



**OCCURRENCE OF GASTROINTESTINAL PARASITES INFECTION IN  
LARGE FELINES  
(*Puma concolor*, *Panthera leo*, *Panthera pardus*, *Panthera onca*)  
IN ZOO NEGARA, ULU KELANG**

**MARIA SYAFIQAH GHAZALI**

**FPV 2018 51**

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*(Puma concolor, Panthera leo, Panthera pardus, Panthera onca)*

**IN ZOO NEGARA, ULU KELANG.**

**MARIA SYAFIQAH GHAZALI**

A project paper submitted to the

Faculty of Veterinary Medicine, Universiti Putra Malaysia

In partial fulfillment of the requirement for the

**DEGREE OF DOCTOR OF VETERINARY MEDICINE**

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## CERTIFICATION

It is hereby certified that we have read this project paper entitled “Occurrence of gastrointestinal parasites infection in large felines (*Puma concolor*, *Panthera leo*, *Panthera pardus*, *Panthera onca*) in Zoo Negara, Ulu Kelang”, by Maria Syafiqah binti Ghazali and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course.

VPD 4999 – Project

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## DEDICATION

I devote this dissertation to

My mother, who experienced a lot of ups and downs in her life, yet she is still the strongest person I know. During my losses, frustrations and disappointments, my mother is the one who will find a way to push through all my worries and tell me to carry on. She is the one who encourages me to be my best in chasing the dream of my life – becoming a veterinarian. She is my strength, and my everything.

My furry friend, Domod, who has been the most helpful, as a companion. A family-pet who left us in January 20<sup>th</sup> on the second week of the final year project. His existence has sparked the will in me to be my best to help those furry friends that I may encounter in the future.

My father and my brother, who taught me about life. The ones who offer me the greatest escape even for a moment, to detach myself a little while from the medical world I am dealing with.

My practical-mate; Nur Shuhada Samad and all my laboratory-mates who were there, supporting and encouraging me to finish this project excellently and telling me to not give up.

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Not to forget my co – supervisor Dr. Azlan Che' Amat whom I would like to express my thanks and sincere appreciations for helping with the ground works prior official conduction of my final year project. His invaluable guidance in wildlife world, patience and encouragement will always be honored.

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Yours sincerely,

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Maria Syafiqah Ghazali,

Final year student; Doctor of Veterinary Medicine.

2018.

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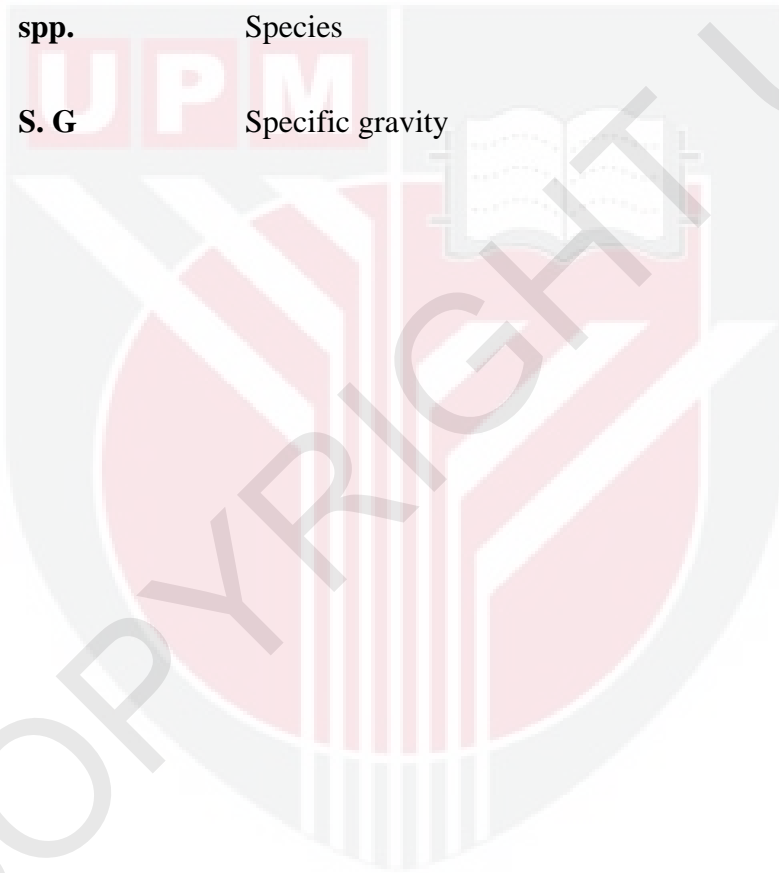
**LIST OF ABBREVIATIONS**

**%** Percentage

**n** Sample size

**spp.** Species

**S. G** Specific gravity



## **Abstrak**

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan  
Veterinar untuk memenuhi sebahagian daripada keperluan kursus

VPD 4999 – Projek.

