

Frequency of Coccidia Species in Goats in Van Province of Turkey

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Summary

The aim of this study was to determine the coccidia species and their prevalence in goats in Van province between July 2004 and September 2004. In this period approximately 5 g of faecal samples were collected from the rectum of total 106 goats of 3 months to 1 year old from Van animal bazaar. *Eimeria spp.* oocysts were determined in seventy-four (69.8%) out of a total 106 goats. Determination of the coccidia species was done after the sporulation of the feceses in 2.5% potassium dichromat ($K_2Cr_2O_7$) in the petri dishes. The result shown that the goats were infected with 7 different Eimeria species. These species were *E. arloingi* (41.5%), *E. alijevei* (37.7%), *E. christensini* (20.7%), *E. ninakohlyakimovae* (18.9%), *E. pallida* (9.4%), *E. apsheronica* (9.4%) and *E. hirci* (7.5%).

Keywords: Eimeria, goat, Van

Van Yöresi Keçilerinde Coccidia Türlerinin Yaygınlığı

Özet

Bu çalışma Haziran 2004-Eylül 2004 tarihleri arasında Van yöresi keçilerindeki Eimeria türlerini ve bunların prevalansını saptamak amacıyla yapıldı. Bu amaçla belirtilen tarihler arasında Van hayvan pazarına satış amacıyla getirilen ve yaşları 3 ay ila 1 yıl arasında değişen toplam 106 keçinin rektumlarından yaklaşık 5'er gr dışkı örnekleri alındı. Dışkı örnekleri alınan toplam 106 keçinin 84 (%69.8)'ünde Eimeria türleri saptandı. Eimeria türlerini belirlemek amacıyla Eimeria ookisti saptanan dışkı örnekleri petri kaplarına konularak sporlanmanın sağlanması için üzerlerine %2.5'lik potasyum dikromat ($K_2Cr_2O_7$) çözeltisi ilave edildi. Çalışma sonucunda keçilerin *E. arloingi* (%41.5), *E. alijevei* (%37.7), *E. christensini* (%20.7), *E. ninakohlyakimovae* (%18.9), *E. pallida* (%9.4), *E. apsheronica* (%9.4) ve *E. hirci* (%7.5) olmak üzere toplam 7 Eimeria türüyle infekte oldukları saptandı.

Anahtar sözcükler: Eimeria, keçi, Van.

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INTRODUCTION

Coccidiosis is the contagious protozoal diseases of goats with worldwide distribution, especially in young kids. It is mainly a problem in young livestock as the immunity may play a role in the protection of older animals. *Coccidia* are intercellular parasites and destroy cells lining the gastrointestinal tracts of goats. Infected goats shed thousands of coccidial oocysts in faeces every day^{1,2}.

Although most goats carry coccidia oocyst, only the young kids became sick with coccidiosis. Some important stress factors including weaning, long-distance transportation, changes in diets, major weather changes and parturition may lead to outbreaks of clinical coccidiosis³. Most prevalent species causing clinical coccidiosis are *E. ninakohlyakimovae*⁴, *E. arloingi*⁵ and *E. caprina*⁶.

The aim of this study was determine the prevalence of coccidiosis in goats in Van province of Turkey.

MATERIALS and METHODS

This study was carried out on 106 goats (3 months to 1 year old) between July 2004 and September 2004. In this period, faecal samples (approximately 5 g) were collected from 106 domestic goats from Van animal bazaar and were stored at 4°C until examination.

In the examination; samples were concentrated by Sheather's sugar flotation technique and examined microscopically for presence or absence of oocysts. *Eimeria* species were identified after sporulation of oocysts in faeces in a thin layer of 2.5% potassium dichromate ($K_2Cr_2O_7$). After then the oocysts were identified on the basis of the oocysts and sporocysts morphology. According to results of examinations clinically sick animals were treated for coccidiosis.

RESULTS

Totally seven *Eimeria* species were found in animals examined. The proportion of the *Eimeria* oocysts was 69.8% in all faecal samples. The most common species were *E. arloingi* (41.5%) in 44 goats, *E. alijevi* (37.7%) in 40 goats and *E. christensini* (20.7%) in 21 goats. Other identified species were *E. ninakohlyakimovae* (18.9%) in 20 goats, *E. pallida*

(9.4%) in 10 goats, *E. apsheronica* (9.4%) in 10 goats and *E. hirci* (7.5%) in 8 goats.

Multiple infection with two species (20.7%) were more common than infection with three, four and five species. Mixed infection were detected in 39.6% of all faecal samples. In 32 (30.2%) of 106 goat faecal samples were negative for *Eimeria* species.

DISCUSSION

This paper is the second report on frequency of coccidiosis in goat in Van province of Turkey. Seven *Eimeria* species were identified consisting of *E. arloingi*, *E. alijevi*, *E. christensini*, *E. pallida*, *E. ninakohlyakimovae*, *E. apsheronica* and *E. hirci*. In a previous study¹, the frequency of coccidiosis was 73.6% in 242 goat. Değer et al. identified nine *Eimeria* species in their study: *E. arloingi*, *E. christensini*, *E. alijevi*, *E. pallida*, *E. hirci*, *E. ninakohlyakimovae*, *E. apsheronica*, *E. jolchijevi* and *E. punctata*. *E. jolchijevi* and *E. punctata* were not identified in our study. Frequency rates were similar in two studies (69.8% in present study and 73.6% in previous study).

The frequency rates of *Eimeria* species were 100% of 67 kids and 81% of 43 adult goats in Poland³, 92.2% of 2897 goats in Czech Republic², 97% of 497 goats in Australia⁷, 89% of 815 goats in Malaysia⁸, 96.3% of 27 kids and 65.5% of 110 adult goats in Netherlands⁹, 97.2% of 616 goats in USA¹⁰, 90.3% of 228 goats in Saudi Arabia¹¹, 94.0% of 151 kids and 89.9% of 1092 adult goats in Zimbabwe¹².

The frequency of coccidiosis was 73.6% of 242 goats¹, 94.6% of 147 goats¹³, 84.0% of 100 goats¹⁴, 53.3% of 353 goats¹⁵ and 88.0% of 900 goats¹⁶ in Turkey.

Most parasitological studies in goats showed a high prevalence of coccidial infections. *E. arloingi*, *E. ninakohlyakimovae* and *E. christensini* are considered to be the most pathogenic species^{4,15,17}. *E. arloingi*, *E. ninakohlyakimovae*, *E. alijevi* and *E. hirci* was most prevalent species in Poland³, in Australia⁷, in Saudi Arabia¹¹, in Zimbabwe¹² and in Czech Republic¹². In our study and in previous study in Van province; *E. arloingi*, *E. alijevi* and *E. christensini* were the most prevalent species.

In conclusion, 69.8% of the goat were found to be

infected with different *Coccidia* species. According to results of this study, subclinical infections by coccidia are common in goats in Van province of Turkey. Thus, the animals should be controlled and their owners should be informed about coccidiosis and its importance.

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