



## Prevalence and Incidence of Ticks in Goat (*Capra Hircus*) in Mhow (M.P.).

### KEYWORDS

Ecto-parasites, Hard Ticks, *Hyalomma anatolicum*, *Boophilus microplus*, prevalence and incidence etc.

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### ABSTRACT

The present study deals with prevalence and incidence of hard ticks in goat and observed impact of hard ticks in host animal. The proposed investigation was done in Mhow (Indore region) (M.P.). The survey and sample collection was done in 200 adult (100 Male and 100 Female) and 100 young ones goats from different villages of Mhow. Total 160 animals were found infested with ticks out of 300 animals observed. These ticks were belong to three different genera of family Ixodidae and total 310 ticks were collected from infested goats and these ticks were identified by (Souls by, 1968). The present study pointed that *Hyalomma a. anatolicum* and *Boophilus microplus* are the most common vector species infesting goat in present study area. The highest month-wise prevalence was recorded during the rainy season (July to September), lowest prevalence was recorded in the winter season (December to February) and medium prevalence was recorded in the summer season (April to June). 61 animals found infested with ticks out of 100 animals observed in rainy season which were more than compare to summer (54) and winter (45) season.

### INTRODUCTION

Ectoparasites are organisms that live on the outside of body surface of animals upon which they depend for food, shelter and other basic needs to survive (Rechav & Nutall, 2000). It has been observed that ectoparasitic do not only have direct effects on their host, they may also transmit pathogens, thereby acting as vectors of diseases (Parola et al., 2001). Ticks are ectoparasites which belong the phylum Arthropoda and class Arachnida. Ticks present three main dangers to their hosts: the physical damage from the bite itself, other systemic effects of the tick's saliva and transmission of infectious diseases. (Jongeja and Uilenberg, 2004). Parasites can transmit diseases from sick to healthy animals. They can reduce weight gains and milk production in general infested livestock cannot be efficiently managed to realize optimum production levels (Ofukwn and Akwuobu, 2010). All ectoparasites causes intense irritation to the skin and skin damage, blood loss and severe anaemia, moreover they are important vectors of protozoan, bacterial, viral and rickettsial diseases (Parola and Raout, 2011). The disease problems in the small ruminants are a major hurdle in better economic return in livestock industry, which need timely and effective intervention in management (Balashov, 1972). Parasitic infestations have significant impact on husbandry, productivity, diseases and welfare of livestock round the globe (Kakar and Kakarsulemankhel, 2008). Some parasitic infestations may cause death when the control measures are neglected (Hayat, 1987).

### MATERIALS AND METHODS

#### Study area:

Mhow (Indore region) was selected for the present study. Following Mhow villages were include for present study:

Bhatiyakhera, Ahilyapur, Ambapur, Bai, Amada

#### Experimental animal:

Goat (*Capra Hircus*) was selected for the present investigation. The survey and sample collection were done in 200 adult (100 Male and 100 Female) and 100 young ones goats from different villages of Mhow.

#### Experimental ectoparasite:

For the present study hard ticks were collect as ectoparasite on observed *Capra hircus* (Host).

#### Observation of ticks on experimental animal:

Ticks will be identified on the skin of experimental animal according to the morphological structures mentioned by (Solus by, 1968) and count the no. of ticks in an each experimental animal and their incidence in host animal.

### Results

#### Ticks prevalence and incidence:

Total 160 animals were found infested with ticks out of 300 animals observed, These ticks were belong to three different genera of family Ixodidae and total 310 ticks were collected from infested goats and these ticks were identified by (Souls by, 1968). The attachment sites of these species on goat were inside and outside of the ear, under the tail, margin of the anus, limbs and groin. Thirty minutes were spent for each flock to collect ticks. All inspections and tick collections were carried out between 08:00 a.m. and 11:00 a.m. In case of infestation, ticks were collected using forceps and then preserved in 70% ethyl alcohol. The present study pointed that *Hyalomma a. anatolicum* and *Boophilus microplus* are the most common vector species infesting goat in present study area. Prevalence and incidence of ticks in goat in all three season (rainy, summer and winter)

summarized in (Table 1,2,3).

