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Morphobiological and molecular studies on some helminth parasites of cats

Thesis presented

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LIST OF ABBREVIATIONS

ES	esophagus	**A**	anus
CA	caudal appendage	**AC**	acetabulum
VGS	ventro genital sac	**Alex.**	Alexandria
E	eggs	**BC**	buccal cavity
C	caecum	**BT**	Bicuspid teeth
TH	taenoid hooks	**CAL**	cervical alae
VSPH	vaginal sphincter	**CI**	Confidence inteval
DPX	Distrene,Plastitiser,Xylene	**CL**	claspers
VS	ventral sucker	**DPI**	Day post infection
HFO	hold fast organ	**EMC**	Encysted metacerceria
OLM	ocular larval migrans	**EMC**	eosinophilic meningiocephalitis
EP	egg packet	**EO**	excretory opening
T	testes	**EXB**	excretory bladder
RH	rostellar hooks	**EXCP**	excretory pore
GP	genital pore	**EXP**	expulsor
EXC	excretory canal	**FBT**	Food born trematodes
UB	uterine branches	**FP**	finger like process
SU	suckers	**GIT**	Gastrointestinal tract
OS	oral sucker	**L**	lips
GS	genital sucker	**Lab**	laboratory
RTH	rose thorn hooks	**MS**	male spicules
SV	seminal vesicle	**P.M**	Post mortem
VLM	visceral larval migrans	**PCR**	polymerase chain reaction
CS	cirrus sac	**P-P**	Pedunculated papailla
O	ovary	**S**	spines
P	pharynx	**TE**	tail end
EC	egg capsule	**TO**	tribocytic organ
VG	vitelline glands	**TP**	Total prevalence
R	rostellum	**U**	uterus
PP	pre pharynx	**V**	vulva
VD	vas deference	**VGC**	ventro genital complex
HE	hexacanth embryo	**VO**	vulvar opening

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SUMMARY

Cats are widespread animals everywhere, stray one became numerous in the streets of Egypt, living nearby human dwelling, abattoirs, gardens, and on animal farms. The need to a lot of information is required about the parasites and diseases they harbor, and the threat that may pose to humans, pets and farm animals.

This study was conducted from Jan. 2018 to Jan. 2019 on 100 cats, were trapped from different regions in Alexandria city. In the laboratory; humanely killing to the cats, viscera and GIT examined for helminthes.

The overall prevalence of gastrointestinal parasites infection was 80%. The established parasites in postmortem examination consisted of 12 species of trematodes; *Heterophids* spp., were 20% and included on *Heterophyes heterophyes* with 10%, *Heterophyes dispar* was 5%, *Heterophyes equalis* was 3%, *Haplorchis yokogawai* was 5%, *Haplorchis pumillo* was 5%, *Haplorchis taichu* was 4%, *pygidiopsis geneta* was 5%, *Stellantchasmus falcatus* 3%, *Dexiogonimus ciureanus* 1%, *Mesostephanus spp.* was 6%, *Prohistomum spp.* was 2%, *Echinochasmus perfoliatus* was 4%,. 3 species of cestodes; *Dipylidium caninum* was 60%, *Joyeuxiella spp.* was 4%, *Diplopylidium spp.* was 4%. 3 species of nematodes; *Toxocara cati* was 40%, *Toxascaris leonine* was 7%, *Physaloptera spp* 1%.

This study proved that cats act as reservoirs for many parasites of zoonotic importance e.g. intestinal trematodiasis due to all trematodes which were recorded in this study are transmitted by eating row or ill-cooked fish and most of them have been reported in humans causing health problems and may represent emerging disease according to **Keiser and Utzinger (2005)** and cats act as final host for food born

trematodes. Also the current study reports a high prevalence of EMC in edible Tilapia fish in Alexandria, Egypt. Moreover, half of these EMC were for *Heterophyes* spp.

Dipylidium caninum and *Toxocara cati* are the most importance zoonotic parasites which detected in high prevalence.

Another deep biological studies on Heterophyid worms in cats fed on fish encysted metacerceria and detection of resulted adult worms and its prevalence.

Biological experimental study on *Toxocara cati* in experimental animals to detect migratory patterns and histopathological changes inside its tissues.

Further molecular studies on some isolates of *Toxocara cati* to detect gen sequencing, phylogenetic analysis, and gen distribution within other types around the world through gen bank.

Conclusion and Recommendations:

Results of this study showed that 80% of stray cats were infected with at least one zoonotic parasite and provided with important information about the prevalence and the kind of parasites present in free roaming cats in Alexandria city. The high prevalence of EMC in edible Tilapia fish in Alexandria, Egypt were *Heterophyes* spp, the serious zoonotic digenetic trematode

From the veterinary and medical points of view, stray cats represent potential sources of disease therefore, care must be taken to diminish the risk of infection to animals and human beings especially children mainly the zoonotic character of some parasites found in this study must serve as an alert to public health agencies, veterinarians and pet owners, especially when data from approximately 40 years ago

according to **Langenegger and Lanzieri (1963)** show that cats, although infected in different intensities, are still parasitized by the same species despite of the availability of new chemo prophylactic protocols.

Veterinarians and Physicians in practice are often the best and only source of information about increasing the level of awareness of feline zoonotic parasites for pet owners. Examining household cats regularly for parasitic infection and preventing stray cats to access to animal farms.

Education has an important role in reducing the prevalence of infections mainly health education and control programs for fish-borne zoonotic parasites.

Methods for prevention and control of the parasites be implanted and executed in order to reduce the environmental contamination with infective eggs and larvae e.g. pick up and disposal of pet feces.

Optimal care must be taken to diminish the risk of pest infection to animals and humans by undertake appropriately timed preventive anthelmintic and pest medications.