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Original Research Article

THE PREVALENCE OF HAEMO AND ENDOPARASITES IN KANO BROWN GOATS SLAUGHTERED IN ZARIA ABATTOIR, KADUNA STATE

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ABSTRACT

Livestock play a vital role in a country's economy, but their production is frequently hampered by different haemoparasites, which costs the sector money. The present study was conducted to determine the prevalence of haemoparasites and faecal endoparasites in Kano brown goats slaughtered at the Zaria abattoir, in North-Western Nigeria. Sixty Kano brown goats were randomly sampled before slaughter at the abattoir from June to September 2024. Data were analysed using the simple descriptive statistics. Findings revealed a higher prevalence of faecal endoparasites (78.3%) compared to haemoparasites (30%), with Coccidia emerging as the most common endoparasite in single infections (28.3%). In cases of mixed infections, combinations such as Coccidia/Moneizia (3.3%) and Coccidia/Strongyle (20%) were frequently observed. *Anaplasma ovis* (44.4%) was identified as the predominant haemoparasites in goats slaughtered at the Zaria abattoir. These findings highlight the need for effective policies aimed at preventing and controlling haemoparasitic infections to enhance livestock productivity.

Keywords: Abattoir, Anaplasma. Babesia, coccidia, goats

INTRODUCTION

Livestock play a significant role in the economy of a nation but their productivity can be hampered by numerous haemoparasites thereby leading to huge economic losses. At least 41% of the world's goats are found in Africa, which is equivalent to 423 million goats (FAO, 2020).

The population of goats in Nigeria is estimated at 53.8 million of which traditionally reared stock contributes 99.97%, while 0.03% of the stock is commercially managed. Domestic goats (*Capra hircus, L.)* are important and adaptable domesticated animals (FAO, 2011). They provide a full range of useful products to humans including meat, milk, skin and hair. They efficiently survive on available shrubs and trees in adverse harsh environment and in low fertile lands where no other crops can be grown in Nigeria. Goat production over the years is one of the major means of improving the livelihoods of poor livestock keepers, reducing poverty and attaining sustainable agriculture and universal food security (FAO, 2011).

Goats are hardy, versatile animals that have been used for centuries as a source of milk, meat, fur, and even companionship. Goats are naturally curious and, with proper care and nutrition, can thrive in a variety of climates. Goats are also relatively easy to care for, and they require minimal space and resources compared to other livestock animals.

Haemoparasites poses a significant challenge in goat production. The most economically important genera of haemoparasites are *Trypanosoma, Babesia, Anaplasma, Ehrlichia, and Theileria* (Kamani *et al.*, 2010). Their negative impact on the health, productivity, reproduction, and performance of affected animals accounts for economic losses to livestock producers in the tropics and subtropics (Abdullah *et al.*, 2019).

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Parasitic diseases have debilitating effects on human and animal health worldwide, particularly in developing countries (Ellis *et al*, 2003). The direct losses caused by haemoparasites are connected to acute illness and death, premature slaughter and rejection of some body parts at meat inspection, while indirect losses comprise of drop in production potentials, such as decreased growth rate, anaemia, jaundice, infertility, anorexia, loss of weight in young growing animals and late maturity of reproducing and slaughter stock (Opara *et al*., 2016).

Proper understanding of the epidemiology of disease-causing agents is a prerequisite for the rational design of effective preventive and control programme against the disease. Although several studies have been carried out on haemoparasites of goats in parts of Nigeria, information is scarce regarding haemoparasitic diseases in Zaria. Hence, the present study was undertaken to determine the occurrence of haemoparasites of Kano brown goat slaughtered at the Zaria abattoir, in North-Western Nigeria.

MATERIALS AND METHODS

A total of 60 Kano brown goats slaughtered at the Zango abattoir and Kano Road slaughter slab in Zaria were randomly sampled between June and September 2024. About 2mls of blood were collected from the severed jugular vein at the point of slaughter into labelled Bijoux bottles containing Ethylene Diamine Tetra Acetic acid (EDTA) from each animal after proper documentation of breed.

The samples were placed on icepacks and transported to the Laboratory of the Department of Veterinary Parasitology and Entomology, Faculty of Veterinary Medicine, Ahmadu Bello University for analysis.

Tests carried out from blood samples were thin blood smears, wet mount, and buffy coat smears. Thin blood smears were carried out according to the procedures of Schalm *et al.,* (1975). Wet mount was carried out according to the procedures of Williams (2000). Buffy coat smear was carried out according to the procedures of Marcos *et al.*, (2016).

Haemoparasites were identified by direct microscopic examination based on morphologic keys as described by Soulsby (1982).

FAECAL SAMPLE COLLECTION

The faecal samples were collected directly from the rectum using a moist, clean polythene bag on the finger and inserted into the rectum. The sample bags were tied and properly labelled and were transported to the helminthology laboratory where they were processed within 24 hours for examination of helminth eggs.

