



AkiNik

ISSN 2320-7078

JEZS 2013; 1 (5): 35-37

© 2013 AkiNik Publications

Received 7-08-2013

Accepted: 25-08-2013

Anyaeibunam Lucy Chinyere
Department of Biological Sciences,
Anambra State University Uli,
Nigeria.

Okafor Obioma Juliet
Department of Biological Sciences,
Anambra State University Uli,
Nigeria.
E-mail: Profelrayah10@yahoo.com

Correspondence:
Anyaeibunam Lucy Chinyere
Department of Biological Sciences,
Anambra State University Uli,
Nigeria.
E-mail: leanyaegbunam@yahoo.com

Trypanosomiasis in Red Sokoto and West African Dwarf Goats at Ikpa Abattoir, Nsukka, Enugu State, Nigeria

Anyaeibunam Lucy Chinyere and Okafor, Obioma Juliet

ABSTRACT

Goat serves as a major investment to most homes in Nigeria, mainly for provision of animal protein and income. The output of this animal is disturbed by Tsetse infestation which is the primary vector of Trypanosome. A survey of Trypanosomiasis of goat in Ikpa abattoir Nsukka, Enugu State, Nigeria was carried out between September and October 2010. This was aimed at determining the species of Trypanosome prevalent in the area and their infection rates among breeds of goat. 106 goats were sampled, among which 15(14.1%) were positive for Trypanosome infection. The infection rates among the goat breeds were; Sokoto red (10.4%) and West African Dwarf Goat (50.0%). The species of Trypanosome encountered were *Trypanosoma vivax*(66.7%) and *Trypanosoma brucei* (33.3%). In the infection by sex, this was common among female goats in the various breeds examined and this stood as follows; 9.4% in Sokoto red and 4.7% in West African Dwarf goat. Considering the overall infection rate of Trypanosome in the breeds of goat in the study area, this was relatively high when compared with similar results in related areas; chemo prophylactic and insect control measures should be put in place to rescue the area.

Keywords: Trypanosome, abattoir, Goats, Tsetse, Nsukka, Prophylactic

1. Introduction

Goats (*Capra aegagrus*) are small ruminants which are ubiquitous in villages throughout the Nigerian rainforest and the derived savannah. Their high prolific rate and ability to thrive on browse make them comparatively cheaper source of revenue for their owners. However, the benefits derived from these animals are far below expectations due to low productivity which is caused by diseases.

Last decade witnessed upsurge in menace of African Trypanosomiasis in man and animals ^[1]. Trypanosomes of major threat to goat and other ruminants include *Trypanosoma vivax*, *Trypanosoma congolense* and *trypanosome brucei* ^[2]. In Nigeria, animal trypanosomiasis constitutes a major obstacle to food security ^[3], inspite of attempts towards chemotherapeutic and tsetse control. The disease, not only causes millions of livestock deaths, but also reduces calving rates, milk yield and work efficiency of draft animals ^[3]. It has been established that domestic animals are potential reservoir hosts for Trypanosome. Semi-sedentary herds are continuously exposed to new strains of Trypanosome, since the sedentary management of cattle is associated with a reduced Trypanosome infection rate compared to semi-sedentary management ^[4]. The cumulative effect of exposure to tsetse and new strains of trypanosome accounts for increased infection rate ^[5].

Trypanosome infection rates vary among ecological zones. Low infection rates observed in rainforest zone probably accounts for increasing human activity and few effective vectors in the zone ^[4]. This work tends to establish the incidence of Trypanosome infection among goat breeds slaughtered in Ikpa abattoir, Nsukka.

2. Materials and Methods

The study was carried out in Ikpa abattoir in Nsukka, Enugu State. In Ikpa community, many households rear domestic animals which include sheep, goats and cattle owing to the favourable climatic condition for their production.

106 goats were sampled which include sokoto red, and West African Dwarf breeds. The study was done between September and October 2010.

3 – 5mls of blood was collected from each sample from anterior

vena cava into EDTA bottles. The blood samples were screened for trypanosomes using standard detections techniques; wet blood films, buffy coat method, thin smear stained with Leishman stain for quick assessment. Haematological analysis was based on packed cell volume (PCV) using micro-haematocrit method. Data collected were analysed using ANOVA, Student T- test (SAS,1989).

3. Results

Table 1: Trypanosome infection among sampled goats slaughtered in Ikpa abattoir

Goat spp	Number examined	Number Infected	% Infection
Sokoto red	96	10	9.43
West African Dwarf	10	5	4.72
Total	106	15	14.15

In the result obtained, Sokoto red goats are more susceptible to trypanosome infection (9.43%) when compared to West African Dwarf breed (4.17%)

Table 2: The distribution of Trypanosome species among infected goats from the abattoir.

