

# OCCURRENCE OF *TOXASCARIS LEONINA* IN CAPTIVE LIONS AT THIRUVANANTHAPURAM ZOOLOGICAL GARDENS

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## ABSTRACT

Wild carnivores have higher prevalence of parasitic diseases compared to other captive animals. *Toxascaris leonina* is a common finding during the faecal examination of captive lions in zoos all over the world. This study reports the occurrence of *T. leonina* ova in the faecal sample of captive lions present at Thiruvananthapuram zoological gardens and its successful treatment with oral administration of pyrantel palmoate.

**Keywords:** *Toxascaris leonina*, lion, pyrantel palmoate

## INTRODUCTION

Parasitic diseases constitute one of the major cause of mortality and morbidity in wild animals kept under captivity. Among them carnivores have higher prevalence of helminthic parasites (Varadharajan *et al.*, 2001). Ascarids are the major burden of parasitic infection in wild carnivores and are established as a continuous standing problem in most of the zoos through the world (Sayid *et al.*, 1997). Lions were found to be infected with *T. leonina* (4 out of 4 lions) in Rangpur Recreational Garden and Zoo in Bangladesh (Khatun *et al.*, 2014). Two out of five lions in

Thiruvananthapuram zoo were found to be positive for *T. leonina* on coprological examination (Varadharajan *et al.*, 1999).

## CASE HISTORY AND OBSERVATION

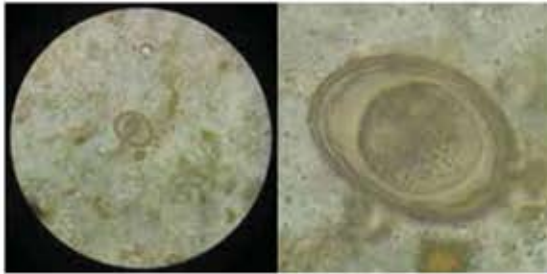
As a part of routine surveillance of animals in zoo, approximately two gram of faecal sample was collected from two lions kept under captivity in Thiruvananthapuram zoological gardens (Fig. 1). The samples were collected in a clean plastic container and was examined in the zoo laboratory.



**Fig. 1.** 'Ayush' was one among the two lions tested positive for *T. leonina*

The samples were examined using standard qualitative (sedimentation and floatation) test. On microscopic examination at 10x magnification several eggs of parasites were found (Fig. 2) and at 40x magnification the eggs were identified

based on morphological features (Okulewicz *et al.*, 2012).



**Fig. 2.** *T. leonina* ova at 40x magnification (Left), oval shaped thick shelled ova (Right)

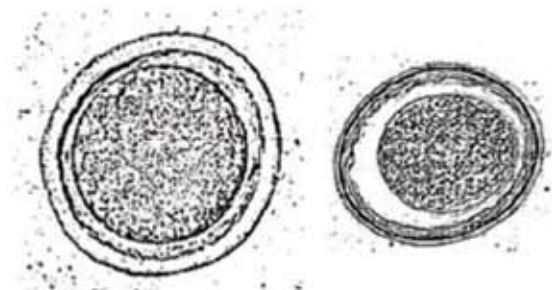
The ova of *T. leonina* could be differentiated from that of *Toxocara* species based on the difference in morphological features (Fig. 3). The egg shells of *Toxocara* species are pitted with different pit dimensions compared to the eggs of *T. leonina* which are smooth walled with translucent in appearance (Okulewicz *et al.*, 2012).

### TREATMENT AND DISCUSSION

The animals were baited with pyrantel palmoate @ 5 mg/kg BW orally for three days (Nemocid® suspension 10 ml, pyrantel palmoate 50 mg/ml, IPCA Laboratories Ltd.). Faecal sample examination after 7, 14 and 30 days of deworming did not reveal any eggs of *T. leonina*. Similarly Singh *et al.* (2006) revealed that treatment with pyrantel palmoate was found to be 100 per cent effective for *T. leonina* infection at a single dose of 10 mg/kg, but recurrence was noticed from 30 days post treatment onwards.

Oral baiting of large quantity of dewormers like pyrantel palmoate in meat would lead to rejection of meat by the lion, so a low dose long duration protocol was followed for increasing the palatability of

baited meat. There was no reappearance of *T. leonina* infection even after 30 days post treatment with pyrantel palmoate. But Singh *et al.* (2006) and Dehuri *et al.* (2013) reported reappearance of *T. leonina* infection in lions several days post treatment when pyrantel pamoate and Levamisole were used for deworming. This may be due to direct life cycle of *T. leonina*, development of infective stages within a week and housing patterns of lions in groups in zoological parks (Dehuri *et al.*, 2013).



**Fig.3.** Morphological comparison of *Toxocara cati* (Left) and *T. leonina* (Right)

### SUMMARY

Occurrence of *T. leonina* was confirmed in all the lions of Thiruvananthapuram zoological garden. Pyrantel palmoate was administered orally at the rate of 5 mg/kg body weight for consecutive three days for the effective treatment.

### ACKNOWLEDGEMENT

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### REFERENCES

- Dehuri, M., Panda, M.P., Mohanty, B.N. and Sahoo, N. 2013. Prevalence and



- evaluation of anthelmintics against nematodes in lions (*Panthera leo*) of Nandankanan Zoo. *J. Wild Res.* **1**(1): 5-7.
- Khatun, M.M., Begum, N., Mamun, M.A.A., Mondal, M.M.H. and Azam, M.S.U. 2014. Coprological study of gastrointestinal parasites of captive animals at Rangpur Recreational Garden and Zoo in Bangladesh. *J. Threat. Taxa.*, **6**(8): 6142-6147.
- Okulewicz, A., Perek-Matysiak, A., Buńkowska, K. and Hildebrand, J. 2012. *Toxocara canis*, *Toxocara cati* and *Toxascaris leonina* in wild and domestic carnivores. *Helminthologia*, **49**(1): 3-10.
- Sayid, A. and Mohammed, B. 1997. Prevalence and treatment of *Toxascaris leonina* in naturally infected carnivores in old Khartoum Zoo. *Sudan J. Vet. Res.* **15**: 31-38.
- Singh, P., Gupta, M.P., Singla, L.D., Singh, N. and Sharma, D.R. 2006. Prevalence and chemotherapy of gastrointestinal helminthic infections in wild carnivores of Mahendra Choudhury Zoological Park, Punjab. *J. Vet. Parasitol.* **20**(1): 17-23.
- Varadharajan, A., Pythal, C. and Subramanian, H. 2001. Investigation on the prevalence of helminth parasites of wild animals in the thrissur zoo, Kerala. *Cheiron (India)*, **B**: 12-15.
- Varadharajan, A. and Pythal, C. 1999. Parasites of wildlife-I. A preliminary investigation on the parasites of wild animals at the Zoological Garden, Thiruvananthapuram, Kerala. *Zoos' Print J.* **14**(12): 159-164.

