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ORIGINAL ARTICLE

A Study of Parasitic Ticks That Affects Buffaloes in DHI-QAR and Al-Muthanna Governorates/Iraq

MOHAMMED. J. FALIH[1], ABBAS. K. HAMZA[2]
[1]*College of education/AL-Qadisiyah University/Biology Dept.*
[2]*Collage of Agriculture/AL-Qadisiyah University/Entomology Dept.*
Correspondence to: Mohammed. J. Falih, Email: Mohamedjabbar279@gmail.com

ABSTRACT

In this study about 140 of different ages buffaloes and from different regions of Dhi-Qar and AL-Muthanna governorates were examined to diagnose their infection with ticks, as well as to determine the prevalence of these infections. Samples were collected from early of October 2021until late of February 2022 along five months.

From 140 buffaloes the infection with ticks found in 67 (47.85%) percentage, and the higher proportion was in Dhi Qar governorate (48.71%), while the infection rate of Al-Muthanna governorate was about (46.77%).

During this study four types of ticks were obtained, arranged according to the following ratios, Hyalomma. anatolicum showed a highest percentage (45.66%), H.marginatum (31.21%), H.dromedarii (16.76%), and H.scupense (6.35%), since the latter recorded the lowest percentage. The study also showed that the most susceptible part of the buffaloes body was the head and back in a ratios of 45.08%, 40.46% respectively, while the space between legs recorded the lowest susceptible part to these infections in a ratio of 1.73% .

Keywords: buffaloes, parasitic ticks, Dhi-Qar

INTRODUCTION

Ticks are ecto-parasites that feed on blood and considered as an obligate parasites, parasitizing vertebrates especially mammals, birds, reptiles and amphibians, so they have a significant role in medicine, veterinary and economy (1). This parasites belongs to the phylum Arthropoda, the class Archanida, as it contains four pairs of legs (2). Ticks classified into two main families, Ixodidae (hard tick) and Argasidae (soft tick), in addition to a third family called Nuttalliellidae, while the hard tick contain 670 species, soft tick contain 167 species, the Nuttalliellidae includes just one species (3).

During their life cycle the ticks goes through four stages: egg, six-legged larva, eight-legged nymph, and the adult (males , females) (4) .

Ticks considered as the most important livestock's ecto-parasite especially in tropical and subtropical regions, they causing a huge economic losses either directly by absorbing large amounts of blood or indirectly as they are a vector of many different livestock pathogens including viruses, ricketssia, protozoa, and other parasites, a large numbers of ticks affect the quality of animal's skin, reducing their weight, or causing anemia (5), wounds and scratches made by these ecto-parasites facilitating the entry of germs and causing many complications in the body such as inflammations and ticks pyaemia (6).

Because ticks are one of the most important ecto-parasites that affecting buffaloes, so through this study we aimed to diagnose types of ticks that parasitize these economically important animals and their prevalence in two Iraqi governorates (Dhi Qar and Al-Muthanna).

MATERIALS AND METHODS

In order to detect types of ticks that infects buffaloes and determine their prevalence, a group of buffaloes of tow governorates (Dhi Qar and Al-Muthanna) was scanned from early of October 2021 to the end of February 2022. In total 140 buffaloes from different regions were examined periodically during this five months and within the study area.

Initially ticks infections was detected macroscopically, and their locations on buffaloes body also detected, then for a lab examination, 173 samples were collected from different parts of the animals body including (head, back, genitals, udder, and between legs).

For diagnosis, first ticks were isolated from animal's skin and a piece of medical cotton moistened with alcohol was used in order to facilitate their removing. Samples were collected manually using forceps with a fine tweezer, then placed in a special glass bottles containers with 70% ethyl alcohol, sample's information was written down, such as geographic area, animal's part from which the sample were taken, and the date. Then the Samples were transferred to a lab for diagnoses and determine their genus and species.

The diagnosis was done depending on a criteria that set by (7) and (8) which is including many morphological characteristics such as presence and absence of Festoon, shape of the capitulum base, shape of the first coxa, and shape of the spiracles, by using a dissecting microscope. The diagnosis was confirmed finally in the Natural History Museum/Baghdad University.

RESULTS

The results showed that the total infection rate of tick in buffaloes was 47.85 % , table (1).

