PREVALENCE OF HAEMOPARASITES IN CATTLE AND BUFFALOES IN D.I. KHAN, NWFP (PAKISTAN)

BY

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ABSTRACT
The haemoparasites are responsible for considerable economic losses in livestock. In the present study 600 blood samples (300 cattle and 300 buffaloes) were examined from January 2005 to December 2005. The overall prevalence was found to be 29.0% (87/300) & 13.33% (40/300) in cattle and buffaloes respectively. The incidence of Anaplasma was 58.62% (51/87) and 55% (23/40), mixed infection was 13.79% (12/87) and 20% (8/40) Thelileria was 20.68% (18/87) and 15% (6/40) and Babesia was 6.89% (6/87) and 7.5% (3/40) is cattle & buffaloes respectively. The incidence was high during the hot & humid months of the year.

Keywords: Haemoparasites, Prevalence, Cattle, Buffaloes, and D. I. Khan

INTRODUCTION
The haemoparasitic diseases caused by vector borne blood parasites constitutes a disease entity of considerable economic importance in tropics & sub-tropics (Wright, 1989) and are major limiting factor in maintaining exotic & cross-bred cattle in these areas. Haemoparasites inflict losses to animals in term of morbidity & mortality due to their heavy incidence (Fadraga et al., 1991). Anaplasma, Babesia, & Thelileria are the most important haemoparasites of cattle & buffalo in Pakistan. The diseases caused by these blood parasites are known as Anaplasmosis, Babesiosis & Thelileriasis respectively. These diseases are tick-borne because most transmission occurs via numerous genera of tick vectors (Merk Vet. Manual, 1998). Occurrence of these three haemoparasites is noted sporadically and causes diseases throughout the year. Ashfaq et al., 1983; Muhammad et al., (1999); Eren et al., (1998) and El-Metenawy (2000) reported these parasites in apparently healthy cattle and by Burriro (1994) in both cattle & buffaloes. In a recent study conducted by Khan et al. (2006), the prevalence of Thelileriasis in cattle in D.I. Khan, Tank & Bannu was 51%, 24% & 26% respectively. The present study, therefore, was designed to determine the prevalence of haemoparasites in cattle & buffaloes in D.I. Khan District of NWFP, Pakistan.

MATERIAL AND METHODS
Research Location
A total of 300 adult cattle and 300 adult buffaloes were examined for the prevalence of haemoparasites from January 2005 to December 2005. An equal numbers of cattle’s & buffaloes were randomly selected/examined from six villages of D.I. Khan District Viz. Draban Kalan, Himat, Hisam, Kacha Malana, Ramak and Paharpur.
Preparation of Blood Smears
Blood smears of each selected animal were prepared aseptically on grease free sterile glass slides directly from the ear vein. A sterilized lancet was used for pricking the ear. These smears were prepared according to the method described by Kreier and Barker (1987). Prepared slides were brought to Veterinary Research and Diagnostic Laboratory, D.I. Khan for further investigation.

Processing & Examination of Blood Smears
The smears were air dried, fixed in methyl alcohol for 5-10 minutes and stained with freshly prepped giemsa stain for 45 minutes (Levine, 1985) and examined under high power (100 x) of microscope. The parasites were identified according to characters described by Soulsby (1982), Sastry (1983) and Kreier (1994).

