



بسم الله الرحمن الرحيم



Sudan University of Science and Technology
College of Animal Production Science and Technology
Department Of Fisheries and Wildlife Science
(Graduation Project)

Survey of internal parasites of the (red fronted gazelle) in Kuku Zoo

مسح للطفيليات الداخلية لغزال ام سير في حديقة حيوان كوكو

submitted in partial fulfillment of the requirement of the degree of
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الاستهلال

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(وقل ربي زدني علما)

صدق الله العظيم

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Dedication

We dedicate this research to our:

Father...

Mother...

Brothers...

Sisters...

Teachers...

Friends...

And all of the people who helped us

Acknowledgement

We are grateful almost to Allah who gave us the health and the patience to complete this work.

Our wishes to express special appreciation and gratitude to our supervisor Prof. Ali Saad Mohammed for this suggestions, guidance and good supervision during this study.

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Abstract

An investigation was undertaken in KuKu Zoo, to determine internal parasitic eggs, of the red fronted gazelle (*Eudorcas rufifrons*)

The methods used were flotation, direct smears and sedimentation procedures on fecal samples collected from 2 individuals of red fronted gazelle. The results revealed the infestation of the animals with *Eimeria*.sp and Nematoda with 25% and 12.5 %, respectively.

Key words:

Kuku Zoo, red fronted gazelle, faecal material, internal parasites eggs.

ملخص الدراسة

اجريت الدراسة الراهنة لغزال ام سير وذلك للتعرف علي بعض الطفيليات الداخلية ، هذا الحيوان العاشب المحفوظة تحت الاسر في حديقة كوكو ، وتم فحص عينات براز الغزال في معمل الطفيليات بكلية الطب البيطري والانتاج الحيواني بجامعة السودان للعلوم والتكنولوجيا بالطرق الثلاث الاتية :

A- طريقة المسحة البسيطة

B-طريقة الطفو

C-طريقة الترسيب

تم اكتشاف بيوض الديدان التالية :

Nematoda, Eimeria

في كل الفحوصات المعملية اتضح ان هنالك ديدان اسطوانية حيث لا توجد ديدان شريطية او مفلطحة وكانت نسبة الاميريا 25% ونسبة النماتودا 12,5% ، هذه الدراسة اوضحت ان الاصابة بالديدان الاسطوانية اعلى من غيرها .

Key Words :

Kuku Zoo ,Red Fronted Gazelle ,Faecal material ,internal parasites Eggs

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Chapter one

1-1 Introduction:

Animals kept under captive conditions in Kuku Zoo, including red fronted gazelle (*Eudorcas rufifrens*) seemed that they havenot been recently examined for either external or internal parasites that affect the health status of the animals.

The present study was an attempt to determine whether red frothed gazelle harbored internal parasites or not.

The usual method for detecting internal parasites of animal is investigation of the faecal material for parasites ova so it was attempted to test the faecal material of red fronted gazelle using the methods: direct smear, fecal flotation test and sedimentation (Soulsby,1982).

1-2 The objectives :-

The main objectives was to see whether red fronted gazelle was infected by internal parasites .

To identify the species of parasites in case of their presence.

Chapter two

2-1 Literature review

Red fronted gazelle considered as belonging to the small antelopes and known as deresrt gazella.

2-2 Physical characteristics:

Head and body length go (90-11 cm)

Shoulder and heieht (65-70 cm)

Total length (20-30 cm)

Adult weight (25-30 kg)

Male and female of red fronted gazella are similar in the size they coat is generally red fawn in color except for the undersides and rump which are white , characteristically narrow (2-4cm high) black band runs from the elbow to the stifle a band of rufous hair, separates the dark stripe from the white under par.

Parasites play a major role in the live of the animal with effects ranging from negative impacts on the host population size to effecting of host behaviors to combat parasite and in the wild animals might have a natural resistance to infection, or live mutually which their parasites ,Change freedom to captivity influences animal ecology which they increase susceptibility to parasitic infection ; of species of these animals are exotic to the geographical location of the parts and gardens where they are kept with a number of species of animal in close proximity provides oppority from the transmission of diseases or porosities to species which would not normally come in contact with such pathogens (Moudgil and Single,2013).

Severe parasitism can lead to loss , tissue damage , spontaneous abortion , congenital malformations and death (a dedokun,2007).

Another possibility of parasite transmission is where animals are moved from one enclosure to another without proper parasites treatment (Gooseenesa al,2005) zoologists and garden staff members have also been reported to play an important role in transmission of parasite among animal in zoos , though their shoes clothes hands , food or with working tools (A detunje 2014 , Pyrhnsfr Smf Ptrmol Rkr 2014) Carnivorous animal act as .

Definitive hosts for many intestinal parasites, some of which are responsible for several zoonotic diseases like *ancylostomiasis* , *echinococcosis* , *gnathostomiasis* and *toxocorosis* (avergaour 1997), Further suggested close intervention between human and carnivores as reasons for endemicity of these zoonotic parasite. Inadequate information on diseases and parasites of zoo animal is a major limiting factor in the management of zoological gardens. Investigations into prevalence geographical distribution systematic and biology of parasite of zoo animals are important for planning and control of parasite thence the need for a regular program of gastrointestinal parasite surveillance and measures of control based on correct diagnosis. Effective treatment and proper prophylaxis to ensure sound health of zoo animals. This study aims to establish the profile of gastrointestinal – intestinal parasites in carnivores in three Zoos in Nigeria.

Parasites of gazelle have been previously documented (Mohammedm,1992,Mohammed,1997,Mohammed and Hussein,1994,Mohammed and Flamand,1996,Mohammed *et al.*,2000) in Saudi Arabia. Gastro –intestinal helminthic parasites of gazelle have generally a direct life cycle and infective third larval stages are normally present in animals contaminated food.

