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Research article

Prevalence of gastrointestinal parasites infestation in sheep of Thi-Qar Province, Iraq

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Abstract

A total of 523 fecal samples of sheep were collected randomly during 1 year of study period and submitted to the laboratory tests in Thi-Qar veterinary hospital from various districts. Those samples were examined for the confirmation of endoparasitic infection. Our study aims to investigate the prevalence of gastrointestinal parasites and identify their species in sheep of Thi-Qar province in Iraq. The period of study was involved the four seasons of the year. Autumn, Spring, winter and summer. Faecal samples examined for helminths ova by direct microscopic examination, using light microscope, sedimentation and floatation techniques. Identification was made on the basis of morphology and size of ova. The present study revealed that 227(42.25%) of samples infected by gastrointestinal parasites from total(523), Among submitted samples there were 154 (67.84%) sample infected with single parasite and 73(31.27%) sample were infected with more than one parasite. The gastro intestinal parasites observed in our study includes; Fasciola.spp. 52(22.46%), Moneizia spp. 43(18.94%), Ascaris 42(18.06%), Ostertagia 28(12.33%), Strongylus 24(10.57%), Nematodirus 19(8.37%), Toxocara 16(7.04%),and Paramphistpmum 3(1.32%) in sheep. The seasonal occurrence of parasitic infestation in sheep depicted higher infection of GIT parasites in Autumn(60.19%), spring(59.39%) followed by winter(50.46%) and summer(24%). from this study we concluded that the prevalence of GIT parasite infection is high in Thi-Qar province.

Keywords: Gastrointestinal, Sheep, parasites.

Introduction

Sheep are widely distributed and are of great importance as a major source of yield for small and the landless farmers in rural areas(**1**). Moreover, Sheep also have religion and social importance. They play an important role in public health because they could be a source for several zoonotic diseases transmuted to man, such as, Brucellosis and Q fever (2). Helminthiasis, especially parasitic gastro-enteritis(3),include Eimeria, roundworms, tapeworms, and liver flukes have a serious health threat and a limitation to the productivity of small ruminants due to the associated morbidity, mortality, cost of treatment and control measures, stunted growth, poor weight gain and poor feed utilization(4). The most common and most economically important losses are due to subclinical or unapparent parasitism. These animals will not have clinical signs of illness, but they will not be performing up to their potential, growth rates will be depressed, wool growth decreased, and milk production may be decreased in ewes and lead to a significant overall economic loss (5). In addition to these threats, infestation with helminthes lowers the animal's immunity and renders it more susceptible to other pathogenic infections(6). Parasites have either an indirect or direct life

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cycle. Knowing the difference will be important to developing a treatment strategy. Direct lifecycle: The adult parasite lives in/on the host animal and eggs are shed into the environment. The eggs will develop through several stages to become infective to the host, usually as a 3rd stage larva. When the host animal ingests the larva continues development into an adult and the lifecycle is completed . Indirect lifecycle: A parasite with an indirect lifecycle must infect a second, or intermediate host to become infective to the definitive host animal. This is a typical lifecycle for tapeworms(7). Sheep also suffer a loss of immunity at the time of lambing, which does not restore itself until approximately four weeks after lambing. Moreover, Heavy stocking rates and insufficient pasture rest periods further contribute to the incidence of parasitic disease in sheep and lambs. Internal parasites tend to be much less of a problem under range-type conditions where sheep do not graze the same pasture twice in the same grazing season. They are also less of a problem in arid regions, because parasites require moisture for their development(2). Anti-helmintic resistance continues to be an increasing problem worldwide. Also it is one of the most serious threats to the effective control of gastrointestinal nematodes especially in sheep. The problem has reached very high proportions in some countries, particularly in Iraq. Recent research reported that presence of anthelmintic resistance can reduce live weight 2.8kg and reduction in body condition scores. There is need to find out the current status of anthelmintic resistance in sheep farms in the country because it would be useful in making recommendations on helminthes control strategies(8). The GIT parasites are one of the challenges in the breeding that lead to a large level of economic losses during the randomly annual and semiannual of anti-helminthic drugs, although some of them are zoonotic and makes challenges in our Thi-Qar region (9). The prevalence of gastrointestinal helminthes is related to the agro-climatic conditions like quantity and quality of pasture, temperature, humidity and grazing behavior of the host(10).

