

INVESTIGATIONS ON GASTROINTESTINAL  
PARASITES IN SHEEP AND GOATS IN  
SENNAR DISTRICT (SUDAN)

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INTRODUCTION

Parasitic diseases of domestic animals are increasingly recognized as an important cause of reduce productivity resulting in substantial economic loss. Several authors reported the occurrence of parasitic infections in sheep and goats in this country (Eisa, Mustafa and Soliman 1962, Karib and Hussein 1982, El Badawi, Slepnov and Eisa 1979). The significance of infection in these animals however has never been critically evaluated. This paper describes some parameters pertaining to the nature of infection in a locality of large population of sheep and goats in this country. This survey was conducted during 1983 and it is hoped that this may lead to a better understanding of the epizootology of the parasites.

MATERIALS AND METHODS

A total of 230 Wateesh sheep and 84 Nubian goats were examined for gastrointestinal parasites, the animals were 2-3 years old, some were selected from herds kept on free range system and others from

herds raised on intensive system. The faecal samples collected directly from the rectum and quantitative examination of parasitic eggs was made according to the Modified Mc Master egg counting method (Whitlock 1984).

The search for adult worms was performed during post-mortem examination of 24 sheep and 12 goats, the contents of each part from the gastrointestinal tract was examined for adult worms, the worms found were picked up and mounted in lactophenol for morphological identification under high dry x40 microscope.

RESULTS

Eggs of parasites of five genera have been found during examination of faecal samples from 314 animals, these included Trichostrongyids spp. Eimeria spp. Moniezia spp. Strongyloides spp. and trichuris spp. The incidence is 83.9% and 95.2% in sheep and goats respectively and table 1 shows the pattern of the infection in these animals, the incidence of infection with one species was the highest.

and the infection with four species was the least encountered (Table 1). The incidence of various species was shown in table 2, Eimeria spp and Trichostrongylids spp. were the most prevalent genera of the parasites.

The intensity of the infection recorded during post-mortem worm count revealed that Trichostrongylus axei burden is the highest encountered with mean No. of 376 specimens in sheep and 110 in goats. Haemonchus contortus burden is higher in sheep (60.9) and low in goats (4). Oesophagostomum columbianum burden is almost the same in both animal species, Trichuris ovis has a very low burden 3.8 while Skryabnema ovis was found only in goats (Table 3).

#### Husbandry system and parasitism

Infection with parasites varied among animals according to the type of husbandry system. Sheep and goats raised under the free range system were mostly exposed to infection with Trichostrongylids spp., Eimeria spp., Strongyloides papillosus, Moniezia expansa and Trichuris ovis which is found only in goats. Sheep and goats raised under intensive system were mostly infested with Eimeria spp. and Trichostrongylids spp., however sheep were also infected with Strongyloides papillosus, Moniezia expansa and Trichuris ovis. (Table 4).

#### DISCUSSION

The parasite species recovered were those which have been reported by other workers from

sheep and goats in other parts of Sudan (Annual Reports of Veterinary Department, 1902-1975). From the results obtained it is interesting to note that the parasites encountered in sheep and goats and their rate of infection were almost similar. The parasite can be grouped into two categories, one in which the incidence is high in both sheep and goats comprising Trichostrongylids spp. and Eimeria spp. and one in which the incidence is low comprising Strongyloides papillosus, Moniezia expansa and Trichuris ovis (Table 2). The pattern of distribution of the infection is of high incidence in animals harbouring one and two parasite than with mixed infection. This may be related to the degree of exposure to the infection at different age groups or to some immune response developed after exposure to the first infection.

Trichostrongylus axei dominated the worm burden in both sheep and goats this may be due to management practices where the possibility of reinfection is always present. The lower burdens of Haemonchus contortus and Oesophagostomum columbianum is probably a reflection of high degree of acquired immunity induced by regular exposure to infection.

Considering the effects of management practice a high level of parasitism is more pronounced with Trichostrongylids spp. and Eimeria spp. in sheep and goats kept in both types of management practices. Free range animals feeds on canal banks where there is better pasture and moisture for parasite's eggs to hatch and the infective larvae to

deveop. The faecal pad may serves as a reservoir for infective larvae and oocysts specially in intensively manged animals which overcrowded in a limited area where fodder remains accessible to the accumulated faecal materials, accordingly seperation of the host from the faecal contamination might reduce the possibility of the infection. Moniezia expansa, Strongyloides apillosus and Trichuris ovis are generally having low infection rates but still high rates were found in animals kept on pasture where moisture and grasses are the preferable habitat of the oribated mites i.e the intermidate host of Monieziaexpansa. It was found that these three parasites were not present in goats kepts intensively. Interpretation of such results is difficult since it is not known whether the animals had been recently treated with an anthelmintic or not. Under housed conditions treatment shall be more effective if it is associated with removal of faecal materials while it is of less value in animals raised in free range system.

#### SUMMARY

Eggs of parasites of five genera were encountered during this field study on sheep and goats in Sennar district: Trichostrongylids spp., Eimeria spp. Moniezia expansa, Strongyloides papillosus and Trichuris ovis.

The incidence of parasitism in shecp and goats is 83.9% 95.2% respectively.

The intensity of the infection is of highest worm burden in Trichostrongylus axei.

The infection with parasites varied according to the type of husbandry system.

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Table 1: The pattern of infection

Number of species present	sheep infected (%)	goats infected (%)
1	43.9	38
2	29.6	38
3	05.7	14.3
4	03	03.6

Table 2: Prevalence of the infection (as indicated by faecal examination)

Parasite species	sheep infected (%)	goats infected (%)
<u>Trichostrongyids spp.</u>	54.3	73.8
<u>Strongyloides papillosus</u>	10.0	19.0
<u>Moniezia expansa</u>	11.7	11.9
<u>Eimeria spp.</u>	56.0	56.5
<u>Trichuris ovis</u>	01.3	03.6

Table 3: Intensity of the infection

Parasite species	Mean number of parasites per infected animal	
	sheep	goats
<u>Trichostrongylus axei</u>	376	110
<u>Haemonchus contortus</u>	060.9	004
<u>Oesophagostomum columbianum</u>	021	022.6
<u>Trichuris ovis</u>	003.8	004
<u>Skriabinema ovis</u>	000	007

Table 4: Husbandry system and parasitism (as indicated by faecal examination)

Parasite species	sheep infected (%)		goats infected (%)	
	Free range	intensive	Free range	intensive
<u>Trichostrongylids spp.</u>	65.9	63.5	77	28.6
<u>Strongyloides papillosus</u>	16	07.2	28	00
<u>Moniezia expansa</u>	59.7	72.9	70	65
<u>Eimeria spp.</u>	15.5	08.3	17.5	00
<u>Trichuris ovis</u>	00	03.1	05.3	00
Nc. of animal examined	230		84	