

Prevalence of Helminthic Infections Among Captive Elephants in Anamalai Tiger Reserve, Coimbatore, Tamil Nadu

A. Aruljothi¹, K.Sivakumar²

Assistant Professor, Veterinary University Training and Research Centre, Coimbatore, TANUVAS, Chennai, India¹

Associate Professor and Head, Veterinary University Training and Research Centre, Coimbatore, TANUVAS,
Chennai, India²

ABSTRACT: The captive elephants are managed in semi - wild conditions in wild life sanctuaries. The faecal samples from 39 captive elephants were received from the Forest Veterinary Officer, Office of the Conservator of Forest, Coimbatore on 10.10.2011, 21.10.2011, 18.10.2012 and 24.06.2013. The dung samples were collected within few hours of defaecation and sent to Veterinary University Training and Research Centre, Coimbatore. The samples were subjected to coprological analysis using direct microscopic examination and the sedimentation technique. The results of the coprological analysis are presented in Table. Among the 39 elephants examined for parasitic prevalence, 9 elephants were found positive for helminthic infections. It was also observed that three of the elephants were found infected at three times of examination.

KEYWORDS: Captive elephants, Faecal samples, Coprological Analysis, Helminthic infections.

I. INTRODUCTION

In Tamil Nadu, approximately 150 captive elephants are maintained under three different managerial systems: private, temple and forest department (Vanitha, 2007; Vanitha *et al.*, 2010). The captive elephants in the temple system are managed with very limited mobility and are used mainly for religious and cultural ceremonies. Asian elephants (*Elephas maximus*) are susceptible to gastrointestinal parasitic infection in the wild (Watve, 1995; Dharmarajan, 2000; Vidya and Sukumar 2002) and in captivity are often confined to small enclosures and / or maintained in isolation (Vanitha, 2007) in damp unhygienic conditions that may result in enhanced susceptibility to parasitic disease.

II. RELATED WORK

The captive elephants are managed in semi - wild conditions in wild life sanctuaries. There have been studies on the prevalence of parasitic infection in captive elephants managed in nature reserves (Arunachalam *et al.*, 2007), Zoological gardens (Suresh *et al.*, 2001) and Hindu temples (Saseedran *et al.*, 2003). The present study is to identify the parasitic prevalence in the captive elephants maintained at Anamalai Tiger Reserve in Coimbatore district.

III. MATERIALS AND METHODS

The faecal samples from 39 captive elephants were received from the Forest Veterinary Officer, Office of the Conservator of Forest, Coimbatore on 10.10.2011, 21.10.2011, 18.10.2012 and 24.06.2013. The dung samples were collected within few hours of defaecation and sent to Veterinary University Training and Research Centre, Coimbatore. The details of the age and sex of the elephants were given by the Forest Department.

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 7, Issue 7, July 2018

The samples were subjected to coprological analysis using direct microscopic examination and the sedimentation technique. In the sedimentation technique, a small amount of faecal sample was emulsified with 10 ml of water in a centrifuge tube and was centrifuged for 2 minutes at 3000 rpm. The supernatant was poured off carefully and a drop of the sediment was placed on a slide and examined under the microscope.

IV. EXPERIMENTAL RESULTS AND DISCUSSION

Among the 39 elephants examined for parasitic prevalence, 9 elephants were found positive for helminthic infections. All the elephants found positive for helminthic infections were infected only with Strongyle species except one. Only one elephant was found infected with both Strongyle species and Anoplocephala species. Both eggs and worms of Strongyle species were identified from the infected elephants. It was also observed that three of the elephants were found infected at three times of examination.

Mbaya *et. al.*, (2013) recorded the Strongyle infections in African elephants of the Chad Basin National Park. They also opined that the intrinsic and extrinsic factors played a role on the prevalence and worm burden of gastro intestinal parasites of elephants of the Chad Basin National Park.

