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A Retrospective Study on Animal Parasitic Diseases Diagnosed at Kassala Veterinary Research Lab (KVRL), Eastern Sudan

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Abstract: This study was conducted to estimate the prevalence of the parasitic diseases in different animal species in Kassala area, eastern Sudan during 2004 up to 2006. A total of 1396 samples which were referred to Kassala Veterinary Research Lab were retrospectively studied. The samples were collected from different animal species; 1185 bovine, 139 ovine, 19 caprine, 46 equine and 7 camels. The study detected the following parasitic diseases: Anaplasmosis, theileriosis, trichostrogyliasis, microflariasis, coccidiosis, trypansomaiasis, moniezia sp. and mange.

Key words: Parasitic diseases, retrospectively, KVRL, prevalence, camels, species

INTRODUCTION

Kassala State lies in eastern Sudan, it borders Eriterea and Ethiopia. The total animal population in this state according to the Administration of Animal Resources is 3834553, animal species is as follows: 1457643 (38.0%) ovine, 1122073 (29.2%) caprine, 631957 (16.4%) bovine, 588880 (15.3%) camels and 34000 (0.9%) equine (Anon, 2006). From this study, we aimed to know the situation of the parasitic diseases during the last three years (2004 up to 2006) in comparison with some previous studies.

MATERIALS AND METHODS

Area of study: Kassala area lies between Latitudes 14°15′ and 17°15′ N and Longitudes 34°30′ and 37°E′ in eastern Sudan.

Time of study: The samples were examined during three years from January 2004 up to December 2006 in KVRL.

Collection of samples: Samples were collected from bovine, ovine, caprine, equine and camels. The tested samples were obtained either from the animals which brought to the KVRL directly or transferred from Kassala Veterinary Hospital. All samples had been recorded in KVRL records with serial numbers and full information about the sex, age, breed, owner and clinical signs.

Examination of samples: Conventional investigation methods were used. Blood smear samples were stained with Giemsa' stain or methylene blue and examined microscopically. Wet smear and buffy coat technique were used in trypansomaisis and microflairiasis suspected samples. Sedimentation and floatation (saturated NaCl solution) methods were employed for examination of fecal samples. Skin scraping samples were impressed in potassium hydroxide solution 10%. All results of the samples from every animal species were collected separately. The collected data were analyzed by calculating the percentage of each disease among the total number of the samples of each animal species.

RESULTS AND DISCUSSION

Table 1 shows the numbers of samples that had been tested in KVRL according to animal species. Bovine represents (84.8%) of the samples, ovine (9.9%), caprine (1.3%), equine (3.2%) and camel (0.5%). Table 2 shows the prevalence of the parasitic diseases in bovine they were as follows; anaplasmosis (64.3%), theileriosis (31.6%), tricostrogyliasis (2.4%), micoflairaisis (0.4%), coccidiosis (0.6%), trypansomaiasis (0.1%), moniezia (0.1%) and mange (0.0%), respectively. In ovine; anaplasmosis (64.7%), theileriosis (24.4%), tricostrogylus (5.7%), coccidiosis (2.8%), moniezia (1.4%) and micoflairaisis (0.7%). In caprine; anaplasmosis (84.2%), coccidiosis (10.5%) and theileriosis (5.2%). In equine; micoflairaisis

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Table 1: The total annual numbers of the parasitic diseases samples examined at Kassala Veterinary Research Lab during 2004-2006

Year	Bovine	Ovine	Caprine	Equine	Camel	Total
2004	519	24	2	20	4	569
2005	367	24	2	8	1	402
2006	299	91	15	18	2	425
Total	1185 (84.8%)	139 (9.9%)	19 (1.3%)	46 (3.2%)	7 (0.5%)	1396

Table 2. The percentages of the parasitic diseases diagnosed at Kassala Veterinary Research Lab during 2004-2006 in different animal species