Materials and Methods

During 1 year of study period (February 2017- February 2018). A total of 523 fecal samples of sheep were collected from rectum of randomly selected animals and submitted to the laboratory tests in Thi-Qar veterinary hospital from various regions of Thi-Qar province,south of Iraq (Al-Nasiriya, Al-Shatra, Tal-Allaham, Suq-alshuyook, Al-Garraf and Al-Naser) were examined for the confirmation of endoparasitic infection. The period of study was involved the four seasons of the year Autumn, Spring, winter and summer. Faecal samples were examined for helminths ova by direct microscopic examination, by using light microscope, sedimentation and floatation techniques(11). Identification of the eggs made on the basis of morphology and size of ova.

Results

The present study revealed that 227(42.25%) samples were infected by endoparasites from total(523) fecal sample, among submitted samples there were 154(67.84%) samples infected with single genus of parasites and 73(31.27%) samples were infected with mixed genus of parasites.Table (1) show results of infestation in all regions.

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Table (1): Prevalence of gastrointestinal helminthes in sheep within different districts of Thi-Qar Province

Region	Total No.	Total positive
Al-Nasiriya	347	105- 25 (Mixed infection)
Al-Shatra	36	14
Al-Garraf	25	16
Tal-Allaham	19	19
Suq-Alshoyook	38	18 (Mixed infection)
Al-Naser	56	30 (Mixed infection)
Total	523	227(42.25%)

The GIT. parasite observed in our study includes; Species-wise incidence of *Fasciola.spp.* 52(22.46%), *Moneizia spp*.43(18.94%), *Ascaris spp*.42(18.06%), *Ostertagia spp.* 28(12.33%), *Strongylus spp.* 24(10.57%), *Nematodirus spp*. 19(8.37%), *Toxocara spp*. 16(7.04%), *Paramphistpmum spp.* 3(1.32%) and in sheep as in table(2). Appendix (1) show types of these parasites.

Table(2):- Prevalence of gastrointestinal helminthes species in sheep within different districts of Thi-Qar Province

Region	Fasciola. spp.	Nematodirus. spp.	Ostertagia. Spp.	Strongl us. Spp.	Ascaris Spp.	Toxocara. Spp.	Monisia Spp.	Param. Spp.	Total
Al-Nasiriya	29	19	13	3	38	-	25 M	3	130
Al-Shatra	4	-	-	6	4	-	-	-	14
Al-garraf	-	-	-	-	-	16	-	-	16
Al-Naser	-	-	15 M	15 M	-	-	-	-	30
Tal- allaham	19	-	-	-	-	-	-	-	19
Suk-Alshuyook	-	-	-	-	-	-	18 M	-	18
Total No.	52	19	28	24	42	16	43	3	227
Total %	22.46%	8.37%	12.33%	10.57%	18.06%	7.04%	18.94%	1.32%	

M= mixed infection

The seasonal occurrence of parasitic infestation in sheep depicted higher infection of GIT parasites in Autumn(60.19%), spring(59.39%) followed by winter(50.46%) and summer(24%) as in table(3).

Table (3): Seasonal prevalence of gastrointestinal helminthes genera in sheep within different districts of Thi-Qar Province.

Season	Total No.	Total +Ve	%
Autumn	201	121	60.19%
Winter	107	54	50.46%
Spring	165	98	59.39%
Summer	50	12	24%

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Discussion:

Gastrointestinal parasites infection is a worldwide problem for both small and large scale farmers. Infection by gastrointestinal parasites in ruminants including sheep and goats can result in severe loses. Economic losses are caused by gastrointestinal parasites in a variety of ways. They cause loses through infertility, reduced work capacity, a reduction in food intake and lower weight gains, treatment costs, and mortality in heavily parasitized animals (12). A73(31.27%) samples were infected with mixed genus of parasites, because sheep are more susceptible to internal parasites than most other types of farm livestock. Their small fecal pellets disintegrate very easily thus releasing the worm larvae onto pastures (2). However a similar study was done by(13) in Mosul found a distribution of intestinal in sheep, the rate was (54%), and(14) study in Dhouhok province that found that the prevalence of GIT parasites in sheep where(60%). And higher than(9) study in Sulamaniya province that recorded the prevalence of GIT parasite was (34.36%). The GIT. parasite observed in our study includes; Species-wise incidence of Fasciola.spp. 52(22.46%), Moneizia spp.43(18.94%), Ascaris spp.42(18.06%), Ostertagia spp. 28(12.33%), Strongylus spp. 24(10.57%), Nematodirus spp. 19(8.37%), Toxocara spp. 16(7.04%), Paramphistpmum spp. 3 (1.32%). This results agreed with(15,16,17,18,19) and disagreed with(20) in Erbil and (9) in Sulaimania. The variations prevalence in different parts of the worlds might be due to several factors such as grazing methods, management, age of animals and using of anthelmintic. The present study showed that gastrointestinal parasite infection are high and great attention should be taken in consideration cases of single and multiple infection with GIT parasite were observed most of the samples were found with single infection than multiple infection. The seasonal occurrence of parasitic infestation in sheep depicted higher infection of GIT parasites were in agreement with(21,22,18) because during the rainy season climatic factors like temperature and humidity are favorable for larval growth. Parasite larvae on the pasture survive well in an environment that is moist and warm. When the temperature is between 50° and 98° and there has been at least 2 inches of rainfall during the month, parasites will thrive and develop on the pasture. These infective stages will persist on the pastures for months until the adverse conditions develop or die naturally three to ten or more months later (23). However, if the environment is dry and hot over an extended period of time (two weeks or more), most of the larvae on the pasture will be killed Moreover**,** rainfall cause stress to the host which play as a stress factor and predisposes it to a heavy infection(24). A climate that is too hot or dry can kill most larvae on the pasture(2).

