



An-Najah National University
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Occurrence of Gastrointestinal Parasite in Rabbits

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Contents:

1. *Introduction*
2. *Aims*
3. *Methodology*
4. *Result*
5. *Discussion*
6. *Conclusion*
7. *Future work*



Introduction

- In recent years, the mortality rate in rabbits increased significantly causing high economical loss.
- Many infectious agent can causes death to rabbits, from all of this the parasites and protozoa are the largest.

Introduction

- In Palestine, rabbits are raised for meat production on small scale with an average numbers between 20-100 animal in each farm.
- Two housing systems ways are used; the first one in cages above the ground, and the second one in small colonies on the ground.



Rabbits raising in cage

Introduction

- Rabbits can be infected with a variety of diseases that can cause varying proportions of morbidity and mortality among them including parasitic, bacterial, viral, fungal and nutritional causes (Percy, 1993).

Introduction

- Coccidiosis is a common and worldwide protozoal disease of rabbits (Mayer,1953).
- There are two anatomic forms: **hepatic**, caused by *Eimeria stiedae*, and **intestinal**, caused by *E. flavescens*, *E. intestinalis*, *E. irresidua*, *E. media*, *E. perforans*, *E. magna*, or other *Eimeria*. Spp. (Mayer,1953).



Rabbits suffering from coccidiosis

Introduction

- The life cycle of *Eimeria* may take 5 to 12 day! (Percy, 1993).
- Transmission of both the hepatic and intestinal forms is by ingestion of the sporulated oocytes, usually in contaminated feed or water (Percy, 1993).

Introduction

- Infection with *Eimeria* can cause !!

Intestinal coccidiosis: Symptoms are a rough coat, dullness, decreased appetite, dehydration, loss of weight and (profuse) diarrhea. If the loss of weight reaches 20%, death follows within 24 hours.(Esther, 2003)



Portion of rabbit intestine affected by coccidia infestation

Introduction

- **Hepatic coccidiosis:** The liver form of coccidiosis affects rabbits of all ages. It is characterized by listlessness, thirst, enlarge, and wasting of the back and hindquarters, with enlargement of the abdomen. On abdominal X-rays, the liver and liver and gall bladder appear enlarged.(Esther, 2003)

Introduction

- Other common parasites infecting commercial rabbit farms include *Trichostrongylus*, *Strongyloides*, and *Trichuris* species (Raynaud, 1982; Theodoridis, 1979).
- The life cycle of *Trichostrongylus* is direct; the eggs produced by the female will pass in the feces and hatch outside the host, and develop into infective larvae within 6 days. (Esther, 2003)

Introduction

- *Trichostrongylus* infection in rabbits can cause !!
- Severe infestation can, however, lead to a weight loss and/or anemia and aggravate other rabbit disorders, such as diarrhea, cause high eosinophilia and occasionally death. The mucous layer of the intestine is often irritated, which can lead to blood loss. (Esther, 2003)

Aims

- **The aims of this study:**

1. To determine the gastrointestinal parasite species carried by rabbits in Northern Palestibe (Tulkarem, Jinen, and Tubas cities).
2. To determine the effect of management systems and age on the occurrences of gastrointestinal parasite.

Methodology

- In this study, the fecal samples of clinically healthy crossbred rabbits (n: 30) had been collected from selected rabbits farms in Tulkarem, Jenin and Tubas during March 2018.
- The fecal samples had been taken from animals provided by different breeders.

Methodology

- Each animal had been put in separate cages, and the fecal samples were taken from individual animals from their droppings.



The fecal samples had been examined by flotation techniques



The fecal samples had been examined by flotation techniques

Methodology

- The fecal samples had been examined by sedimentation and flotation techniques using distilled water and saturated salt solution respectively in the Parasitology Laboratory at An-Najah National University, Faculty of Veterinary Medicine (Neslihan Sürsal et al. 2014).

The prepared samples were then examined by using a light microscope (Olympus).

- *Note: Flotation Solutions contain 25% NaCl.

