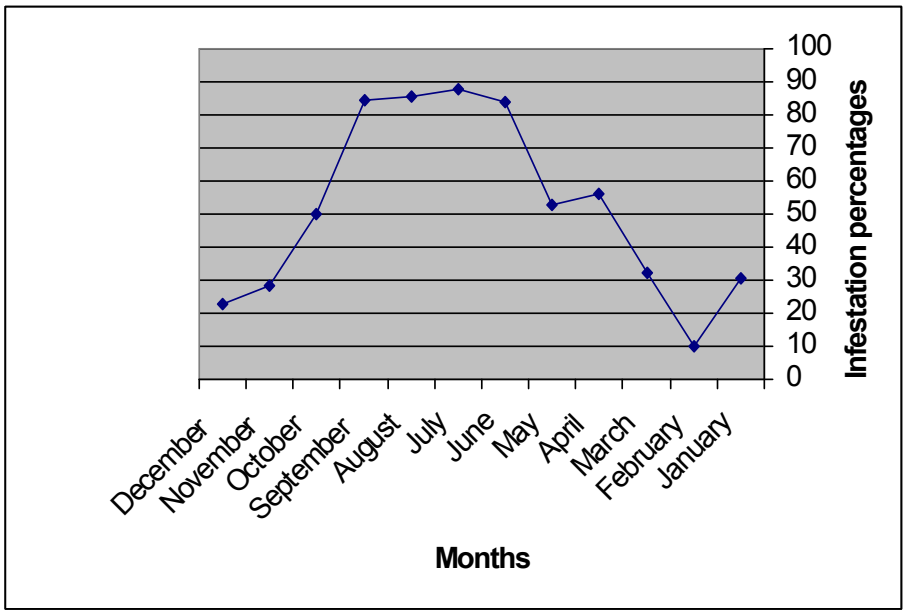
Month	Examined	Infected	Percentages %
January	33	10	30.3
February	39	4	10.25
March	25	8	32
April	57	32	56.14
May	49	26	53
June	75	63	84
July	82	72	87.8
August	91	78	85.71
September	117	99	84.61
October	52	26	50
November	60	17	28.33
December	52	12	23
Total	732	447	61

The result of present study showed that the increase of infestation will observed at the ended of spring and started of summer until it is reached to high percentage in July

(87.8 %), and then gradually decreased at the ended of summer and started of autumn reaching to the low level of infestation percentages in February (10.2 %) (Figure 1).

This result were similar to these obtained by Stafford (2004) in infestation with ticks *Ixodes scapularis* in USA, which is attributed to that the nymph precede larvae and infect anew generation of animal host. Larvae active later in the summer then become infected when feeding on reservoir host animals.

Figure (1): Seasonal variations in infestations percentages of sheep with *Hyalomma rufipes*



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مسح للقراد المتطفل على بعض الحيوانات المنزلية في محافظة ذي قار،العراق

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الخلاصه:

تم في الدراسه الحاليه عزل اربعه انواع من القراد هي *Hyalomma rufipes*, *H.tracatum*, *Boophilus annulatus* and *savignyi Ornithodoros* والتي اجريت على اربعه انواع من الحيوانات المنزليه لعدة مناطق في محافظه دي قار، ودلك اثناء المدة المحصورة من بدايه شهر كانون الثاني عام ٢٠٠٢ ولغايه نهايه شهر كانون الاول عام ٢٠٠٤، وكانت نسبه الاصابه الكليه بالقراد هي ٤٨.٢ %، ٩٦.٨ %، ٢٣ % و ٣٠% في الابقار،الاغنام، الماعز والدجاج على التوالي. ظهرت هناك تغايرات موسميه في نسبه إصابه الاغنام بالنوع الاول من القراد كانت قمتها في شهر تموز (٨٧.٨ %) ، في حين كانت اقل نسبه اصابه في شهر شباط حيث بلغت (١٠.٢ %) ، فيما لم تظهر هناك دورات موسميه واضحه في بقيه الانواع . نوقشت في البحث الاهميه الصحيه والاقتصاديه لانواع القراد المسجله في الدراسه الحاليه.