Conclusions

The overall higher incidence of GIT parasites infestation in the areas surveyed could be attributed to lower immunity of hosts as a result of malnutrition. It was concluded from this study that the prevalence of GIT parasite infection is
high in Thi-Qar province.

Appendix 1 :-

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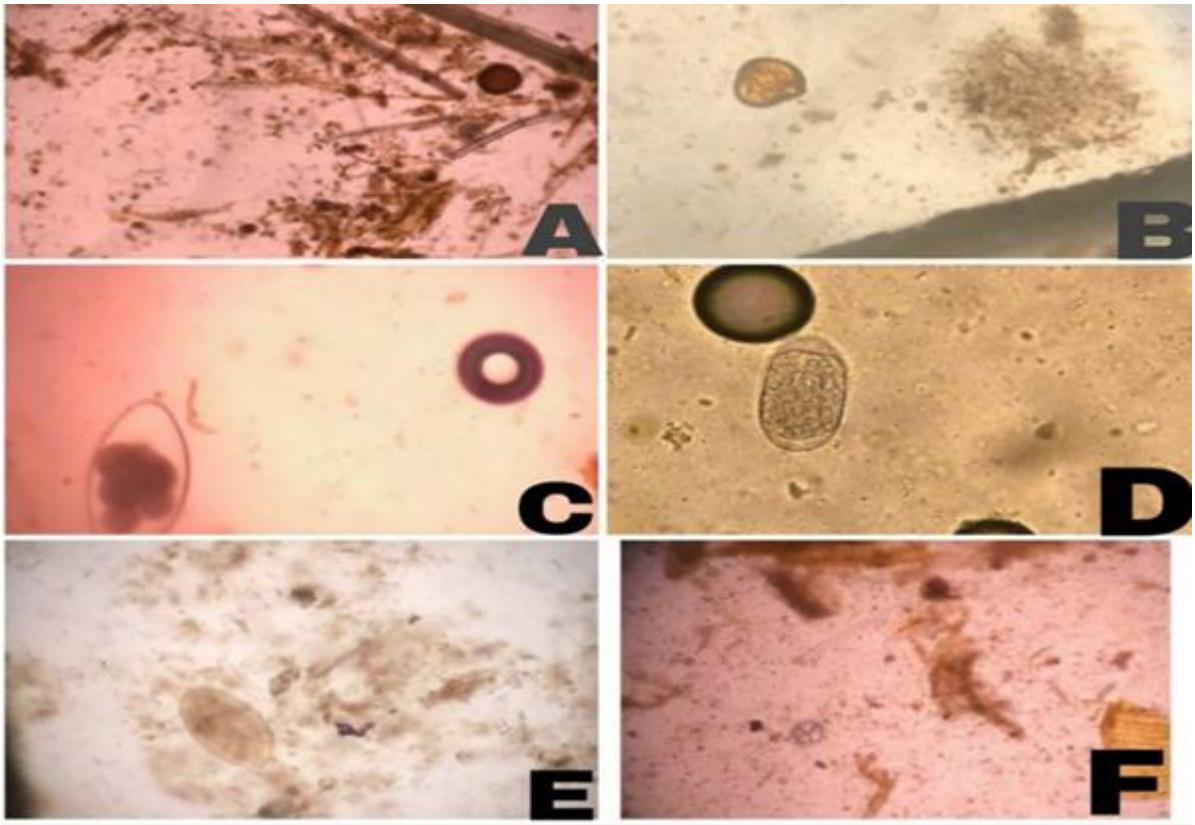

Figure (1): A: *Ascaris spp.*; **B:** *Monizia spp.*; **C:** *Nematodirus*; **D:** *Strongylus spp.*; **E:** *Paramphistomum*; **F:** *Toxocaras spp*.

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