

Occurrence of Coccidian parasites in Sheep in Omerga region

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ABSTRACT

Coccidian infections were studied in the Omerga region during the period of six months. 127 fecal samples of sheep were collected from different villages. Total samples were examined out of which 92 Samples are positive and there percentage is 72.45 %. The relative prevalence of the sheep was analyzed.

Keywords: Protozoa, coccidia, fecal samples, sheep, oocysts.

INTRODUCTION

Coccidiosis is an economically important disease which is caused by unicellular protozoa, *Eimeria*; with worldwide distribution (Chartier and Paraud 2012, Kheirandish *et al.*, 2012). It continues to be a serious threat to animal health and results in lowered productivity due to the associated morbidity, mortality and cost of treatment and control measures (Agyei, 2004). All ages of sheep are susceptible to *Eimeria* infection but lambs are most severely affected by clinical coccidiosis and disease outbreak (Khan *et al.*, 2011). The disease is caused by single cell parasite of the genus *Eimeria*. Infection of sheep with coccidia occurs through ingestion of sporulated oocysts along with water, soil and contaminated with fecal matter. In the small intestine sporulated oocysts release sporozoites which infect intestinal epithelium. The prevalence of coccidiosis species has been recorded in sheep in many countries of the world. Fifteen species of *Eimeria* has been considered that infect sheep, these species found in the intestines of infected sheep (Reginsson and Richter, 1997). Therefore, the objective of the present study is to investigate the factors affecting in prevalence and parasite load of *Eimeria* species of sheep. This effort is an initial survey to gain information that has not been previously reported from Omerga region.

MATERIALS AND METHODS

Study area: A total of 179 samples were collected from various villages in Omerga region.

Fecal sample collection: Fecal samples were collected from the domestic sheeps from Omerga region, which were chosen randomly and each sample was packed in a separate plastic bag, labelled properly and put it in a cooler box at 4°C until examined.

Fecal examination technique

Fecal samples were microscopically examined individually for the search of coccidian oocysts. Faecal samples resulted positive were dissolved in distilled water for centrifugation for 5-6 minutes at 3000 rpm. Then using flotation technique with saturated Sodium chloride solution as flotation solution for the presence of oocysts. After the centrifugation sample were dissolved in a 2.5 % $K_2Cr_2O_7$ solution and maintained in the dark and at the room temperature to allow sporulation of the oocysts. Oocysts were daily checked for sporulation for 3-5 days after submerging the faecal sample in 2.5% $K_2Cr_2O_7$, following which samples were stored at 4°C. Sporulated oocysts were observed using light microscope with a 100× oil immersion objective and images were taken using a Sony cyber shot dsc-wx 200 digital camera.

RESULTS

Domestic animals are usually infected with many parasites; the knowledge of which is essential for management of the infections. Coccidian parasites are important in domestic animals because they affect their intestinal tract. Coccidian species are host specific and species specific. In coccidiosis some *Eimeria* species are pathogenic and some are non-pathogenic. Thus, these parasites should be considered among those diseases responsible for health and production of sheep. (Mokhtaria *et al.*, 2015) However in a study, Gomez *et al.*, 1996, have reported transient diarrhea in highly infected mouflon in central Spain.

Since coccidiosis has a great impact on sheep industry, identification, current prevalence of *Eimeria*

species will help to minimize the economic losses in the sheep industry. The prevalence of *Eimeria* species in this study was 72.45%. It is within the infection range in different countries. The prevalence rate of *Eimeria* species in India Singh was (1963) 71 %, Bawazir (1980) 34.48 %, Nikam (1983) 34.24 % and More (2011) 24.57%.

In other country Saudi Arabia, was 41% (Toulah F.H. 2007), Iran 16.7% (Yakhchali 2008), Tanzania 93% (Kusiluka 1996), Senegal 94% (Vercruysee J. 1982), Pakistan 51.61% (Asif, 2008), 80% in South Australia (Ocallaghan 1986) and 85% in goats at north of Jordan (Abo-shehada M.N. 2003). Coccidial infection in small ruminants has been reported worldwide (Chhabara and Pandey, 1991; Maingi and Munyua, 1994; Skirnisson, 2007; Kimbita *et al.*, 2009; Gadahi *et al.*, 2009; Wang *et al.*, 2010).

In the present study, the prevalence of coccidial infection was 72.45% in sheep in Omerga. Our results are similar to those reported in northeastern china, Zimbabwe and Turkey (Chhabara and Pandey, 1991; Galip K, 2004; Yakhchali and Golami, 2008; Wang *et al.*, 2010), but different from that reported in Iran, Pakistan and India (Yakhchali and Golami, 2008; Gadahi *et al.*, 2009), which revealed a prevalence of 19.2, 27.77% and 24.57 % respectively.

In this study highest prevalence of coccidial infection in month of July and lowest in month of November. This study suggests that the rate of infection with gastrointestinal parasites in domestic sheep was high rate in comparing with previous studies. Infection is highest in rainy season than winter.

Table : Showing the monthwise prevalence of coccidian infection in sheep in Omerga Region during the period July 2013- December 2014

Sr. no.	Period	No. of Sample		% of Prevalence
		No. of Sample Examined	No. of Sample Positive	
1	July	22	18	81.82%
2	Aug	25	19	76.00%
3	Sep	19	14	73.68%
4	Oct	21	15	71.43%
5	Nov	21	13	61.91%
6	Dec	20	14	70.00%
	Total	127	92	72.45%

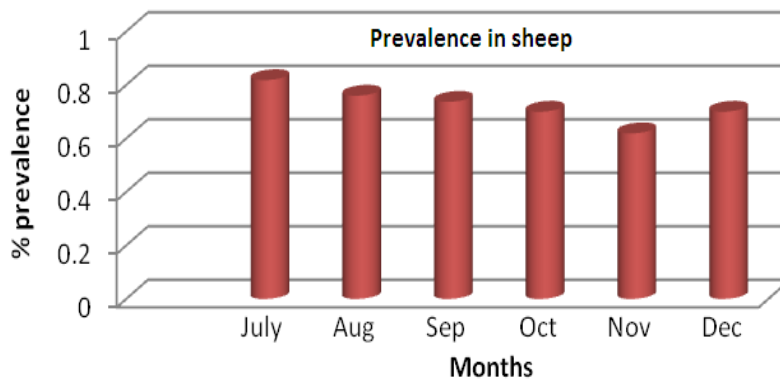


Fig.1 : Showing the monthwise prevalence of coccidian infection in sheep in Omerga Region during the period July 2013- December 2014

CONCLUSION

In conclusion, the present survey revealed that prevalence of coccidian infection in Omerga region is significantly high. Knowledge of the prevalence of coccidiosis and current *Eimeria* species will help to minimize the economic losses in the sheep industry, evaluate infection potential and control programs, especially for lambs. These results also provide relevant “base-line” data for assessing the effectiveness of future control strategies against coccidiosis in sheep.

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