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STUDY OF GASTRO-INTESTINAL NEMATODES AND TAXONOMY OF THE SPECIES OF THE HAEMONCHUS IN SHEEP AND GOATS

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ABSTRACT

A survey of one hundred guts 50 each from sheep and goats was conducted between July to October, 1986. The incidence of various species of the gastro-intestinal nematodes was found to be 72 and 54% in sheep and goats respectively. The following species were identified : *Haemonchus controtus*, *Ostertagia circumcincta*, *Ostertagia ostertagi*, *Bunostomum trigonocephalum*, *Cooperia curticei*, *Oesophagostomum venulosum*, *Trichuris ovis* and *Chabertia ovina*. Taxonomy of the species of the genus Haemonchus was also studied.

INTRODUCTION

Sheep and goats harbour a wide variety of helminths which cause clinical and sub-clinical parasitism. Heavy infestations adversely affect the health and production of the animals resulting into loss in body weight, decreased feed consumption, reduced growth rate, delayed maturity, poor body conditions, general unthriftiness and anaemia, etc. The average blood loss due to Haemonchus spp. has been calculated at 0.05 ml/parasite/day Clark *et al.*, 1962). The present study was undertaken to record complete information regarding the occurrence of various species of nematodes inhabiting the gastro-intestinal tract and to study the taxonomy of the species of the genus *Haemonchus* in sheep and goats.

MATERIAL AND METHODS

One hundred guts (50 each of sheep and goats) were collected from abattoir of Lahore Municipal corporation in polythene bags. The guts were incised and the contents examined by employing sedimentation and seiving methods as described by Morgan and Hawkins (1960). The nematodes were preserved in AFA fixative. For making whole mounts, the glycerol-methanol method

cited by Chaudhry (1972) was followed. The worms were cleared in lactophenol, mounted in pure glycerol on glass slides, coverslips were applied and the margins were sealed. The parasites were identified by using the keys and morpholgical characteristics (Coles, 1974 and Soulsby, 1982).

RESULTS AND DISCUSSION

The overall incidence of gastro-intestinal nematodes was found to be 72 and 64% in sheep and goats respectively. The following species of the nematodes were identified :

Haemonchus contortus, Ostertagia circumcincta, Ostertagia ostertagi, Bunostomum trigonocephalum, Cooperia curticei, Oesophagostomum venulosum, Trichuris ovis and *Chabertia ovina*. The incidence of various species is given in Table 1. *Haemonchus contortus* was found to be the most prevalent species, incidence of infection being 34 and 20% in sheep and goats respectively. This is in agreement with the observations of Durrani and Hayat (1964) and Vural *et al.* (1970) who reported 32.4% incidence both in sheep and goats. The results differed from those reported by Tiwari *et al.* (1963) and Riche *et al.* (1973) who reported 16.0% and 20.0% incidence of *Haemonchus contortus* The difference may be due to variation in climatic conditions, grazing patterns and also because that sheep and goats are brought from different parts of of the fact the country. Furthermore, the animal breeders are becoming rather aware of the use of anthelmintics which might be another reason for lowering the incidence of haemonchosis in Faisalabad area.

Incidence of each of *Ostertagia circumcincta* and *Ostertagia ostertagi* was 2% as recorded in sheep, while it was 2% and zero percent in goats respectively. The results were in partial agreement with the findings of Khan (1985). The findings differed considerably from those reported by Taylor and Cawthrone (1972) who recorded 81.2% incidence of *Ostertagia circumcincta* and 2.7% incidence for *Ostertagia ostertagi* in sheep. The incidence of *Bunostamum trigonocephalum* recorded in the present study was 6 and 4% in sheep and goats respectively, as against20% and 12% in the same order as reported by McCullock and Kasimbala (1968). This variation could be due to the mixing of the population of sheep and goats brought to Lahore for slaughter from various hilly and plain areas of the country.

Table 1. *Incidence of gastro-intestinal nematodes*

Nematodes	No. of guts examined	Number infected		Percent infected		Average number of worms recorded per	
		Sheep	Goat	Sheep	Goat	Sheep	Goat
Haemonchus contortus	50	17	10	34	20	100	50
Ostertagia circumcincta	50	1	1	2	2	5	6
Bunostomum trigonocephalum	50	3	2	6	4	10	32
Cooperia curticei	50	2	1	4	2	3	17
Oesophagostomum venulosum	50	5	3	10	6	25	41
Trichuris ovis	50	4	7	8	14	25	15
Chabertia ovina	50	3	3	6	6	3	29
Ostertagia ostertagi	50	1	0	2	—	3	—

The incidence of *Cooperia curticei* was 4 and 2% in sheep and goats respectively. These results were supported by thos of Khan (1986), but were different from those of Taylor and Cawthrone (1972) who reported an incidence of 22.4%. This variation could be attributed to differences existing between local climatic conditions and grazing patterns in the respective parts of the globe. The incidence of *Oesophagostomum venulosum*, *Trichuris ovis* and *Chabertia ovina* recorded in the study under report was 10, 8, and 6% in sheep and 6, 14 and 6% in goats respectively. McCullock and Kasimbala (1968), Taylor and Cawthrone (1972), Riche *et al.* (1973) and Khan (1985) confirmed the presence of the above mentioned parasites in the said animals.

Taxonomical study of *Haemonchus contortus* was carried out and two types of vulvar flaps i.e,, linguiform and knobbed, were observed in the adult female worms. Das and Whitlock (1960) grouped these types into three classes, namely linguiform, knobbed and smooth, based on the shape of cuticular process near vulva which was the most useful character of taxonomic significance.

However, the smooth type of vulvar flaps were not observed during the present work. The results pertaining to the shape of vulvar flaps are in agreement with those of Mckenna (1971) and Slocombe (1973).

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