In the present study only one elephant was infected both with Strongyle species and Anoplocephala species. This is similar to the observation made by Kinsella *et. al.*, (2004) and they revealed the presence of a Schistosome and a complex of intestinal Strongylids and Ciliates from the African Forest elephants from the Republic of Congo and Central African Republic. Watve and Sukumar (1997) suggested that the Asian elephants with longer tusks have lower parasitic infection. Vanitha *et. al.*, (2010) observed that the intestinal parasite prevalence was higher in the captive elephants of the forest department system compared to temple and private systems. In the forest department most of the captive elephants are managed at the timber camps in social groups, sharing the natural habitat of wild elephants have higher prevalence of parasites (Dharmarajan, 2000; Vidya and Sukumar 2002).

It was observed that three elephants have been found to be infected at three times of faecal examination. This could be due to the social lifestyle along with the semi-natural environment shared by wild elephants enhancing the susceptibility to parasite infection from both within the system as well as from wild. The repeated infection may also be due to the development of resistance to similar antiparasitic drugs. Hence this study suggests that the frequent deworming with different parasiticides and repeated faecal examinations are required before and after deworming during different seasons.

V. CONCLUSION

An attempt was made to study the prevalence of helminthic infection among 39 captive elephants maintained by the Forest Department at Anamalai Tiger Reserve, Coimbatore through coprological analysis using direct microscopic examination and the sedimentation technique. The faecal samples were collected four times over a period of 3 years from all the 39 captive elephants. Nine elephants were positive for helminthic infections and all but one was infected with only Strongyle species and the one with both Strongyle species and Anoplocephala species. Both eggs and worms of Strongyle species were identified. It was observed that three elephants were found infected at three times of examination. Hence it is suggested that the captive elephants may require periodical faecal examination and deworming with different parasiticides at different seasons to maintain good health.

REFERENCES

- [1] Arunachalam, K., Raman, M. and Hari Krishnan, T.J. (2007) Tamil Nadu. Zoo's Print Journal **22** (11): 2898 – 2899.
- [2] Dharmarajan, G. (2000) Epidemiology in wild and domestic herbivores at the Mudumalai Wildlife Sanctuary, Tamilnadu. M.V.Sc., Thesis submitted to Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, p. 75.
- [3] Kinsella, J.M., Deem, S.L., Blake, S. and Freeman, A.S. (2004) Comparative Parasitology. **71** (2): 104-110.
- [4] Mbaya, A.W., Ogwiji, M. and Kumshe, H.A. (2013) Pakistan Journal of Biological Sciences, **16**: 1152 – 1158.
- [5] Milind, G., Watve and Sukumar, R. (1997) Current Science. **72** (11): 885 – 889.
- [6] Saseedran, P.C., Rajendran, S., Subramanian, H. Sasikumar, M., Vivek, G. and Anil, K.S. (2003) Zoo's Print Journal **19** (3): 1422.
- [7] Suresh, K.P., Choudhuri, C., Nalini Kumari, K., Md. Hafeez and Hamsa, P.A. (2001) Zoo's Print Journal **16** (7): 539 – 540.
- [8] Vanitha, V., (2007) Studies on the status and management of captive Asian elephants (*Elephas maximus*) at Tamilnadu in southern India Ph.D., Thesis. submitted to the Bharathidasan University. Tiruchirappalli, India.



ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 7, Issue 7, July 2018

- [9] Vanitha, V., Thiyagesan, K. and Baskaran, N. (2010) Journal of the Bombay Natural History Society **107** (1): 30 – 37.
- [10] Vidya, T.N.C and Sukumar, R. (2002) Journal of Bioscience **27**: 521- 528.
- [11] Watve, M.G., (1995). Helminths parasites of elephants ecological aspects, pp. 289 – 295. In: Daniel, J.C and Daty, H.S. (eds) A week with elephants: Proceedings of the International Seminar on the Conservation of Asian Elephants. June 1993; Oxford University Press, New Delhi.
- [12] Watve, M.G. and Sukumar, R. (1997) Current Science 72 (**11**): 885-889.