

PREVALENCE OF THE GASTROINTESTINAL TRACT PARASITE IN GOATS IN SULAIMANI PROVINCE

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ABSTRACT

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Parasitosis, especially parasitic gastro-enteritis, constitute to cause 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. A survey of the prevalence of gastro-intestinal tract (GIT) parasites in goats was conducted in and around Sulaimani province/Kurdistan Region /Iraq. Fecal survey of eggs/oocysts of gastrointestinal parasites of goats on the Sulaimani farms was conducted between September 2009 and May 2010 out of 316 fecal samples were collected from local bread type goats and from four selected area of Sulamani province that was Sulamani center, Arbat, Aghgeler and Said sadeq 142 (44.9%) were positive. All fecal samples were examined by using saturated sodium chloride floatation technique. Relative percentage prevalence 55(38.7%), 47(33%), 29(20.4%), 4(2.8%) was obtained for *Nematodirus spathiger*, *Marshallagia marshalli*, *Trichuris ovis* and *Eimeria* oocysts respectively. Total mixed infection that means more than one type of parasite infected were 7(2.2%) Mixed infection by *Trichuris ovis* eggs+*Nematodirus spathiger* eggs had the highest prevalence of 4(2.8%) while the lowest was by *Nematodirus spathiger*+*Marshallagia marshalli*+*Trichuris ovis* with 1(0.7%). Other mixed infection was *Trichuris ovis*+ *Eimeria* oocysts with 2(1.4%).

Keywords: G.I.T., Parasites, Goats, Iraq.

INTRODUCTION

Internal parasitism is one of the biggest problems in the small ruminant animals. Internal parasite infections of herds can cause major health issues, which have a major effect on the animal's performance and cause great economic losses to the producer. In fact, most of the economic losses caused by internal parasitosis are actually not due to mortality but production loss (Waller and Thramsborg 2004).

Parasites, especially parasitic gastro-enteritis, constitutes to pose 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 (Nwosu *et al.*, 2007).

Parasitic gastroenteritis has been noted as major constraint to ruminants' productivity in terms of pathology and economic importance (Biu *et al.*, 2006).

Nematode parasites of small ruminants result in low productivity due to stunted growth, poor weight gain and poor food utilization (Pedreira *et al.*, 2006).

The control of gastrointestinal trichostrongylosis in small ruminants is severely impaired by the increasing development of anthelmintic resistances (Sangster N.C 1999, 2001) Resistances to the three main families of broad spectrum anthelmintics available for the control of trichostrongyles have been described worldwide in most nematode species (Jackson F and Coop 2000) (Sangster N.C., 1999) (Silvestre A. *et al.*, 2002).

Infection by gastrointestinal parasites in sheep and goats can result in severe losses. Production losses result from decreased utilization of food and in severe cases from death. Goats have numerous internal parasites; two of the most important are the protozoan *Coccidia* (Dai *et al.*, 2006).

Internal parasites are a significant threat facing today's small ruminant producer. Problems associated with parasites, particularly those of the gastrointestinal tract of sheep and goats can cause irreversible damage or even death to the animal, reduced performance and economic loss for the producer. (Christensen, 2005).

Goats and sheep have numerous gastrointestinal parasites, many of which are shared by both species. The most important include coccidia (protozoa), nematodes (roundworms), cestodes (tapeworms), and trematodes (flukes). Gastrointestinal nematodes of *Trichostrongylidae* family are perhaps the most important parasites of small ruminant's world-wide, causing significant morbidity and loss of production. Gastrointestinal nematode infections can be treated by anthelmintic chemotherapy; however, treatment is costly and drug resistance has evolved in all major parasite species (ROSS, 1997; ZAJAC and GIPSON, 2000; VEALE, 2002).

MATERIALS and METHODS

Description of study site: The area of study is characterized by seasonal rain from October to May and poor farmer awareness about the control and management of the internal parasite in sheep and goat. Selected sampling areas were four sites Sulamani center, Arbat, Aghgeler and Said sadeq.