The highest month-wise prevalence was recorded during the rainy season (July to September), lowest prevalence was recorded in the winter season (December to February) and medium prevalence was recorded in the summer season (April to June). 61 animals found infested with ticks out of 100 animals observed in rainy season, Which were more than compare to summer (54) and winter (45) season. Ticks species *Hyalomma anatolicum anatolicum* (70) and *Boophilus Microplus* (55) were mostly found in rainy season compare to summer (85) winter (70) season. % infections were pointed 61% in infected animal in rainy season which were higher than summer (54%) and winter (45%), which was showed that heavy infestation and causes weakness, hair loss and skin nodulation in infected animal.

**Table 1: Prevalence and incidence of ticks in host animal in rainy season.**

S.No	Study area	Rainy season				
		No. of host examined	No. of host infested with ticks	% infection	Species identified	Dominant species
1.	BHATI-YAKHERA	20	12	60	HAA,BM	HAA
2.	AHILYAPUR	20	14	70	HAA	HAA
3.	AMBAPUR	20	11	55	RE, HAA	HAA
4.	BAI	20	10	50	HAA,BM	BM
5.	AMADA	20	14	60	BM	BM
	TOTAL	100	61	61	3	2

**Table 2: Prevalence and incidence of ticks in host animal in summer season.**

S.No	Study area	Summer season				
		No. of host examined	No. of host infested with ticks	% infection	Species Identified	Dominant species
1.	BHATI-YAKHERA	20	11	55	HAA,BM	HAA
2.	AHILYAPUR	20	10	50	HAA	HAA
3.	AMBAPUR	20	11	55	RE, HAA	HAA
4.	BAI	20	10	50	HAA,BM	BM
5.	AMADA	20	12	60	BM	BM
	TOTAL	100	54	54		

**Table 3: Prevalence and incidence of ticks in host animal in winter season.**

S.No	Study area	Winter season				
		No. of host examined	No. of host infested with ticks	% infection	Species Identified	Dominant species
1.	BHATI-YAKHERA	20	10	50	HAA,BM	HAA

2.	AHILYAPUR	20	9	45	HAA	HAA
3.	AMBAPUR	20	8	40	RE, HAA	HAA
4.	BAI	20	9	45	HAA,BM	HAA
5.	AMADA	20	9	45	BM	BM
	TOTAL	100	45	45		



**Fig: presented *Hyalomma anatolicum anatolicum*, *Rhipicephalus evertsi* and *Boophilus Microplus* (Soulsby, 1968)**

**Discussion**

Hard ticks feed for extended periods of time on their hosts, varying from several days to weeks, depending on such factors as life stage, host type, and species of tick. The outside surface, or cuticle, of hard ticks actually grows to accommodate the large volume of blood ingested, which, in adult ticks, may be anywhere from 200 to 600 times their unfed body weight (Sonenshine, 2002). Feeding by large numbers of ticks causes reduction in live weight and anemia among domestic animals, while tick bites also reduce the quality of hides. Apart from irritation or anemia in case of heavy infestations, tick can cause severe dermatitis (FAO, 1998). These parasites generate direct effects in cattle in terms of milk production and reduce weight gain (Hostis and Seegers, 2002; Peter et al., 2005). The seasons of highest tick prevalence as fall and winter at 50%, the least being spring and summer (Yakhchali and Hosseine, 2006). Three different genera of family Ixodidae and a total of 867 ticks were collected and identified in haryana state (shivani chiller et al., 2014). In ticks, the prevalence of *Hyalomma anatolicum* (20.39%; 164/804) was higher (P<0.05; OR= 1.75) compared with *Rhipicephalus microplus* (13.18%; 106/804) in Pakistan (Asif et al., 2014). Tick infestation causes quality of skin hide up to 20-30% (Gharbi et al., 2006) and causes severe anemia, loss of milk production, unrest and immune suppression in the infected host animals (Gwakisa et al., 2001). Present study pointed that ticks species *Hyalomma anatolicum anatolicum* (70) and *Boophilus Microplus* (55) were mostly found in rainy season compare to summer (85) winter (70) season. percent infections were pointed 61% in infected animal in rainy season which were higher than summer (54%) and winter (45%).When host infestation preference was studied adult goats were found to be more infested than young ones. The Heavily infested goat was weak, showed hair loss, scar marks and skin nodulations. The milk yield was reported to be low by farmers.

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