

## PREVALENCE AND DISTRIBUTION OF RUMINANT TRYPANOSOMOSIS IN BOKKOS LOCAL GOVERNMENT AREA OF PLATEAU STATE, NIGERIA

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The seasonal prevalence of trypanosomosis was investigated in Bokkos LGA of Plateau State, Nigeria. A total of 740 animals (684 cattle and 56 sheep) were bled during the dry and wet seasons. The standard methods used were simple random and jugular venipuncture. Standard parasitological methods were used to determine the infection rate. In cattle, the findings showed an infection rate of 11.7% while in sheep it was 17.9%. Peak infection in animals was during the end of the rainy season and beginning of dry season (September-December). Complementary mice inoculation tests revealed 83 sub patent cases and are recommended as a confirmatory diagnostic technique

### INTRODUCTION

Typanosomosis, caused by pathogenic trypanosomes (*Typanosoma spp*) transmitted through tsetsefly (*Glossina spp*) is a disease unique to Africa, affecting both humans and domestic animals. Symptoms of the disease are similar to those of other blood parasites, and include a general loss of condition, fever and anaemia. In acute cases, this might progress to internal haemorrhage and following invasion of the nervous system, coma and death (1). There have been reports of animal typanosomosis from different parts of the country including the high plateau of Jos: Bassa, Barkin-Ladi, Jos North and Jos South LGAs (3-9). This might have informed the inclusion of the Jos Plateau in a nationwide programme under the auspices of National Agricultural Research Project (NARP). Therefore, this study was part of the epidemiological survey of African animal typanosomosis carried out by Nigerian Institute for Trypanosomiasis Research.

### MATERIALS AND METHODS

The survey was conducted in Bokkos Local Government Area of Plateau

State during the months of June to January cutting across both dry and rainy seasons. The epidemiological survey took place in six villages. Samples were taken from cattle (Bovine) and sheep (Ovine). A total of 684 cattle and 56 sheep were sampled. The breeds of animals consisted of West African Dwarf (WAD), Yankassa, Uda and their crosses, for sheep and Zebu for cattle.

About 5 mls of blood was collected from the jugular vein of each animal into Bijou bottles containing EDTA. The bottles were labeled serially and the breed and sex of the animals bled indicated. Screening of the blood for typanosomes was carried out using the standard detection techniques (wet, thin and thick films) for quick assessment and by haematocrit centrifugation technique (HCT) for accurate diagnosis (2). Also, the packed cell volume (PCV) of all animals was recorded using the microhaematocrit method. Mice inoculation test was carried out for all suspected blood even if the parasitological result was negative.

## RESULTS

The results of the survey are shown in Tables 1, 2, 3 and 4. Out of a total of 684 cattle, 80(11.7%) were positive for various trypanosoma species. In sheep, out of a total of 56, 10(17.9%) were positive. Tables 1 and 2 also show the distribution of infections encountered in the six villages outlined. Table 3 shows the sex differences and the

PCV (packed cell volume). Table 4 shows that the peak infection in animals was during the end of the rainy season and beginning of dry season (September-December). Mice inoculation tests carried out revealed 83 subpatent and prepatent infections.

**Table 1: Bovine trypanosomosis in six villages in Bokkos LGA of Plateau**

Survey area	Number of animals	Number of positive animals			Total positive
		<i>T. vivax</i>	<i>T. congolense</i>	<i>T. brucei</i>	
Bokkos	115	8	-	7	15
Maltol	134	5	6	1	12
Ruwi	169	7	-	-	7
Richa	117	9	3	5	17
Kukuf (Marina)	81	19	4	-	23
Kamwai	68	-	6	-	6
<b>Total (%)</b>	<b>684</b>	<b>48 (60.0)*</b>	<b>19 (23.8)*</b>	<b>13 (16.3)*</b>	<b>80 (11.9)**</b>

\* = % of species over total number of positive cases.

\*\* = % of total positive cases over total sample size.

**Table 2: Ovine trypanosomosis in six villages in Bokkos LGA of Plateau**

Survey area	Number of animals	Number of positive animals			Total positive
		<i>T. vivax</i>	<i>T. congolense</i>	<i>T. brucei</i>	
Bokkos	13	-	-	3	3
Maltol	-	-	-	-	-
Ruwi	19	-	2	-	2
Richa	10	-	-	-	-
Kukuf (Marina)	10	-	3	-	3
Kamwai	4	1	1	-	2
<b>Total (%)</b>	<b>56</b>	<b>1 (10.0)*</b>	<b>6 (60.0)*</b>	<b>3(30.0)*</b>	<b>10 (17.9)**</b>

\* = % of species over total number of positive cases.

\*\* = % of total positive cases over total sample size.

**Table 3: Prevalence rates, packed cell volume and sex differences of trypanosome-infected animals**

Animal species	Sex	No. of sample	No positive (%)	PCV (%) (Mean * SE)
Cattle	M	180	22 (12.2)	25.0 * 3.0
	F	504	58 (11.51)	27.1 * 4.0
	Total	684	80	
Sheep	M	20	3 (15.0)	21.3 * 1.2
	F	36	7 (19.4)	24.2 * 2.0
	Total	56	10	
<b>Grand Total</b>		<b>740</b>	<b>90 (12.16)</b>	

**Table 4: Prevalence of typanosomosis among cattle and during different months of the year**

Month	Number examined	Number positive	% positive
June	120	6	5.0
July	85	7	8.2
August	110	9	8.1
September	111	11	10.0
October	103	20	19.4
November	62	17	27.4
December	98	15	15.3
January	51	5	9.8
	<b>740</b>	<b>90</b>	<b>12.16</b>

## DISCUSSION

Sequel to the commencement of the NARP project, of which this study was part of, there has been report of menace of flies and typanosomosis from livestock farmers on the Jos Plateau. In this study, an overall infection rate of 12.16% for both cattle and sheep suggest that typanosomosis is no longer to be taken lightly on the Jos Plateau. It is not impossible to get a higher infection rate if more elaborate study is undertaken. Studies carried out earlier showed that in Barkin-Ladi and Bassa LGAs (4, 6) prevalence rates ranging between 6.4% and 9.1% were recorded. Acute typanosomosis was also reported in a Friesian herd residing on a farm in Jos South LGA (5). Earlier in 1982, Joshua and Ige (3) recorded a 5% incidence in sheep and goats slaughtered in the state government abattoir in Jos.

With the findings in this study, it has become imperative to carry-out more elaborate surveys on both the high and lower Plateau of Jos, to provide explanation on what is responsible for the change in the tsetse and typanosomosis status of the Plateau. The more significant and long term impact typanosomosis has imposed is the disruption caused to the development of sustainable mixed-farming systems and to the alleviation of poverty.

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