

## Prevalence Of Nematode (Roundworm Species) In Slaughtered Sheep and Goats in Damaturu Modern Abattoir

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### Abstract

Nematode infection poses a great contrast to goats and sheep production thereby causing high incidence of mortality and low production in goats and sheep. This research work was designed to identify the nematode species infection in goats and sheep that were slaughtered at Damaturu modern abattoir between the months of October to November 2022. The aim was to sensitize livestock stakeholder to strategize effective means of disrupting the life cycle of nematode in order to prevent widespread within the herd. Faecal samples were collected from 30 goats and 30 sheep and were examined, 18 representing 30% of animals were infected with various species of nematode. It shows that the infection is very high in the month of October due to rainfall that favour the intermediate host of the parasite found attached to the grasses. While in the month of November, the rate of infection was low due to dried grasses. The month of October and November recorded highest rate of Bunostomum species infection 14 (37.9%), followed by Haemonchus spp 12(32.4%), Trichostrongylus spp 6 (16.2%), While Oesophagostomum Spp was least recorded 5(13.5%), It was observed that both sexes of all the animal breed examined were infected, though males were more susceptible than the females. This research observed that the infection rate was higher in the month of October than in November.

**Key words:** *Incidence, intermediate host, infection rate, mortality, Faecal samples*

## Introduction

Roundworms also called nematodes, are a group of worms from which more than 28'000 Species have been described. They are considered as an own systematic group called *Nemalhelminthes*. More than 16'000 roundworm species are parasitic of plants and animals, including cattle, sheep, goats, pig, poultry, horses, dogs, cats as well as many other wild and domestic animals, humans and also plants. Roundworms of veterinary importance are all obligate parasites, i.e., they cannot complete development without parasitizing their hosts (Love and Hutchinson, 2013).

Roundworms have a more or less long tubular form, and a digestive system with two openings, mouth and rectal opening, in contrast with flukes that have only one opening, and tapeworms that have no digestive tube at all. The mouths of many species have species-specific structures for attaching to the host and/or feeding on its tissues, e.g. teeth, cutting plates, hooks, etc. (Mulugate *et al.*, 2018)

*Ascaris* is a genus parasitic nematodes (*helminths*) known as "small intestinal roundworms". Typically, *Ascaris suum* and *Ascaridia* spp. Nematode of the digestive tract produce their harmful effect in a variety of way (Love and Hutchinson, 2013).

Nematode infections in ruminant include ascariasis, trichuriasis, enterobiasis, strongyloidiasis, filariasis, trichinosis, dirofilariasis, and angiostrongyliasis (rat lungworm disease), among others. The phylum Nematoda, also known as the roundworms, is the second largest phylum in the animal kingdom, encompassing up to 500,000 species. Members of Nematoda are elongated, with bilaterally symmetric bodies that contain an intestinal system and a large body cavity (Loukopoudulos *et al.*, 2017). The research area (North eastern Nigeria) has a higher production record of both goats and sheep.

Therefore, there is high consumption of goats and sheep there are complaints from various health facilities of nematode infection. This prompted for timely investigation and assessment of the prevalence of nematodes in goats and sheep.

## Methodology

### Study Area

This research was carried out in Damaturu modern abattoir, Yobe state.

### Sample Collection

A total of 60 gastro-intestinal tract from goats and sheep were collected from Damaturu modern abattoir, the fecal samples were collected from the gastro-intestinal tract which comprises of 30 goats and 30 sheep at rate of 10 samples per week (5 males and 5 females).

### Parasitological Examination

The fecal samples collected were brought to the laboratory of federal polytechnic Damaturu, Department of Science Laboratory Technology for further analysis. 1gram of fecal sample was analyzed using the procedure described by Love and Hutchinson, (2013), were 2 gram of potassium hydroxide was weighed using digital weigh balance, mixed and then centrifuged at 1,200 rpm for 5 minutes. The supernatant was discarded using syringe and needle. Formaldehyde was added to the sediment and transfer to a plain slide, and covered with cover slip and then examined under the microscope using x10 and x40 objective lens.

### Identification and Preservation

All parasite (roundworm) observed were identified based on their morphological structure as describe by (Williamson and Payne, 2012). The parasite (roundworm) were persevered using 10% formaldehyde.