Result

- The parasite infestation rate was (66.67%) in cross breed rabbits (20/30).
- *Eimeria* eggs were the most prevalent in the feces (46.6%, n =), *Trichostrongylus* infestation reach (26.6%, n =), *Obeliscoides cuniculi* was the least infestation (3.3%, n =). On the other hand, mixed infestation with *Eimeria* and *Trichostrongylus* was found in 3 samples.

Table 1: Prevalence of parasite species in rabbits

Animal		Infected animal	Parasite species		
Species	Number		<i>Eimeria</i> spp.	<i>Trichostrongylus</i> spp.	<i>Obeliscoides cuniculi</i> spp.
Cross breed rabbits	30	(20) 66.67%	(14) 46.6%	(8) 26.6%	(1) 3.3%



Fig. 1. Egg of nematode *Trichostrongylus*.
Magnification =60x



Fig. 2. Larva of nematode *Trichostrongylus*.
Magnification =40x



Fig. 3. Segmented Egg of nematode *Obeliscoides cuniculi*. Magnification =60x

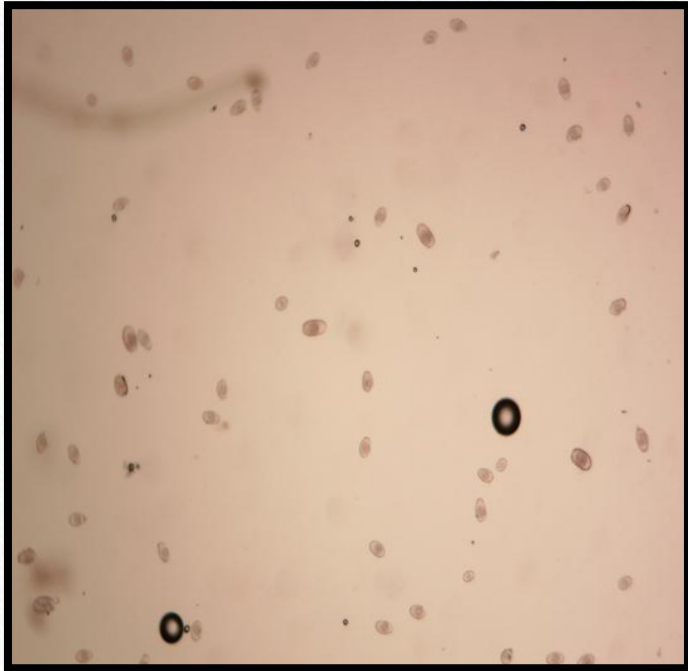


Fig.4. heavy infestation of *Eimeria*. Magnification =4x

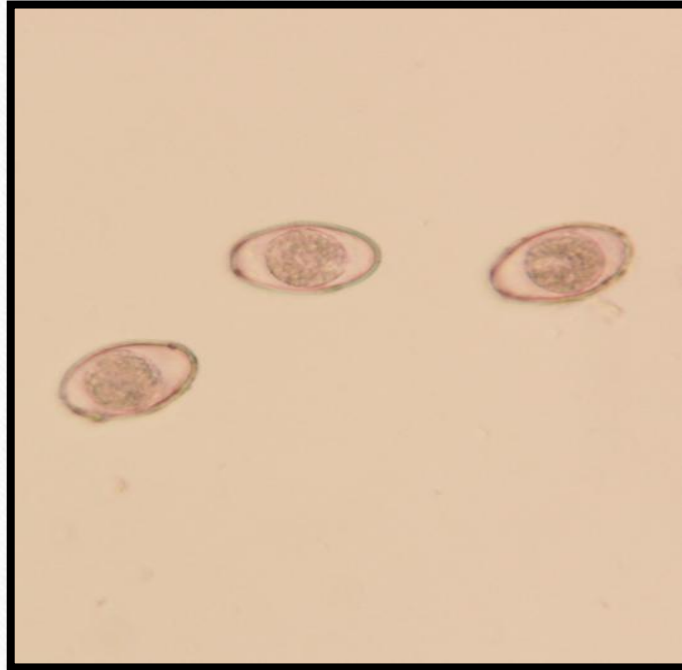


Fig.5. Oocyst of *Eimeria*. Magnification =40x

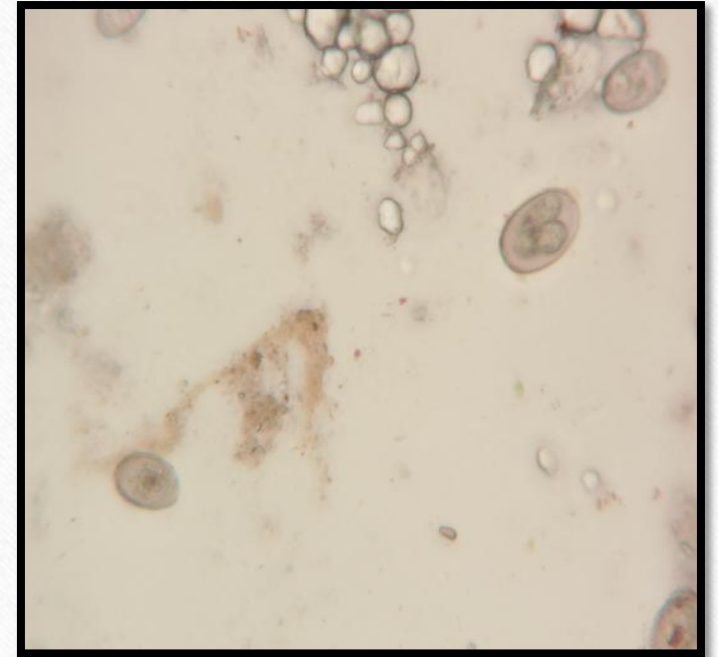


Fig. 6. Mixed infestation of *Eimeria* and *Trichostrongylus*. Magnification =40x

Discussion

- According to the results, the infection rate varied according to the management system, which was (72.2%) and (58.3%) in cage and ground housing respectively.
- These result may be related to poor clearance of cage, accumulation of feces, overcrowding of rabbits, or multiple use of cage by different rabbits.

Discussion

- The rabbits were grouped according to the age into 2 groups: young rabbits below 4 month of age and adults above 4 months of age.
- There was no differences in infection rate between the different age groups. Infection rate in both groups were (66%).