The disease	Bovine	Ovine	Caprine	Equine	Camel
Anaplasmosis	763	90	16	11	0
	(64.3%) ↑	(64.7%) ↑	(84.2%) ↑	(23.9%) ↑	-
Theileriosis	375	34	1	0	0
	(31.6%) ↓	(24.4%) ↓	(5.2%) ↓	-	-
Trichostrogyliasis	29	8	0	11	5
	(2.4%) ↓	(5.7%) ↓	↓	(23.9%) ↑	(71.4%) ↑
Microflariasis	5	1	0	21	0
	(0.4%) ↓	(0.7%) ↓	↓	(45.6%) ↓	↓
Coccidiosis	8	4	2	0	0
	(0.6%) ↓	(2.8%) ↓	(10.5%) ↓	↓	↓
Trypansomaiasis	2	0	0	3	2
	(0.1%) ↓	-	↓	(6.5%) ↑	(28.5%) ↑
Moniezia sp.	2	2	0	0	0
	(0.1%) =	(1.4%) ↓	↓	-	-
Mange	1	0	0	0	0
	(0.0%) ↑	↓	-	-	↓
Total No.	1185	139	19	46	7

↑: The prevalence was increased according to previous studies. ↓: The prevalence was decreased according to previous studies. =: The prevalence was consistent according to previous studies. -: Not detected in previous studies

(45.6%) then anaplasmosis with tricostrogylus (23.9%). In camel tricostrogyliasis (71.4%) then trypansomaiasis (28.5%).

Kassala Veterinary Research Laboratory (KVRL) has been established since 1970, it is the main reference laboratory for animal disease diagnosis in Kassala State. It is located nearly outside Kassala town without link-road and that is the cause of low number of the collected samples. According to the animal population the number of ovine is high followed by caprine, bovine, equine and camels, but according to the numbers of samples that have been tested in this study the high number was of bovine then ovine, equine, caprine and camel. This might be due to the economical values of different animal species. The bovine are valuable especially those from dairy farms inside Kassala town, the ovine species used for exportation aims, equines is commonly used as draft animal in the local market. The camels samples were few because most of the owners are nomads living outside the town. Also because they concern about their valuable camels, some times they treated them with their own experience immediately before referring to the veterinary adviser.

Most of the previous studies and published data about animal diseases in eastern Sudan were concern about camels, that is because of the increasing prices of racing camel in Arabian market (Gaffar Elamin *et al*., 1984; Yagoub, 1989a,b; Agab and Abbas, 1999). In comparison of data in Table 2 with the findings of Salih *et al*. (2005) we found that the prevalence of anaplasmosis was increased in bovine, ovine, caprine and equine while the prevalence of theileriosis was decreasing in bovine, ovine and caprine. Trichostrogyliasis prevalence was decreasing in bovine, ovine, caprine while increasing in equine and camel. The prevalence of microflairiasis and coccidiosis is decreasing in all animal species. Trypansomaisis was decreasing in bovine, caprine but increased in equine and camel. Moniezia sp. prevalence was approximately decreased. Mange infection was reported only in one cattle. Some parasitic diseases were not detected in this study although they had detected in some previous studies in this part of Sudan such as; babesiosis (Mohamed and Yagoub, 1990) and mange in camel (Agab and Abbas, 1999). Although hemonchosis is an important disease of sheep, goats and cattle especially in tropical countries and had been reported in this area previously (Blood *et al*., 1983; Gaffar Elamin *et al*., 1984; Yagoub, 1989) but no case of hemonchosis was diagnosed at KVRL during this period.

Generally we can say that the prevalence of most of these detected diseases was declining except anaplasmosis. This might be due to some changes in the ecology which might reduced the population of some genera of ticks . Also we thought that the awareness of the owners about the parasitic diseases reduced the infection of them, while other diseases (bacterial and viral) domain the parasitic ones (Omer *et al*., 2006; KVRL, unpublished data).

In the autumn of this year 2007 the rainfall is very heavy all over the country and that caused widespread floods. This may lead to a heavy grass cover so the environmental condition will be changed. We expect that some changes can happen in the ecology and the prevalence of these diseases may be changed in the next years. We recommend to carry out more research about ticks to evaluate the situation of tick-born diseases in this area. Also research must be done to estimate the situation of the other vectors such as Tabanidae, mites and fleas in this part of Sudan.

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