Sample collection: Faecal samples were obtained from the rectum of (316) goats randomly. Different age and sex goats' sample of only local breed from various regions of the Sulaimani province collected. Period sampling was between September 2009 and May 2010.

Faecal examination: Faecal samples obtained were examined using saturated sodium chloride floatation and eggs or oocysts identified. The samples were transported to the Veterinary teaching hospital and college of Veterinary Medicine Laboratories,

Sulaimani for the identification of endoparasitic infection using direct microscopic examination and centrifugation floatation techniques using the light microscope at x40 objective. Identification of the eggs was made on the basis of morphological characteristics and size of eggs (Anna and Gary, 2012), (Foriet, 1999).

Parasite eggs, cysts, and oocysts were concentrated on the surface of the medium because of their lighter density. The result is a clean preparation for microscopic examination with a minimal amount of distracting fecal debris. (Chinone, 2001)

RESULTS

The result were summarized by table (1), the prevalence of parasitic gastro intestinal eggs /oocysts identified on the research farm as shown in Table 1 indicated an overall rate of (44.9%) representing 142 infected cases out of the 316 goats examined. Single infection by *Nematodirus spathiger* had the highest prevalence of 55 (38.7%), followed by *Marshallagia marshalli* ova with 47 (33%) while *Eimeria* oocysts had the lowest with 4 (2.8%). Overall prevalence rate of mixed infection were 7(4.8%). *Nematodirus spathiger*+ *Trichuris ovis* ova had the highest prevalence 4(2.8%), while the lowest was by *Nematodirus spathiger*+ *Marshallagia marshalli*+ *Trichuris ovis* 1(0.7%) table 2.

There is no significant difference in the infection between male and female of goats.

Table1: Prevalence rate of the gastrointestinal parasites.

parasites	n=316	*Relative prevalence (%)	Overall prevalence (%)
	No. of sample positive		
<i>Nematodirus spathiger</i>	55	38.4▲	17.4
<i>Marshallagia marshalli</i>	47	32.8	14.8
<i>Trichuris ovis</i>	29	20.2	9.1
<i>Eimeria</i> oocysts	4	2.7▼	1.2
Mixed infection	7	4.8	2.2

*Based on the positive samples=142.Negative samples=173.

Table 2: Prevalence rate of gastrointestinal parasite of mixed infection.

Mixed infection species	n-316	*Relative percentage (%)	Overall percentage (%)
	No. Of samples positive		
<i>Nematodirus spathiger</i> + <i>Trichuris ovis</i>	4	2.8▲	1.2
<i>Trichuris ovis</i> + <i>Eimeria</i> oocysts	2	1.4	0.6
<i>Nematodirus spathiger</i> + <i>Marshallagia marshalli</i> + <i>Trichuris ovis</i>	1	0.7▼	0.3

*Based on the positive sample=142

DISCUSSION

Present study showed that goats of the Sulaimani province are commonly infected with a variety of gastro intestinal parasite species with a high prevalence of (44.9%) and generally high egg/oocyst number because there is no scientific record or survey of the gastrointestinal in Sulaimani area, we compare with study in Mosul/Iraq. These results agree with the study of (Al-Bayati and Arsalan 2009) in the points of infection, but there are difference in the species and relative prevalence rate of the infection. The present survey explain four species of gastrointestinal parasite in the goats that were *Nematodirus spathiger*, *Trichuris ovis*, *Eimeria* oocysts and *Marshallagia marshalli* but (Al-Bayati and Arsalan 2009) they found out sixteen species of the gastrointestinal parasites and only three species resembling with results of this study that were *Nematodirus spathiger*, *Trichuris ovis*, and *Marshallagia marshalli*.in the present study the highest prevalent rate was *Nematodirus spathiger* (38.7%) but (Al-Bayati and Arsalan 2009) there results were *Marshallagia marshalli* (62.9%).The lowest prevalent rate in the present study was *Eimeria* oocysts (2.8%) but (Al-Bayati and Arsalan 2009) detected *Gongylonema spp* (1.2%).

