

Prevalence of *Strongylus spp* infection in donkey's population from Gjirokastra district, Albania

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Abstract – The study was carried to determine the prevalence of *strongylus spp* infection in working donkey's from Gjirokastra region, during spring - summer 2023. Internal parasites are the major cause of morbidity and mortality in working donkeys. For that purpose 40 fresh fecal samples were collected from the animals, and examined by improved modified McMaster method. The infection rate of strongylidae spp resulted 100 %. The data of the study revealed high prevalence of infection with *strongylus spp*. in both groups of donkeys. Further study is needed with the aim to identify and prevent heavy infection of donkeys used as working animals by local farmers of the district from *strongylus spp*.

Keywords – Donkeys, *Strongylus Spp*, Gjirokastra District

I. INTRODUCTION

Local farmers from Gjirokastra district as in other mountainous regions of Albania rely on an old tradition by using donkeys in the field of agriculture and heavy transport. This way of using donkeys by local's farmers is mainly related to the mountainous terrain of the district, which does not allow the use the innovative technology in daily works. Based to the statistics the donkeys and other equine population in Albania raise around 60 thousand heads [7] and obviously their number is declining rapidly. Donkeys as are very sensitive to internal helminthes infections such as nematodes, cestodes, trematodes and protozoan's species [2], [12]. They represent a very important health concerns to equine population not only in Albania but all over the world. According to literature, intestinal parasites infections contribute in poor body condition score, low reproductive performance and lower income of the owner [10] [3]. In Albania several studies reported important data on internal helminthes infection in equine population including donkeys [12], [4] [5]. Based to the data the main categories of parasites that affect donkey's health are strongylidae spp species.

Therefore the aim of the current study is to evaluate the infection level of working donkeys by *strongylus spp* in Gjirokastra district.

II. MATERIALS AND METHOD

Study animals

The research was performed during spring 2023 in donkeys (n=40) from Gjirokastra district. Animals were divided in two groups according to age (1-10 year old and over 10 years old). Donkeys were randomly sampled at different location by authors and local veterinarians. Before the collection of the samples, information on type of regime, nutrition, sex, and age were also obtained. The age of the sampled animals was précised by confronting owner's information and dental examination. Fresh feces samples were taken directly from the animal, or picked up from the ground from fresh deposits using sterile gloves. After that samples were stored in portable refrigerator at 4°C and then were transported immediately to the Laboratory of Parasitology, Faculty of Veterinary Medicine for parasitological evaluation. Samples were kept in the refrigerator at the laboratory until the quantitative parasitological examinations were accomplished.

Quantitative determination of *strongylus* eggs

The quantification of parasite eggs was done by using improved modified McMaster method [13] within 48 hours and the eggs were classified based on their morphology. Three grams of feces were mixed with 42 ml of tap water, and the fecal suspension was passed through an 80 µm square sieve to remove debris. The filtrate was collected in a clean, dry container. Fifteen ml of this filtrate was taken into a centrifuge tube and centrifuged at 1,500 rpm for 2 min, and the supernatant was then discarded. The sediment was emulsified by gentle agitation, and saturated NaCl was added until the volume became equal to the initial aliquot of the filtrate. The centrifuge tube was inverted several times to obtain an even suspension of the contents. The two chambers McMaster slide were filled using a clean Pasteur pipette. The average number of eggs present in two chambers was multiplied by 50 to obtain the number of eggs per gram of feces (EPG).

III. RESULTS

The prevalence rate of donkey's infection loud with *strongyle* spp eggs is showed in table 2 and figure 1. All the samples (n=40) collected from the animals despite the age resulted positive 100% for the presence of *strongyle* spp eggs.

Table 1. Average mean and SD of *strongyle* spp eggs loud in donkeys from Gjirokastra district.

donkeys age	mean	SD	p value
0-10	1167.5	764.2	0.0001
>10	322.5	192.2	

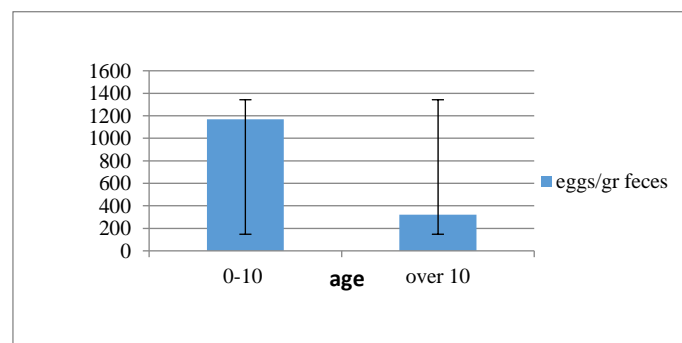


Figure 1. Average mean and SD of *strongyle* spp infection in donkeys according to age.

IV. DISCUSSION

Internal parasites as previously reported affect directly donkey's health and reproductive performance. From the data of the study animals resulted 100 % positive for *strongyle spp* eggs. These finding is in total accordance with the previous study performed in Korca district in 2023 [5]. Also the data of the study are in the same line with the findings of similar studies conducted by [1], [15], [14]. [9]. [6].



Figure 2. (a) *Strongyle spp* eggs found in donkeys from Gjirokastra

These differences on donkey's infection by *strongyle spp* may be related to the mountainous terrain, season, density and lack of periodic anthelmintic treatment.

V. CONCLUSION

The data of the investigation showed a high prevalence of *strongylus spp* infection of donkeys from Gjirokastra district. Fecal culture and larval identification should be performed with the aim to identify the type of strongylus that are common in donkeys from Gjirokasta district. Also an appropriate helminthes control strategy should be performed by local farmers to reduce the negative effect of parasite infection in working donkeys of the region.

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