Table 1: number and ratio of infected buffalos

Number of tested animals	Number of infected animals	Number of non-infected animals	Infection rate
140	67	73	47.85

The results also showed that all diagnosed ticks (173 sample) belongs to the genus Hyalomma spp, and four species of this genus were identified, table (2), H.anatolicum (45.66%) which represent the highest percentage of collected ticks in this study, H.marginatum (31.21%), H.dromedarii (16.76%), and H.scupense (6.35%) which represent the lowest percentage of collected ticks in this study,Table(2), Figure (1).

Table 2: Species of isolated ticks, their numbers and ratios

Ticks species	Number	Percentage
Hyalomma anatolicum	79	45.66
Hyalomma marginatum	54	31.21
Hyalomma dromedarii	29	16.76
Hyalomma scupense	11	6.35
average	173	100

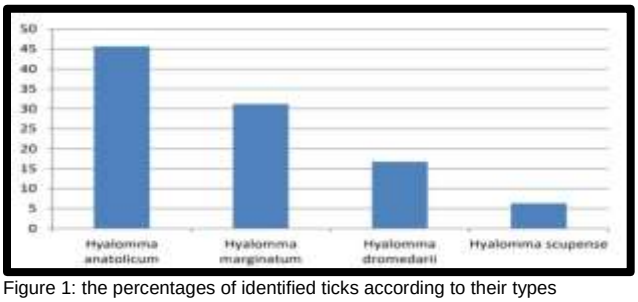

Figure 1: the percentages of identified ticks according to their types

Results also showed that the head and back were the most infected parts of animal's body with a percentage of 45.08% and 40.46% respectively, while the infections of the space between legs, which was 1.73% represent the lowest percentage, table (3).

Table 3: numbers and ratios of ticks according to their location or body part from which they were isolated

Infected part	Numbers of isolated ticks	Percentage
head	78	45.08
back	70	40.46
genitals	16	9.24
udder	6	3.46
Between legs	3	1.73
average	173	100

According to Governorate, Dhi Qar Governorate represent the highest ratio which was 48.71%, while the ratio of Al-Muthanna Governorate was 46.77% , table (4).

Table 4: infection rates according to Governorate

The Governorate	Numbers of tested buffalos	Numbers of infected buffalos	Infection ratio
Dhi Qar	78	38	48.71
Al-Muthanna	62	29	46.77
average	140	67	47.85

DISCUSSION

The results of the current study showed that buffaloes were infected with four types of ticks, all of which belongs to the genus Hyalomma, namely: H.marginatum, H.scupense, H.dromedarri and H.anatolicum. The species that belongs to the genus Hyalomma are distinguished by their high ability to adapt to various climates of cold, hot and humid, as well as their ability to parasitize on different hosts (9), These results agreed with a results recorded by (10) in a previous study carried out in Samarra/Iraqi, where three types of ticks were found to infect buffaloes and all of which belongs to the genus Hyalomma. Also agreed with another study done by (11) which was performed in Basra city, they confirmed that Hyalomma spp was the most common ecto-parasites that affect buffaloes, but It does not agree with the results of (12) in south of Iraq, where they recorded a three types of ticks parasitizing buffaloes, which belongs to another genera includes: Rhipicephalus, Hyalomma, and Haemaphysalis. Also does not agree with a results of a study (13) in Basra, Wasit, Maysan and Baghdad cities, where they recorded a three genera of ticks parasitizing on buffaloes: Boophilus, Hyalomma and Rhipicephalus

The infection rate of current study is 47.85%, this is consistent with infection rate of (12) which was 45.6% in Basra, Maysan and Dhi Qar, but higher than infection rate of (14) which was 34.38% a study done in Babylon, Al-Qadisiyah and Al-Najaf cities, also less than infection rate of (15) which was 95.5% of a research on ticks infections of cows and buffalos in Azerbaijan, as well as another study (16) in Ethiopia namely in Amhara city, when the infection rate of buffaloes with ticks was 89.4%, during which four species of ticks were mentioned: Hyalomma, Amblyomm, Rhipicephalus, and Boophilus,

The highest infection rates were recorded in the head of buffaloes, which was about 45.08%, while the lowest percentage recorded in between legs 1.73%, the rest of the body arranged between the two mentioned percentages. The reason of these differences may be resulted from the amount of blood supply, less friction of these body parts, or presence of suitable climates.

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