Parasites such as protozoa can also be acquired as a result of ingesting food that is contaminated with sporulated infective stage .

Many nematodes as *Haemaphysalis* *Nematodirus* , *Trichostrongylus* , *Trichuris* spp. Have been recovered of gazelle in king khalid.

Wildlife Research Centre , Saudi Arabia also coccidia oocysts have been recovered from gazelle in Saudi Arabia (Mohammed,1992).

Chapter three

3-Materials and Methods :

A study for investigation of internal parasites of red fronted gazelle was conducted in kuku Zoo. The study period extended for 12 days. (15/7-9/8/2018).

Kuku Zoo is situated in the premises of the college of Animals Production Sceince and technology at Hillet kuku Sharq Elnil locality, Khartoum State. The areas are about 10 acres. Many Wilde animals are kept in the Zoo. The study was conducted on the two red fronted gazelle. the two red fronted gazelles are kept in cages with dimenations 200 x 195 x 300 cm.

The cage is constructed of cement floor, wire side corrugated zinc for the roof; there are water basin and food containers

3-1 Direct smear:

Twenty faecal specimens were tested by being spread on a microscopic slide. Few drops of water were avoided added the smear and mixed well the debris were prepared from different Point of the focal specimen to have abroode chance for over detection. Microscope (X10).

3-2 Flotation:

Flotation method by preparing a concentrated saline solution in a test tube to the brim, stirred well with glass rod and placing the glass slide on top of the tube for trapping the floating parasite eggs on slide surface

3-3 Sedimentation:

Is a qualitative method for dectecting termarode eggs in the faeces. Most eggs are relatively large and heavy compared to nematode eggs. These techniques concentrate them in sediment.

Chapter four

Results :

The eggs detected in the faeces were nematode sp.

- nematode formed a ratio of $(3/24 \times 100) = 12.5\%$

- Eimeria formed a ratio of $(6/24 \times 100) = 25\%$

A total of 24 specimens were examined (12.5) specimens only - eggs (out of 24) one nematode were detected (Plate 1) also 3 specimens were detected out of the 24 examined (Plate 2) therefore the rate of infection was (12.5, 25) for each of the nematode and Eimeria species. Table (1) shows the results of parasitic ova discovered total of specimens daily the percentage of positive smears was (37.5%) of the total. Most of the fecal specimens were negative showing no ova. Only two parasitic ova were seen in some of the smears. They were ova of a nematode and Eimeria species. It was noted that one of the gazelle suffered from diarrhea.

Table(1) : Number of parasitic ova revealed from faeces of red fronted gazelle

Days	No. specimens	Direct smears		Sedimentation		Flotation	
		Nema_a_Toda	Eimer_ia	Nema_Toda	Eime_r_ia	Nema-toda	Eimer_ia
Sunday 15\7	2	-	-	+	-	-	-
Tuesday 17\7	2	-	-	-	-	-	+
Thursday19\7	2	-	-	-	-	-	-
Sunday 22\7	2	-	-	-	-	+	-
Tuesday 24\7	2	-	-	-	-	-	-
Thursday 26\7	2	-	-	-	-	-	-
Sunday 29\7	2	-	-	-	+	-	-
Tuesday 31\7	2	-	-	+	-	-	+
Thursday 8\2	2	-	-	-	+	-	-
Sunday 5\8	2	-	-	-	+	-	+
Tuesday 7\8	2	-	-	-	-	-	-
Thursday 9\8	2	-	-	-	-	-	-
Total	24	-	-	2	3	1	3

Chapter Five

Discussion :

The rustles of the present study revealed that the red fronted gazelle (*Eudorcas rufifrons*) was infected by two parasites (nematodes sp and coccidian oocyst) as shown in Table (1) . The level of infection was 12.5% and 25 % , respectively.

One of the examined gazelle was diarrheic, a condition which could be considered as an indication of coccidiosis.

This fact might explain the higher prevalence of coccidian infection compared to nematode infestation.

As reported by many workers, parasitic infection of gazelle in captivity is likely to occur (Mohammed, 1992, Mohammed, 1997, Mohammed and Hussein, 1992) Mohammed and Hussein, 1994, Mohammed and Flamand, 1996, Mohammed *et al*, 2000) the same authors reported the recovery of many nematodes and protozoa from gazelle in Saudia Arabia. It was also reported that the parasitic infestation can be transmitted to the gazelle, through contaminated food. The captive living condition is major factor for making the animal more susceptible to contract parasitic infestation as compared to the range condition. The working power is also one the factors, for they might transmit the parasites in their clothes or shoes.

We consider that result of the present study no more than an indication of Parasitic infestation of the fronted gazelle. The real condition is most properly worse than that revealed by the examination.

Chapter six

6-1 Recommendations:

It is recommended that further research should be done for detecting the presence or absence of internal parasites by using more sophisticated technique as faecal floatation and sedimentation and other techniques

Since there are some wild life farms, keeping fronted gazelle, there is a need to broaden on research an internal parasites of red fronted gazelle by examining faecal gazelle groups in Wild Life Farms.

6-2 Conclusion:

In the present study internal parasitic ova were recovered from the faecal material of the two red fronted gazelles.

The recovered ova were identified as coccidia and a nematode. The result confirmed the infestation of red fronted gazelle with internal parasites. The prevalence the rate of infection was 12.5 and 25 .5 % for nematode and coccidia respectively. On of the gazelle showed symptoms of the diarrhea which might be an indication of coccidiosis.

Chapter seven

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Plate (1): Red fronted gazelle.



Plate (2): Nematode eggs and Adult *Ascaris* spp.



Plate (3): *Coccidia* spp eggs.