Discussion

- Sürsal observed that more than (56%) of rabbits were infected with endoparasite, and the most prevalent infection was *Eimeria* spp. in ratio of (52.7%) (Neslihan Sürsal et al., 2014).

Discussion

- Szkucik showed that infestation rate reached (79.56%), and showed that the prevalence rate were due to *Eimeria* spp., *Trichostrongylus* and *Obeliscoides cuniculi* infestation (78.83%), (5.47%) and (0.36%) of rabbits respectively (Krzysztof Szkucik et al., 2014).

Discussion

- In our study, the parasitic infections rate reached (66.7%), and the most prevalent infection was *Eimeria* spp. in ratio of (46.6%), while the *Trichostrongylus* spp. and *Obeliscoides cuniculi* was (26.6%) and (3.3%) respectively.

Discussion

- In our study, *Cysticercus pisiformis* and *Nematodirus leporis* from these rabbits were not observed, while in other studies a maximum infestation rate with *Nematodirus leporis* (13.33%) and minimum infestation rate was belong to *Cysticercus pisiformis* and *Eimeria* spp. with (3.33%) and (8.33%) respectively (Garedaghi Yagoob et al., 2011).

Conclusion



- Depending on the results of this study, the *Eimeria* spp. were the most prevalence in rabbits, followed by *Trichostrongylus* spp.
- There was no effects of age on infection rate. However, the management system has been observed to have a direct effect on occurrence of gastrointestinal parasites in rabbit farms.

Future work

- In future research, more research is needed to apply and test the effect of feeding type and program on the occurrence of gastrointestinal parasite, well as Future studies could investigate the sub species of *Eimeria*.

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Nisreen shtayeh photography