### **KEJADIAN JANGKITAN PARASIT GASTROUSUS DALAM KALANGAN FELIN BESAR**

*(Puma concolor, Panthera leo, Panthera pardus, Panthera onca)*

**DI ZOO NEGARA, ULU KELANG.**

Oleh

**Maria Syafiqah Ghazali**

**2018**

**Penyelia: Dr. Nor Azlina Abdul Aziz**

**Penyelia Bersama: Dr. Azlan Che' Amat dan Dr. Nur Mahiza Md Isa**

Kajian ini dilakukan bagi memperhatikan sejauh mana berlakunya parasit gastrosus dalam kalangan felin besar di Zoo Negara Malaysia yang terletak di Ulu Kelang, Daerah Gombak Selangor yang dijalankan selama dua minggu pada bulan Januari 2018. Sepuluh spesimen telah diambil dari puma (*Puma concolor*, n = 5) dan juga

singa Afrika (*Panthera leo*, n = 4), harimau bintang (*Panthera pardus*, n = 1), harimau kumbang (*Panthera onca*, n = 1). Kesemua spesimen najis ini diambil secara individu pada waktu pagi kemudian dimasukkan ke dalam polibag dan diletakkan ke dalam kotak yang berisi ketulan ais untuk dibawa ke makmal parasitologi di Fakulti Perubatan Veterinar UPM Serdang. Seluruh spesimen diteliti samada terdapat telur parasit, larva dan oosis dengan teknik apungan larutan garam (sodium nitrate, SG = 1.3) dan formalin – ether teknik mendapan. Kesemua felin besar di Zoo Negara telah dijangkiti parasit gastrousus. Sejumlah enam jenis parasit gastrointestinal ditemui termasuklah nematod (*Toxocara cati*, *Ancylostoma* spp, *Toxascaris leonina*, dan *Oxyuris* spp), satu cestod(*Spirometra* spp.) dan satu protozoa (spesis yang tidak dikenali). Kajian ini menunjukkan diantara jangkitan helmin, kejadian jangkitan nematod adalah lebih tinggi (100 %; n = 10/10) berbanding jangkitan cestod (10 %; n = 1/10) dan protozoa (10 %; n = 1/10). Majoriti (n = 5/10) felin besar mengalami jangkitan bercampur iaitu parasit *Toxocara cati* dan *Ancylostoma* spp.

**Keywords:** felin besar, Zoo Negara, parasit gastrousus, formalin – ether teknik mendapan, teknik apungan larutan garam

## **Abstract**

Abstract of the project paper presented to the Faculty of Veterinary Medicine in partial requirement for the course

VPD 4999 – Project.

### **OCCURRENCE OF GASTROINTESTINAL PARASITES INFECTION IN LARGE FELINES**

*(Puma concolor, Panthera leo, Panthera pardus, Panthera onca)*

**IN ZOO NEGARA, ULU KELANG.**

**By**

**Maria Syafiqah Ghazali**

**2018**

**Supervisor: Dr. Nor Azlina Abdul Aziz**

**Co-Supervisors: Dr. Azlan Che' Amat and Dr. Nur Mahiza Md Isa**

The present study was conducted to observe the occurrence of gastrointestinal parasites in large felines in the National Zoo of Malaysia located in Ulu Kelang,

Gombak District, Selangor, which was undertaken for two weeks in January 2018. Ten fecal samples were collected from pumas (*Puma concolor*, n = 5), African lions (*Panthera leo*, n = 4), spotted leopard (*Panthera pardus*, n = 1) and black panther (*Panthera onca*, n = 1). All fecal samples were collected in the morning according to individual animals and kept in an ice box for transportation to Parasitology Laboratory in Faculty of Veterinary Medicine, Universiti Putra Malaysia, Serdang. All samples were examined for parasite eggs, larvae and oocysts by simple floatation technique by using salt solution and formalin – ether sedimentation technique. All large feline members in Zoo Negara were infected with gastrointestinal parasite. A total of six species of gastrointestinal parasites recovered including four nematodes (*Toxocara cati*, *Ancylostoma* spp., *Toxascaris leonina*, and *Oxyuris* spp.), a cestode (*Spirometra* spp.) and a protozoa (unknown). This study suggests that among different helminth infections, the occurrence of nematode infections was higher (100 %; n=10/10) than cestode infection (10 %; n=1/10) and protozoa infection (10 %; n=1/10). Majority (n=5/10) of the large felines had mixed infections of *Toxocara* spp. and *Ancylostoma* spp.

**Keywords:** large felines, Zoo Negara, gastrointestinal parasites, formalin – ether sedimentation, simple floatation.



## 1.0 INTRODUCTION

“Zoo” is referring to any area where the wildlife animals are kept with the purposes of conservation, education, research or recreation, and open to the public as stated in The Wildlife Conservation (Operation of Zoo) Regulations 2012 under the Wildlife Conservation Act 2010. In the nature, wild animals live in a big area and usually have consequently very low genetic resistance against parasitic infection mainly due to the low exposure towards the parasites itself. However, when herds of these wild animals are kept in captivity, or in zoological gardens, parasitic infections might become worse and able to pose a serious threat to the endangered species by causing mortality as mentioned by Muoria et al.(2005). Infectivity by the gastrointestinal parasites may affect the host survivability both directly and indirectly by reducing the hosts’ immunity and affecting the physical condition with pathological effects such as blood loss, tissue damage and spontaneous abortion (Thawait, 2014).

This present study is conducted because there have been few detailed and comprehensive research available concerning the gastrointestinal parasites in wild animals maintained in zoological garden. Therefore, this project would be an attempt to study the actual status of gastrointestinal parasites infecting the large felines maintained under captivity in Zoo Negara. Other than that, the results obtained would be essential to expand the understanding on parasitic occurrence in these large felines.

The objective of this study is to investigate the occurrence of gastrointestinal parasites in large felines in Zoo Negara. The null hypothesis is, there is no

with the occurrence of gastrointestinal parasites in large felines kept in captivity. Moreover, it would be interesting to screen the meats given to these large felines. In this study the oocysts were not sporulated and therefore it is highly proposed to sporulate any oocyst found to get specific species identification.

Finally, polymerase chain reaction (PCR) is highly urged in order to confirm the parasite species rather than depending only based on morphological findings under the microscope.

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