The faecal sample analysis was done according to the procedures of Soulsby (1982).

STATISTICAL ANALYSIS

Data collected were presented using simple descriptive statistics of frequency and percentages in Statistical Package for Social Sciences (SPSS) software version 24.

RESULTS

Blood and faecal samples were collected from 60 male Kano Brown goats. Parasitological examination revealed that 18 (30%) of the goats were infected.

TABLE I: DISTRIBUTION OF HAEMOPARASITES IN GOATS

Caprine	Parasites	Number positive	% positive for infected	% positive for all
Single infections	*Anaplasma ovis*	8	44.4	13.3
	Theileria ovis	7	38.9	11.7
Double infections	*Anaplasma ovis/Theileria ovis*	3	16.7	5

TABLE II: PREVALENCE OF HELMINTH EGGS AND COCCIDIAN OOCYSTS IN CAPRINE

Caprine	Parasites	Number positive	% positive for infected	% positive for all
Single infections	Coccidia	17	36.2	28.3
	Strongyle	2	4.3	3.3
	Moniezia	1	2.1	1.7
	Trichuris	1	2.1	1.7
	Strongyloides	0	0	0
Double infections	Coccidia/Strongyle	12	25.5	20
	Coccidia/ Moniezia	8	14.9	13.3
	Strongyle/Moniezia	0	0	0
	Coccidia/ Strongyloides	1	2.1	1.7
	Coccidia/ Strongyle/Moniezia	3	6.4	5

Haemoparasites, including *Anaplasma ovis* and *Theileria ovis*, were identified as single and mixed infections. Using buffy coat smear techniques, results showed that 47 (78.3%) of the samples were positive for haemoparasites. Among the positive cases, 21 (44.7%) were single infections, while 26 (55.3%) were mixed infections; of these, 84.6% were dual, while 11.5% were triple infections (Table I).

The prevalence of faecal endoparasites was higher than haemoparasites, with 47 cases (78.3%) of faecal endoparasites compared to 18 cases (30%) of haemoparasites. Coccidia was the most common endoparasite; 17 (28.3%) goats in single infections, while dual infections included 2 cases of Coccidia/Moneizia (3.3%) and 12 cases of Coccidia/Strongyle (20%). Triple infections were also observed, with Coccidia/Strongyle/Moneizia accounting for 3 cases (5%) (Table II).

DISCUSSION

Approximately 60 goats are slaughtered daily at Zango abattoir and Kano Road slaughter slab, yet there is no routine antemortem or post-mortem inspection to assess animal health or meat quality. Regular inspections could prevent the slaughter of diseased animals, thereby improving meat quality and reducing the risk of meat-borne diseases in consumers. This study found that all sampled goats (100%) were male. This may be due to the economic preference for keeping females for a longer period, and are brought for slaughter when they are aged, diseased, or non-productive.

The higher prevalence of infection of goats with *Anaplasma* in this study differs from the findings of Angwech *et al.* (2011), who showed that species was not a significant predictor of infection with *Anaplasma*. Nevertheless, *Anaplasma* infections in goats in Sub-Saharan Africa are generally high and in line with our estimates (Bell-Sakyi *et al.*, 2004). We were able to determine the species of *Anaplasma* infecting goats in our study; *Anaplasma ovis* in goats and *Theileria ovis* would be expected (De Waal, 2000) and they may have different ecologies of transmission.

The presence of significant worm burdens in these animals may be attributed to insufficient management practices regarding housing, nutrition, and veterinary care. Enhanced management strategies are essential to reduce disease prevalence, mitigate economic losses, and ensure higher-quality meat for consumers. However, the estimate of 30% for prevalence in goats is lower than that reported by Ssenyonga *et al.* (1992), who documented 28% prevalence in southwestern Uganda. These differences are minor, however, and our study generally agrees with former assessments that haemoparasite infections are frequent in Nigerian livestock.

CONCLUSION

The findings of this study reveal a 30% prevalence rate of haemoparasites in Kano Brown goats, with *Anaplasma ovis* and *Theileria ovis* being the most common. This prevalence, along with the presence of single, dual, and even triple infections, highlights significant health challenges for goats in the region, impacting livestock productivity and causing economic losses in the goat industry.

Furthermore, the absence of routine antemortem and post-mortem inspections at slaughter facilities raises public health concerns, as diseased animals may enter the food chain undetected.

This study underscores the urgent need for routine screening to monitor haemoparasite carrier status, enabling timely diagnosis and control measures to protect livestock health. Improved management practices such as better housing, nutrition, and veterinary care are critical for reducing parasite burdens.

Establishing regular inspection protocols at slaughterhouses would also help ensure higher quality, safer meat products, mitigating the risk of meat-borne diseases for consumers. By encouraging good husbandry practices and effective disease control, this approach offers a pathway to enhancing livestock productivity, minimizing economic losses, and securing public health.

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