Goat spp	Number examined	Number Infected	Trypanosome species		
			<i>T. vivax</i>	<i>T. congolense</i>	<i>T. brucei</i>
Sokoto red	96	10	5	0	5
West African Dwarf	10	5	5	0	0
Total	106	15	10	0	5

In the species Trypanosome infection, *T. vivax* was more prevalent (10), followed by *T. brucei* (5).

Table 3: The relationship between Trypanosome infections in sampled goats by sex

Goat spp	Sex	Number examined	Number infected	% Infection
Sokoto red	Male	5	0	0
WADG	Female	91	10	11.0
	Male	0	0	0
	Female	10	5	50.0

Female goats of all breeds are more susceptible to Trypanosome infections than the males.

Table 4: The relationship between goat breed and Trypanosome infection

Goat spp	Goat breed	Number examined	Number infected	% infection
Sokoto red	Dankasa	21	10	47.76
Adamawa		75	0	0
WADG	ADG	10	5	50.0
Total		106	15	

The Dankasa and African Dwarf goat (WDG) are the breeds of goat that are at risk with Trypanosomiasis, 47.6 and 50.0% infections respectively.

4. Discussion

In the study carried out, it was observed that two species of trypanosome (*T. vivax* and *T. brucei*) were prevalent in the slaughtered goats. This confirmed the susceptibility of domestic

animals to trypanosome infection except poultry^[2]. The overall infection in the study area (14.1%) is high when compared with 1.2% result in ruminants by Ohaeri^[7], Nigeria. This result could imply resurgence of Trypanosomosis in Nigeria though with negative economic impact on meat quality in slaughter house^[8]. In considering the breeds of goats and their methods of rearing which include farm range and confinement in the houses, the level of Tsetse infestation may vary. This could be found in the faster

transportation of trade goats such as Sokoto red to Southern markets with reduced tsetse infestation and host contact as well as stressful effect of trekking, both of which result to higher trypanosome infection rates^[4]. The high infection rate of *T. vivax* in the study confirms it as the most economically important trypanosomes affecting livestock in Nigeria given the complementary role played by other haematophagous flies^[9]. Sex infection rate of trypanosomes in goat was observed to be higher in females (14.9%) and none in the male. This may perhaps be supported by the work of Abenga, *et al.*^[2], with 2.27% rate in females as against 1.60% in males.

5. Conclusion:

The results of this work suggest resurgence of trypanosomiasis in ruminants in Nigeria. This calls for the disease surveillance as first line of defense, and employing adequate and prompt chemoprophylactic and insect control measures as the second line of defense.

6. Reference:

1. Abenga, JN, David, KM, Ezebuio, COG and Lawani, FAG. Observation on the tolerance of young dogs to infection with *Trypanosoma congolense*. African Journal of clinical experimental microbiology 2005, 6(1): 28 – 33.
2. Abenga, JN, Fajinmi, A, Idowu, T, Kalgo, A, Lawani, F and Samdi, S. Seasonal variation of Trypanosomosis rates in small ruminants at Kaduna abattoir, Nigeria. African Journal of Biomedical Research 2008, 11(2):229-232.
3. Luckins, A.G. Trypanosomiasis in small ruminants a major constraint to livestock production. British Veterinary Journal 1992, 148:171 – 173.
4. Ogunsanmi, AO, Ikede, BO and Akpavie, SO. Effects of management, season, vegetation zone and breed on the prevalence of Bovine Trypanosomiasis in Southern Nigeria. Bovine Trypanosomosis in Nigeria 2000, 53(2).
5. Maclellan, KJR. Tsetse transmitted Trypanosomosis in relation to rural economy in Africa, Tsetse infection FAO. Animal Health Production 1983, 37(1): 48 – 63.
6. SAS. Statistical analysis, SAS users guide. Statistics SAS institute Inc. Cary Worth Carolina USA, 1989 version 6.03.
7. Ohaeri, CC. Prevalence of Trypanosomosis in ruminants in parts of Abia State, Nigeria. Journal of Animal and Veterinary Advance 2005, 9(18):2422 – 2426.
8. Abenga, JN, David, KM, Enwezor, FNC, Ezebuio, C, Lawani, FAG and Sule, J. Prevalence of Trypanosomosis in Trade Cattle at slaughter in Kaduna, Nigeria. Nigeria Journal of Parasitology 2002, 23: 107 – 110.
9. Onyiah, JA. African animal trypanosomiasis. An overview of the current status in Nigeria. Tropical veterinary 1997, 15: 111-116.