The present study results showed highly prevalence rate of gastrointestinal parasites due to the randomly drenching of the animals by the farmer and there is no basic data about the most common or most important parasites and this study is the most recent one about the gastrointestinal parasite and for long period we don't have any data about these parasites (personal communication).

Eimeria oocysts were the lowest prevalent rate by (2.8%) in the present study and this disagree with (M. Asif *et al.*, 2008) in Islamabad, Pakistan that explain the high prevalence with *Eimeria oocysts* by (57.5%) this variation may be due to the geographical and breed of the goats, and lead to production losses by reducing weight gain or through mortality (Sharma and Singh, 1997) in kids but in the present study the infected animal by *Eimeria oocysts* show moderate abnormal conditions.

The relative prevalence rate of the *Nematodirus spathiger* was (33%) and there is significant variation with (Asif *et al.*, 2008) in Islamabad, Pakistan that is explained no infection with this species and there is (14.1%) in Mosul/Iraq by *Nematodirus spathiger* (Al-Bayati and Arsalan 2009).

The results of the present study support the opinion that goats acquire a lower level of immunity to gastrointestinal parasites than sheep (PAWEL GORSKI *et al.*, 2004).

There are numerous species and genera of gastrointestinal nematodes which parasitized domestic animals (Lancaster *et al.*, 1990). The prevalence and seasonal activity, life cycle and pathogenicity of each species vary with animal species, country and/or climatic region (Umur 1997).

Most of the animals examined during the present survey had low to moderate clinical signs suggesting that some infections were sub-clinical. However, sub-clinical infections may be very important economically leading to retarded growth; reduced productivity and animals are more susceptible to other infections. The animal will also continuously contaminate pastures. Some positive animals treated by anthelmintic drug like Albendazole and Closantile this mean there may be appearance the resistancy against the anti parasite drug.

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انتشار الطفيليات المعوية في الماعز في محافظة السلبيانية

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تعتبر الطفيليات وخاصة الطفيليات المعوية من أسباب المخاطر للصحة وكذلك من محددات الإنتاج للمجترات الصغيرة وذلك بسبب الإصابة والوفيات وتكاليف العلاج والسيطرة. تم عمل مسح لإيجاد نسبة الإصابة بالطفيليات المعوية في الماعز في وحول محافظة السلبيانية ، وذلك عن طريق فحص البراز للكشف عن البيوضات وكيس الاوالي في الفترة مابين ايلول ٢٠٠٩ ومارس ٢٠١٠. اظهرت الدراسة ان ١٤٢ عينة من مجموع ٣١٦ عينة براز تم جمعها من حقول اربع مناطق من محافظة السلبيانية وهي مركز السلبيانية وعريت و اغلر و سيد صادق. كل عينات البراز تم فحصها بطريقة الطفو واستعمال محلول الملح المشبع وتم الحصول على نسبة ٥٥ (٣٨.٧%) و ٤٧ (٣٣%) و ٢٩ (٢٠.٤%) و ٤ (٢.٨%) لبيوض لطفيليات نيماتودايرس سباتيجر ومارشاليجيا مارشالي ولبيوضات تراكيبورس اوفز وكيسات الاوالي اميريا على التوالي ١٠ على نسبة إصابة كانت ٥٥ (٣٨.٧%) لبيوض طفيليات نيماتودايرس سباتيجر وكانت اقل نسبة إصابة لكيسات اوالي الاميريا بسبة ٤ (٢.٨%) كانت هناك نسبة إصابة مختلطة أي الإصابة بأكثر من طفيلي واحد بنسبة ٧ عينات وانت اعلي نسبة ٤ (٢.٨%) مصابة ببيوض طفيليات نيماتودايرس سباتيجر وتراكيبورس اوفز بينما اقل نسبة إصابة ببيض طفيليات نيماتودايرس سباتيجر وتراكيبورس اوفزو مارشاليجيا مارشالي بنسبة ١ (٠.٧%).