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## Prevalence of haemoprotozoan infection in cattle of Udaipur district of Rajasthan

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### Abstract

The present study was carried out to determine the prevalence of haemoprotozoan infection in cattle. A total of one hundred ninety five cattle were examined for haemoprotozoan infection during April 2022 to November 2022, Out of which, fifty cattle were found positive for haemo-protozoan infection. The reported prevalence were based on history of affected animal, clinical sign and laboratory examination. The overall prevalence of haemo-protozoan diseases among screened cattle was found 25.64 percent. In this area most common haemoprotozoan infections reported as Theileriosis, Babesiosis, Trypanosomiasis. The prevalence of Theileriosis infection was higher than Babesiosis and Trypanosomiasis. Rainy season was the most favourable season for haemoprotozoan diseases in cattle and above 3 years old animals was more sensitive haemoprotozoan infection.

**Keywords:** Prevalence, Cattle, theileriosis, babesiosis and trypanosomiasis

### Introduction

In tropical and subtropical regions of the world, haemoprotozoan infections are very common and cause major economic losses for the livestock industry (Velusamy *et al.*, 2014) [25]. India is a tropical country and climate is highly suitable for the growth and spread of the most common carriers of diseases or vectors leading to an increase in incidence of vector-borne diseases (Kohli *et al.*, 2014) [15].

Geoclimatic and agro ecological conditions of the area are hugely favourable for the multiplication and growth of ticks which act as natural vectors of Theileriosis, Babesiosis and Trypanosomiasis (Bhatnagar *et al.*, 2015) [3].

According to Parmar and Chandra (2019) [23] theileriosis is more common in rainy season than summer and least in winter while Babesiosis mostly occur during summer season than rainy Esin *et al.* (2012) [11] & Trypanosomiasis more common in rainy season than summer (Krishnappa, 1999; Krishnappa *et al.*, 2002a).

Prevention of production losses due to haemoprotozoan disease, the early diagnosis and implementation of effective treatment are important ((Norval *et al.*, 1992) [22]. The diagnosis of haemoprotozoan disease is based on history, clinical signs and confirmed by microscopic examination of blood smear (Devos and Potgieter, 1994) [7]. Keeping the view of the above facts, it was planned to conduct a study to determine haemoprotozoan diseases in cattle of Udaipur (Rajasthan).

### Materials and Methods

#### Place, Animals and duration and history

This study was conducted at the Department of Veterinary Medicine, College of Veterinary and Animal Science, Navania, Vallabh Nagar Udaipur Rajasthan. The clinical study was conducted for a period of 8 months that was from April 2022 to November 2022. Total 195 cattle were screened for haemoprotozoan diseases, out of which, fifty cattle were found positive for haemo-protozoan infection of these animals were subjected to detailed physical & clinical examination for the diagnosis of haemoprotozoan diseases in reference of different breed, age and sex, History of tick infestation, body temperature, swollen of lymph node, duration of illness, appetite of the animal, abnormalities in the behaviours, changes in management and feeding practice, gait, posture, rumination, defecation (quantity, consistency and frequency), urination, examination of visible mucous membranes, physical condition, clinical manifestations and general clinical examinations were also recorded.

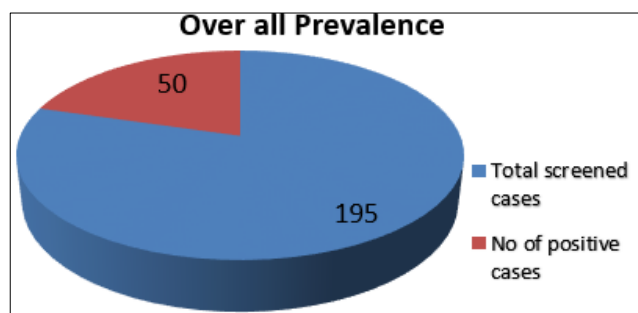
**Result and Discussion**

**Overall prevalence**

In the present study a total of 195 cattle were screened Basis of physical, clinical examination and laboratory findings. Total of 50 cattle out of 195 cases of haemoprotozoan diseases were found positive for Theileriosis, Babesiosis, and Trypanosomiasis an overall prevalence of haemoprotozoan disease was 25.64percent in cattle of research area. The result has been presented in Table 1 and Fig.1

**Table 1:** Over all prevalence of haemoprotozoan diseases in cattle

Total screened animal	Number of Haemoprotozoan positive animal	Overall Prevalence (%)
195	50	25.64



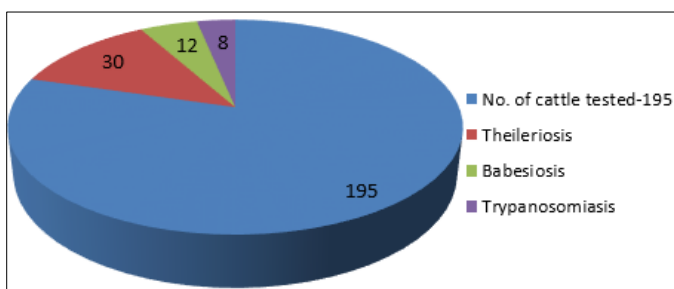
**Fig 1:** Percent distribution of overall prevalence of haemoprotozoan diseases in cattle

Similar finding reported by Ghosh *et al.* (2018) [12] that was 33.30%. Comparatively higher prevalence was reported by Ananda *et al.* (2009) [1], Dharanesha *et al.* (2017) [10], Debbarama *et al.* (2020) [8] as 43.18%, 40.22%, and 34.84percent respectively. On another side lower prevalence was reported by Velusamy *et al.* (2014) [25], Bitrus *et al.* (2021) [4] and Bhatnagar *et al.* (2015) [3] as 16.64%, 12.25percent and 9percent respectively.

