GASTROINTESTINAL NEMATODES OF GOATS (CAPRA HIRCUS) IN RIYADH AREA, SAUDI ARABIA

Mohamed S. Alyousif

Department of Zoology, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia

ABSTRACT

Seven species of nematodes were recovered for the first time in 130 adult male local goats, *Capra* hircus in Riyadh area in Saudi Arabia. A total of 86.9 percent of goats were positive. Mixed infections were common where 63.8 percent of the goats were infected with 3-5 different nematodes species. *Trichuris ovis, Nematodirus spathiger* and *Trichostrongylus probolurus* occurred most frequerly, *Haemonchus contortus* and *Camelostrongylus mentulatus* were less common, and *Oesophagostomum columbianum*, and *Marshallagia marshalli* were relatively rare.

INTRODUCTION

Goats form a substantial source of animal protein for the people of Saudi Arabia. In the production of these food animals a problem frequently encountered is parasitic gastroenteritis, which is caused mostly by parasitic nematodes. Poor management of both animals and pasture usually leads to parasite establishment in goats, which may lead to losses of animals, reduced productivity and loss of vitality.

El-Bihari and Kawashmeh (1980) examined gastrointestinal helminths of the dromedary (*Camelus dromedarius*) in Saudi Arabia, but informations are scarce concerning nematodal infections in local goats of Saudi Arabia. The present investigation of gastrointestinal parasitic nematodes in goats in Riyadh region was undertaken to determine the relative incidence of nematode species in this part of Saudi Arabia.

MATERIALS AND METHODS

Alimentary tracts of 130 adult goats were collected upon slaughtering at Riyadh city abattoir between February to July 1996. In the laboratory, these samples were opened and inspected for the presence of nematode parasites. The parasites were then separated from the gut contents. Fresh specimens were cleared in lactophenol. All nematodes collected were counted and then fixed and stored in 70% ethanol-5% glycerine solution. Temporary wet mounts were made in the clearing solution for identification purposes. Thirty each of male and female nematodes of each species were measured using calibrated eyepiece. Eggs taken from gravid females were measured and recorded for each species. Species identification was made using the criteria of Yamaguti (1961) and Soulsby (1965).

RESULTS

Seven different species of nematodes were recovered from the gastro-intestinal tracts of 130 slaughtered adult male goats (Capra hircus) at the city of Riyadh abattoir. These species are Trichuris ovis (Abildgaard, 1795), Nematodirus spathiger (Railliet, 1896), Trichostrongylus probolurus (Railliet, 1896), Haemonchus contortus (Rudolphi, 1803). (Ralliet and Henry, Camelostrongylus mentulatus 1909), Oesophagostomum columbianum (Curtice, 1890), and Marshallagia marshalli (Ransom, 1907). Site of infection, incidence and mean worm load per host is shown in Table 1.

T. ovis and N. spathiger occurred most frequently and were generally the most predominant species. T. probolurus, H. contortus, and C. mentulatus were less common. O. columbianum and M. Marshalli were relatively rare. The merphological characteristics of the various nematode species found are shown in Figs. 1-12

A total of 86.92 percent of the goats examined were found positive for nematode species. Mixed infection with four species of nematodes occurred most frequently, and 63.85 percent of the goats contained three to five different nematode species (Table 2).

DISCUSSION

In this study a total of seven species of nematodes have been recognized for the first time in the adult male

Nematodes	Site of infection	Prevance (%)	Mean worm load/host
Trichuris ovis	Caecum	28.46	45
Nematodirus spathiger	Small intestine	20.00	220
Trichostrongylus probolurus	Small intestine	16.92	145
Haemonchus contortus	Abomasum	12.30	145
Camelostrongylus mentulatus	Abomasum	10.77	24
Oesophagostomum columbianum	Colon	6.92	75
Marshallagia marshalli	Abomasum	4.63	32
			112

 Table 1: Gastro-intestinal nematodes, site of infection and percentage prevalence in goats in Riyadh area, Saudi Arabia

 Table 2:
 Number of nematode species in individual goats (%) in Riyadh area, Saudi Arabia

Goats % infected	No. of goats examined
05.38	7
13.85	18
20.77	27
26.92	35
16.15	21
03.08	4
00.77	1
86.92	113
	Goats % infected 05.38 13.85 20.77 26.92 16.15 03.08 00.77 86.92

local goats (Capra hircus) in the area of Riyadh, Saudi Arabia.

Of the nematodes recorded in this study, six species are likely to be of practical pathological importance in the Saudi goats. These species are *H. contortus*, *O. columbianum*. *N. spathiger*, *T. probolurus*, *C. mentulatus*, and *ovis*, which is in complete agreement with the results obtained in different countries by several authors (Georgi *et al.*, 1972; Mapes and Coop, 1972; Beveridge *et al.*, 1974; Coop *et al.*, 1976; Martin and Lee, 1980). In fact these nematode species have a wide geographic distribution (Martin and Lee, 1980; Okafor, 1987). Some of the pathogenic symptoms caused by these nematodes are similar to those recorded from livestock in other countries which included

emaciation, diarrhoea, haemorrhages, and various size of nodules along the site of infection (Gordon, 1950; Clark et al., 1962). Infection with gastrointestinal nematodes is acquired by goats after the ingestion of infective larvae and ova while grazing thus the high incidence of infection may be due to the crowdeness of goats in one place during raising, transportation and marketing which leads to the contamination of feeds and water with faeces. Also bad management concerning methods of feeding and watering of these animals may be another contribution to the high incidence observed in this study. Polyparasitism in around 81.5 per cent of the goats examined were having two to seven different nematode species in one host. This result was also observed by previous authors from other countries (Vercruysse, 1983; Asanji and Williams, 1987; Okafer, 1987; Islam, 1988; Aken et al., 1990). Such parasitism have a great effect on production resulting from reduced feeding, loss of blood, diarrhoea and low levels of minerals (Sykes et al., 1977). This type of parasitism may be the cause of low milk production and loss of weight of goats in Riyadh region of Saudi Arabia.

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Fig. 1-4: 1. Anterior extremity of male *O. columbianum*, note the cephalic vesicle (arrow), 2. Posterior end of male O. *columbianum* showing the long spicules and bursa, 3. Female *T. ovis* showing vulvular region, note eggs in uterus and 4. Male *T. ovis* posterior end (Bars = $200 \ \mu$ m).



Fig. 5-8: 5. Female *H. contortus* showing vulvular flap (arrow) (Bar = 500 μ m), 6. Male *H. contortus* posterior end showing spicules and dorsal rays (arrows) (Bar = 200 μ m), 7. Anterior end of *N. spathiger* showing cervical region (Bar = 100 μ m) and 8. Eggs of *N. spathiger* taken from gravid uterus (Bar = 100 μ m)



Fig. 9-12: 9. Female *M. marshalli* showing vulvular flap and eggs in uterus (arrows), 10. Male *M. marshalli* posterior end showing spicules and the dorsal rays (arrows), 11. Male posterior end of *T. probolurus* showing spicules and bursa and 12. Male posterior end of *C. mentulatus* showing long transverely striated spicules and bursa (Bars = $200 \ \mu m$).

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