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Incidence of theileriosis in cattles and buffaloes during rainy season

Sonali Waskel* and Usha Gaur

Govt. Mata Jija Bai Girls P. G. College, Moti Tabela, Indore

ABSTACT

An attempt has been made to analyze the incidence of Theileriosis in cattle's and buffaloes in eight region of Indore District (M.P.). This study has been performed in rainy season (July to Oct, 2014), in which a total 52 cattle's and 48 buffaloes were screened for Theileriosis infection, out of which 27 cattle's and 23 buffaloes were found to be positive. Microscopic blood smears examination was used for identification of parasite. The prevalence of T. annulata was recorded higher in cattle's (51.92 %) than buffaloes (47.91%).

Key words: Cattles, Buffaloes and Theileriosis

INTRODUCTION

Theileriosis is a bovine disease caused by a tick transmitted haemoparasite, *Theileria* species. It is characterized by a marked anaemia and fever [1], causing depletion in livestock production in Asia, Africa and Middle East [2]. It has been found that Tick-borne diseases cause loss of US $ 13.9 to 18.7 billion per annum and 80% world's cattle population are at risk of Tick-borne diseases [3]. Tropical theileriosis is most common diseases in cattle caused by *T. annulata* [4]. In Sri Lanka, it has been found that *Theileria orientalis* is dominant in Nuwara Eliya, whereas *Theileria annulata* is prevalent in dry zone [5].There are two most common species, *Theileria annulata* and *Theileria parva* causes theileriosis disease in cattle. These species harbour different vectors to transfer merozoites in cattle. The host tick *Rhipicephalus* transmits *T. parva* and *Hyalomma* transmits *T. annulata.* Theleriosis is a disease that causes major economic losses in animal production [2].The prevalence differ from region to region and various factors determine the occurrence of the tick-borne diseases such as sex, age, breed, season, tick density, geographical area and management [6 and7]. In view of this, the present work has been aimed to observe the incidence of Theileriosis in cattle's and buffaloes in selected region of Indore District (M.P.) to aware the people from economic losses caused by disease.

MATERIALS AND METHODS

Study Area

Indore District is situated in Madhya Pradesh (central India). It is geographically located between 22 ° 20´ N to 23 ° 05 ´N latitude and 75 ° 25 ´ E to 75 ° 15 ´ E longitude. There are eight region of Indore District were selected for present investigation namely; Ahilyamata Gaushala (Kesharbagh), Gwala colony (Futikoti chauraha),Vidhsayadham Goushala Samiti (airport), Nagar Palika Nigam Indore Resham Kendra Gaushala Khajuriya (Hatod), Umariya Village, Devgurariya Village, Kasturbagram Gaushala (Khandwa road) and Ahirkheri Village.

Sample Collection and blood smears examination

There are 52 cattle's and 48 buffaloes were taken for screening purpose from eight selected region of Indore District during rainy season (July to Oct, 2014). Blood sample were collected from ear vain of cattle's and buffaloes. A

blood smears were prepared as per standard methods of Afridi *et al* [8] and fixed with absolute methanol and stained with diluted Giemsa stain (1:10 ratio) for 30 min approximately. Extra stain was removed by washing with tap water. The stained slides were examined under oil immersion lenses at 1000 x magnification. The parasites were identified as per standard method described in OIE publications [9].

Prevalence was calculated by using formula of [10]

$P = d/n^{x\ 100}$

Where, P = Prevalence, d = No. of animals positive, n = Total no. of animals.

Table-1: Geographical details of Animals screened for Theileriosis

S. No.	Location of Animals	Total no of Cattle	No. of Cattle positive	Total no of Buffaloes	No. of Buffaloes positive
1	Ahilyamata Gaushala, Kesharbagh	8	5	12	6
2	Gwala colony, Futikoti chauraha	4	2	10	6
3	Vidhsayadham Goushala Samiti airport Indore	8	0	1	1
4	Nagar Palika Nigam Indore Resham Kendra Gaushala Khajuriya, Hatod.	12	12	2	2
5	Umariya Village	3	1	8	2
6	Devgurariya Village	5	2	3	1
7	Kasturbagram Gaushala Khandwa road, Indore	6	3	6	3
8	Ahirkheri Village	6	2	6	2
Sum of Animals		52	27	48	23
Prevalence for *T. annulata*		51.92 %		47.91%	

RESULTS AND DISCUSSION

In present investigation, 52 cattle's and 48 buffaloes were taken from eight different region of Indore District during rainy season (July to Oct, 2014) to observed the incidence of Theileriosis. There are 27 cattle's and 23 buffaloes were found to be positive. The prevalence of *T. annulata* for cattle's and buffaloes were estimated as 51.92 % and 47.91% respectively (Table-1).

Ahmad *et al.* [11] noticed that the incidence of disease was higher in the rainy season due to increase in the tick population. It have been estimated 0.70%, prevalence of *T. annulata* in cattle on microscopic examination of blood smears [8] and overall incidence of theileriosis was reported in Holstein-Friesian and Jersey cows was 24 and 15 per cent, respectively [12]. According to Stuti *et al.* [13], calves (below one year) were found more susceptible for ticks infestation (65.38%) followed by grownups (34.60%) and adults cattle (14.91%). Further, It was found that the prevalence of *T. annulata* with the tick abundance in June [14]. Whereas, Kabir *et al.* [15] reported that prevalence of tick was significantly ($p < 0.01$) higher in local cattle, 103 (43.82%) than the crossbred cattle, 35 (24.13%) but 16 % positive cases of theileriosis was noticed in crossbred cattle in Northern Kerala [16]. However, it has been estimated a 37% positive cases of the haemoprotozoan infection in Kaira and Anand Districts of Gujrat and found the higher incidence of *Theileria* during the monsoon season [17]. The prevalence and distribution of tick-borne diseases in cattle in Sargodha district, Pakistan has been estimated and found that *Anaplasma marginale* was the most prevalent (9.71%) hemoparasite of cattle followed by *Theileria annulata* (6.86%) and *Babesia bigemina* (6.57%), respectively [18]. More or less similar patterns of results were obtained in present investigation as suggested by these authors. Further, it was reported the highest Prevalence (45.4%) of theileriosis in cross-bred cattle Dehradun district, Uttarakhand (India) in rainy season [19].Highest rate of tick infestation in cattle (60.5%) followed by goats (25.9%), buffaloes (17.8%), sheep (14.8%) was recorded but no tick infestation were noticed in camels [20]. Result of the present investigation also in conformities with the findings of previous authors.

Therefore, looking to the importance of good health of livestock and economic sustainability, this study helps the farmer to manage the livestock farms for controlling Tick-borne diseases.

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