RESULTS AND DISCUSSION
The prevalence of haemoparasites in cattle’s & Buffaloes was found to be 29% and 13.33% respectively (Table-1). The prevalence was 16% and 12% in Daraban Kalan, 20% and 16% in Himat, 32% and 18% in Hisam, 30% and 10% in Kacha Molana, 40% and 14% in Ramak and 36% and 10% in Paharpur. The incidence rate of different haemoparasites is shown in Table-2. Anaplasma showed the highest rate both in cattle (58.62) and buffaloes (57.5), followed by Theileria spp in cattle (20.68%), and mixed infection in Buffaloes (20%). The highest incidence was noted during the hot & humid months (June, July and August) of the year, which might be due to an increase in the ticks population. Ashafaq et al. (1983); Muhammad et al. (1999); Khalid et al. (1991); Khan et al. (2004) Burriro et al. (1994) reported haemoparasitic diseases in cattle and buffaloes in Pakistan. The present study is partially consistent with the findings of Burriro et al. (1994), who recorded 29% and 45% incidence of haemoparasites in cattle and buffaloes respectively. Burriro et al. (1994) also reported high rate of Anaplasma as compared to other haemoparasites, is in agreement with our findings. The findings of our present study are closely in line with Khan et al. (2004) who reported 27.69% and 16.12% prevalence of blood parasites in cattle and buffaloes and highest incidence rate of Anaplasma in both species. However, Fadraga et al. (1991) reported 67.6% incidence of haemoparasites in cattle, which is not in agreement with our findings. Our study is closely in line with the results of Ahmad et al. (1995) who reported the higher incidence of infection during the rainy season. But don’t agreed with the study of Zahid et al. (2005) and EL-Metenawy (1999) they reported the highest incidence of haemoparasites in autumn season in Pakistan and Saudi Arabia respectively.

Conclusion
The prevalence of haemoparasites in Pakistan is quite high, so preventive measures must be adopted to achieve maximum profit from the livestock sector. These measures are:
1. Administration of drugs against haemoparasites
2. Elimination of Tick vectors
**Table-1:** Prevalence of Haemoparasites in Cattle & Buffaloes in Villages of D.I. Khan

<table>
<thead>
<tr>
<th>S. No</th>
<th>Village</th>
<th>Cattle</th>
<th>Buffaloes</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Draban Kalan</td>
<td>8/50 (16.0)</td>
<td>6/50 (12.00)</td>
</tr>
<tr>
<td>02</td>
<td>Himat</td>
<td>10/50 (20.00)</td>
<td>8/50 (16.00)</td>
</tr>
<tr>
<td>03</td>
<td>Hisam</td>
<td>16/50 (32.00)</td>
<td>9/50 (18.00)</td>
</tr>
<tr>
<td>04</td>
<td>Kacha Malana</td>
<td>15/50 (30.00)</td>
<td>5/50 (10.00)</td>
</tr>
<tr>
<td>05</td>
<td>Ramak</td>
<td>20/50 (40.00)</td>
<td>7/50 (14.00)</td>
</tr>
<tr>
<td>06</td>
<td>Paharpur</td>
<td>18/50 (36.00)</td>
<td>5/50 (10.00)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>87/300 (29.00)</td>
<td>40/300 (13.33)</td>
</tr>
</tbody>
</table>

Values in parenthesis are percentages.

**Table-2:** Incidence of Different Haemoparasites in Cattle & Buffaloes in D.I. Khan

<table>
<thead>
<tr>
<th>S. No</th>
<th>Species</th>
<th>Anaplasma spp</th>
<th>Babesia spp</th>
<th>Theileria spp</th>
<th>Mixed Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Cattle</td>
<td>51/87 (58.62)</td>
<td>6/87 (6.89)</td>
<td>18/87 (20.68)</td>
<td>12/87 (13.79)</td>
</tr>
<tr>
<td>02</td>
<td>Buffaloes</td>
<td>23/40 (57.5)</td>
<td>3/40 (7.5)</td>
<td>6/40 (15.00)</td>
<td>8/40 (20.00)</td>
</tr>
</tbody>
</table>

Values in parenthesis are percentages.
REFERENCES

Ahmad, S., F.A. Ali and S. Ahmad, 1995. Babesiosis in crossbred cattle (Bos indicus x Bos tauras) and buffaloes (Bubalis bubalis). Punjab University Zoology; 10: 33-37.


Sastry, G.A., 1983. Veterinary Clinical Pathology, 3rd Ed. CBS publishers, New Delhi, India.

