

## PREVALENCE OF BLOOD PARASITES IN CATTLE AND BUFFALOES

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### ABSTRACT

The prevalence of blood parasites was studied in cattle and buffaloes maintained at two livestock institutes. The prevalence was found to be 27.69 and 16.12% in cattle and buffaloes, respectively at Animal Sciences Institute, NARC, Islamabad. It was 22.31% in cattle at Barani Livestock Production Research Institute, Kherimurat, District Attock. *Anaplasma marginale* showed the highest prevalence rate as compared to other blood parasites.

**Key words:** Blood parasites, prevalence, cattle, buffaloes.

### INTRODUCTION

Haemoprotozoa like *Theileria*, *Babesia* and *Anaplasma* are considered to be the most important blood parasites of cattle and buffaloes in Pakistan. Sporadic cases of the diseases caused by these three protozoa are seen throughout the year (Ashfaq *et al.*, 1983; Muhammad *et al.*, 1999). However, their outbreak in exotic and crossbred cattle is mostly reported during the hot and humid months (July-September) of the year. Occurrence of these parasites have been reported by Eren *et al.* (1998) and El-Metenawy (2000) in apparently healthy cattle and by Brriro (1994) in both cattle and buffaloes. Muhammad *et al.* (1999) recorded 112 cases of theileriosis between March, 1993 and September, 1998 at Faisalabad and recommended further work on its sub-clinical infections. This study was, therefore, designed to determine the prevalence of these parasites in cattle and buffaloes maintained at two livestock institutes in Pakistan.

### MATERIALS AND METHODS

Blood samples from jugular vein of 307 cattle and 155 buffaloes were collected during September, 1999 to May, 2000. Of these, 65 cattle were maintained at Animal Sciences Institute (ASI), National Agricultural Research Centre (NARC), Islamabad and 242 (of three breeds) at Barani Livestock Production Research Institute (BLPRI), Kherimurat, District Attock, Pakistan. All the buffaloes (155) belonged to ASI, NARC, Islamabad. Two thin blood smears were prepared from each sample. These smears were air dried, fixed in methyl alcohol for 5-10 minutes and stained with Giemsa stain (diluted in sterilized water at

1:25 ratio) and examined under high power (100 X) of the microscope. At least twenty microscopic fields of each slide were examined for search of blood parasites. The data were analyzed using chi-square test.

### RESULTS AND DISCUSSION

The prevalence of blood parasites in cattle and buffaloes maintained at ASI, NARC was found to be 27.69 and 16.12%, respectively (Table 1). At BLPRI, prevalence in cattle was recorded to be 22.31% (Table 2). At ASI, NARC, Jersey (n=38) crossbreeds (Sahiwal x Jersey, n=16), Dhanni (n=1), Sahiwal (n=2) and non-descript (n=8) were maintained. However, due to small number of animals in each group comparison of prevalence rate within the breeds was not possible.

Breedwise prevalence at BLPRI is presented in Table 2. The prevalence rate was higher (36.84%) in Lohani cattle as compared to other breeds. However, this difference was statistically non-significant.

Among the infested animals, the majority had *Anaplasma marginale* infection (Table 3) both in cattle (75.71%) and buffaloes (80.0%), followed by a mixed infection (cattle 20.0% and buffaloes, 16.0%). Statistically, this difference was also non-significant.

The haemoparasitic diseases caused by vector-borne blood parasites constitute a disease entity of considerable economic importance in tropics and sub-tropics (Wright, 1989) and are a major limiting factor in maintaining exotic and cross-bred cattle in these areas. There are reports of these diseases in cattle and buffaloes (Ashfaq *et al.* 1983; Muhammad *et al.*, 1999; Khalid *et al.*, 1991; Burrro *et al.*, 1994) from Pakistan. The findings of the present study are partially consistent with those of Burrro *et al.* (1994), who recorded 29 and

**Table 1: Prevalence of blood parasites in different age groups of cattle and buffaloes at National Agricultural Research Centre, Islamabad**

Species	Adults	Young-stock*	Total
Cattle	12/39 (30.76)	6/26 (23.07)	18/65 (27.69)
Buffaloes	15/65 (23.07)	10/90 (11.11)	25/155 (16.12)

\* > 1 year to first calving Values in parenthesis are percentages

**Table 2: Prevalence of blood parasites in cattle of different breeds and age groups at Barani Livestock Production Research Institute Kherimurat, District Attock**

Breeds	Adults	*Young-stock	Total
Red Sindhi	7/41 (17.07)	3/18 (16.66)	10/59 (16.94)
Dhanni	4/27 (14.81)	6/25 (24.00)	10/52 (19.23)
Lohani	12/24 (50)	9/33 (27.27)	21/57 (36.84)
Crossbred	8/21 (38.10)	5/46 (10.86)	13/67 (19.40)
Others	0/7 (0.00)	-	0/7 (0.00)
Total	31/120 (25.83)	23/122 (18.85)	54/242 (22.31)

\* > 1 year to first calving Values in parenthesis are percentages.

**Table 3: Distribution of different blood parasite species in cattle and buffaloes at National Agricultural Research Centre (NARC), Islamabad and Barani Livestock Production Research Institute (BLPRI), Kherimurat, District Attock**

Species	<i>Anaplasma marginale</i>	<i>Babesia</i> spp.	<i>Theileria annuleta</i>	Mixed infection
<b>Cattle</b>				
NARC	12 (66.66)	1 (5.55)	1 (5.55)	4 (22.22)
BLPRI	41 (75.92)	1 (1.85)	2 (3.70)	10 (18.5)
Total	53 (75.71)	2 (2.85)	1 (1.42)	14 (20.00)
<b>Buffaloes</b>				
NARC	20 (80.00)	-	1 (4.00)	4 (16.00)

Values in parenthesis are percentages.

45% incidence of blood parasites in cattle and buffaloes, respectively. The higher rate of prevalence of *Anaplasma marginale* as compared to other blood parasites recorded in the present study is also in agreement with the findings of Burriro *et al.* (1994). It could be concluded from the present study that our local animals harbour a sub-clinical infection of blood parasites. Further studies are needed on a broader scale so as to determine the ill effects of such sub-clinical infections, if any.

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