**Disease wise prevalence:** Out of 195 screened Haemoprotozoan affected animals, 30 cases of theileriosis, 12 cases of babesiosis and 8 cases of Trypanosomiasis were reported. These are presented in Table 2 and Fig. 2

**Table 2:** Prevalence of haemoprotozoan diseases (Theileriosis, Babesiosis and Trypanosomiasis) in screened animals' cattle in Udaipur:

S.no.	No. of Total screened animal (for three diseases)	Name of Haemoprotozoan diseases	No of positive case	Prevalence (%)
1	195	Theileriosis	30	15.38
2		Babesiosis	12	6.15
3		Trypanosomiasis	8	4.10



**Fig 2:** Prevalence of haemoprotozoan diseases in cattle

The prevalence of Theileriosis in cattle was 15.38percent (195/30), Babesiosis 6.15 percent (195/12) and Trypanosomiasis 4.10percent (195/8).

Similar findings was reported by Anwar (2018) [2] that is 15.63percent for theileriosis., Comparatively higher prevalence was reported by Brahmhatt *et al.* (2019) [6] and Khawale *et al.* (2019) [14] that is 20.31%, 22.38percent and In another side lower prevalence was reported by Mahmud *et al.* (2015) [18], Muniraja *et al.* (2021) [19] as 5.82percent and 0.78percent for Theileriosis.

Similar finding was reported by Bitrus *et al.* (2021) [4], Unigew *et al.* (2022) [24] that is 6.75percent and 5.45percent for Babesiosis. Comparatively higher prevalence was reported by Ananda *et al.* (2009) [1], Muraleedharan (2015) [20] that is 28.07%, 16.8percent and in another side lower prevalence was reported by Mahmud *et al.* (2015) [18] that is 2.27percent for Babesiosis. S And Similar finding was reported by Denbarga *et al.* (2012) [9], Debbarma *et al.* (2020) [8] that is 4.2percent and 5.8percent for Trypanosomiasis. Comparatively higher prevalence was reported by Muraleedharan (2015) [20] that is 6.90percent and in another side lower prevalence was reported by Biyazen *et al.* (2014) [5], Katabazi *et al.* (2021) [13] that is 2.86%, 2percent for Trypanosomiasis.

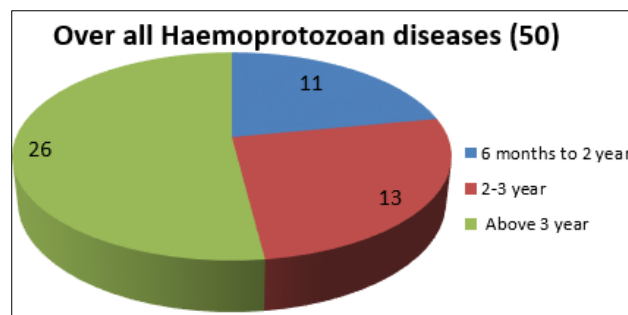
The differences in the prevalence rate might be due to variation in the number of samples included in the study geographical and climatic conditions, and feeding management of study area.

**Overall Age wise prevalence**

Cattle screened under present study were divided into 3 age group *viz.* 6 months to 2 years of age, 2 to 3 years of age and above 3 years of age presented in Table 3 and Fig.3.

**Table 3:** Over all Age wise prevalences of haemoprotozoan diseases in cattle in Udaipur.

Over all haemoprotozoan diseases (50)	Age group	No of affected cases	Prevalence (%)
	6 months to 2 years	11	22
	2 to 3 years	13	26
	Above 3 years	26	52



**Fig 3:** Over all Age wise prevalence of haemoprotozoan diseases in cattle

The Age wise prevalence of cattle group (6 months to 2 years) in haemoprotozoan diseases was 22 percent (11/50).The Age wise prevalence of cattle group (2 to 3 years) in haemoprotozoan diseases was 26 percent (13/50).The Age wise prevalence of cattle group (above 3 years) in haemoprotozoan diseases was 52percent (26/50) Similar finding reported by Ananda *et al.* (2009) [1] who observed higher prevalence in adult than young cattle, due to inverse

age resistance of the disease where adult showed more susceptibility than calves. This might be due to rapid immune responses to primary infection by the calves through a complex immune mechanism.

### Conclusion

The present study revealed that haemoprotozoan diseases are most commonly found in rainy season at study area. The overall prevalence of haemo-protozoan diseases among screened cattle was found 25.64 percent. In this area most common haemoprotozoan infections reported as theileriosis, babesiosis, trypanosomiasis. this study could be satisfied for field and it can prevent economic losses for farmers.

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