**Results**

**Table 1:** Gastro-intestinal nematodes observed in sheep for the month of October, 2022.

Sample Date	No. of sheep observed	No. of infected sheep	No. of uninfected sheep	Percentage (%) infection rate
14/10/2022	05	0	5	00
21/10/2022	05	2	3	13.3
28/10/2022	05	2	3	13.3
Total	15	4	11	26.6

**Table 2:** Gastro-intestinal nematodes observed in sheep for the month of November, 2022.

Sample Date	No. of sheep observed	No. of infected sheep	No. of uninfected sheep	Percentage (%) infection rate
04/11/2022	05	1	4	6.7
11/11/2022	05	0	5	00
18/11/2022	05	1	4	6.7
Total	15	4	13	13.3

**Table 3:** Gastro-intestinal nematodes observed in goats for the month of October, 2022.

Sample Date	No. of goats observed	No. of infected goats	No. of uninfected goats	Percentage (%) infection rate
14/10/2022	05	1	4	6.7
21/10/2022	05	3	2	20
28/10/2022	05	2	3	13.3
Total	15	6	9	40

**Table 4:** Gastro-intestinal nematodes observed in goats for the month of November, 2022.

Sample Date	No. of goats observed	No. of infected goats	No. of uninfected goats	Percentage (%) infection rate
04/11/2022	05	2	3	13.3
11/11/2022	05	0	5	00
18/11/2022	05	2	3	13.3
Total	15	4	11	26.6

**Table 5:** Species of nematodes observed in goats and sheep for the month of October, 2022.

Nematode species	Sheep	Percentage(%) infection rate	Goats	Percentage (%) infection rate
<i>Haemonchus spp</i>	3	8.1	3	8.1
<i>Bunostomum spp</i>	2	5.4	4	10.9
<i>Oesophagostomum spp</i>	0	0	2	5.4
<i>Trichostrongylus spp</i>	2	5.4	3	8.1
Total	7	19	12	32.4

**Table 6:** Species of nematodes observed in goats and sheep for the month of November, 2022.

Nematode species	Sheep	Percentage(%) infection rate	Goat	Percentage (%) infection rate
<i>Haemonchus spp</i>	2	5.4	4	10.9
<i>Bunostomum spp</i>	3	8.1	5	13.5
<i>Oesophagostomum spp</i>	1	2.7	2	5.4
<i>Trichostrongylus spp</i>	0	00	1	2.7
Total	6	16.2	12	32.4

## Data analysis

The data obtained from this research work was analyzed using descriptive statistics. Percentage was used to determine the prevalence of helminthes.

## Discussion

During the period of this research, it was observed that sheep and goats slaughtered at Damaturu modern abattoir were found infected with nematodes. The prevalence rate of 30% were recorded from examined goats and sheep. Table 1 and 2 shows the prevalence of nematode observed in sheep for the month of October 12 (20%) the month of October records high rate of infection with nematode species, this is attributed to high rainfall that favor the intermediate host of sheep and goats. This agreed with the statement of Brito *et al.*, (2015) that intermediate host of ruminant animals are always available during raining season due to rainfall that favor the intermediate host of sheep and goats are found attached to the grasses.

In the month of November which records less number of nematode species was observed in goats and sheep 6 (10%) as presented in table 3 and 4 above. This is in accordance with the statement of Agbajelola, *et al.*, (2015), which agreed that nematodes species are found available most when there is a record of high rainfall, and when grasses are still fresh.

Table 5 and 6 also indicated that goats has a higher rate of infection than sheep due to fact that goats are highly susceptible to feed on any grasses as food, also goats able to develop natural immunity compared to sheep. This agree with the statement of Gillian *et al.*, (2014) which discovered that goats are highly exposed to environmental conditions which make them graze for a longer period as compared to sheep.

## Conclusion

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Despite the economic contribution of these animals in terms of meat, milk and skin production, cheap and effective drugs should be readily available for eradicating the disease apart from the ones being used, especially drugs against baseman which are the highest incident among the nematode species. In addition, proper attention should be given toward the prevention, control and management aspect of goats and sheep. The prevention and control measures recommended include treatment of infected goats and sheep by regular deworming of the goats and sheep with effective nematocides. Breaking the life cycle of the nematode parasites is important and meat should be inspected and cooked properly. The animal farmers and herds men should be enlightened on the importance of the treatment in relation to the disease.

## Recommendations

- 1- Goats and sheep should be properly dewormed using drugs such as Albendazole.
- 2- Farmers should be enlightened on the management practice for proper handling of these animals.
- 3- The animals should be grazed with dried pastures, as the intermediate hosts are not found after drying out the fresh pastures.

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