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## Prevalence of gastro-intestinal parasitic load of Asian elephants (*Elephas maximus*) in Unakoti, Tripura

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### Abstract

The present study was designed to evaluate the prevalence of gastro-intestinal parasitic load of Asian elephants in Unakoti district of Tripura, during the period from August, 2016 to May, 2017 which was previously lacking. The parasitic prevalence was evaluated by direct microscopic identification of helminth eggs in faecal samples (n = 50) collected from different age/sex groups of elephants. The faecal samples of 68 percent elephants revealed presence of parasitic ova, whereas 32 percent did not have any parasitic ova in their faecal samples. The incidence of *Fasciola* spp. was found to be highest followed by *Paramphistomum* spp., *Ascaris* spp., *Strongyles* spp. and *Oesophagostomum* spp. In conclusion, routine faecal examination is suggested to adopt proper deworming procedure for keeping these elephant population physically healthy.

**Keywords:** prevalence, faecal sample, parasites, Asian Elephant, Tripura

### 1. Introduction

The Asian elephants (*Elephas maximus*) are the largest living land animals in Asia and this species is widely distributed in India including Tripura<sup>[1]</sup>. The pre-eminent threats to the Asian elephant today are habitat loss, degradation and fragmentation which are the major causes in human-elephant conflicts<sup>[2]</sup>. Asian elephant is considered as endangered species and it needs special attention. In India, the native Asian elephants are commonly utilized for timber logging, transportation of materials where normal machineries are useless and religious occasions in Hindu temples<sup>[3]</sup>. However, in North Eastern Region of India, no elephants are kept in temples for religious purpose. Asian Elephants are mostly susceptible to gastro-intestinal parasitic infestation in the wild and in captivity<sup>[4]</sup>. In captivity, elephants are often confined to small enclosures and/or maintained in isolation in damp unhygienic conditions that may result in enhanced susceptibility to parasitic diseases<sup>[5, 6]</sup>. Gastro-intestinal parasitism may leads to weight loss, loss of productivity etc. To the authors' knowledge, no study has been conducted to evaluate the prevalence of gastro-intestinal parasitic load of Asian elephants in the study areas. In this context, this study was designed to find out the prevalence of parasitic infestation of Asian elephants in Unakoti district of Tripura.

### 2. Materials and Methods

A total number of fifty (50) faecal samples were collected from different Asian elephants of Unakoti, Tripura, during the period from August, 2016 to May, 2017 for routine faecal examination. The faecal samples were processed and examined in laboratory for presence of parasitic ova as per the standard method<sup>[7]</sup>. The data generated on parasitic prevalence was compiled and analyzed by Microsoft excel 2010 in percentage scale to compare for each attributes.

### 3. Results and Discussion

In the present study, trematodes and nematodes were detected in the faecal samples of Asian elephants (Table 1).

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**Table 1:** Prevalence of gastro-intestinal parasitic load of Asian elephant

Species of parasites		No. of positive samples (%)	Overall prevalence (%)
Trematode	<i>Fasciola</i> spp.	15 (44.12%)	30
	<i>Paramphistomum</i> spp.	7 (20.59%)	14
Nematode	<i>Ascaris</i> spp.	5 (14.71%)	10
	<i>Strongyles</i> spp.	5 (14.71%)	10
	<i>Oesophagostomum</i> spp.	2 (5.89%)	4
Total		34	68%

Fifty Asian elephants were screened for prevalence of parasitic infestation. The faecal samples of overall 34(68%) elephants revealed presence of mixed species of parasitic ova, whereas 16 (32%) revealed no parasitic ova in the faecal samples.

In this study, the incidence of *Fasciola* spp. was found to be highest 15(44.12%) followed by *Paramphistomum* spp. 7(20.59%), *Ascaris* spp. 5(14.71%), *Strongyles* spp. 5(14.71%) and *Oesophagostomum* spp. 2(5.89%). These findings were in accordance with the findings of previous researcher in Asian elephants kept in different temples of Gujrat, India [8]. However, among the parasites, *Strongyles* spp. was found to be the most predominant species in Asian elephants by others [3, 9]. During this study, no incidence of *Anoplocephala* spp. and *Brivitellobilharzia nairi* was recorded. In contrast, incidence of *Anoplocephala* spp. (9.09%) and *Brivitellobilharzia nairi* (9.09%) was recorded by previous researchers in wild Asian elephants [3]. The high prevalence of *Fasciola* spp. among the different parasites in the present study might be due to the preference of the elephants to water bodies and habit of soil licking, which might be leading to higher exposure to intermediate host particularly snails. The parasitic infested elephants revealed clinical signs like anorexia, depression, dullness, lachrymation, dehydration, semi loose faeces along with the vices of soil licking. Previous researcher reported that gastro-intestinal nematode infestation was associated with frequent clinical illness including colic, diarrhoea and dependent oedema in elephants managed in captivity in Kerala, India [10]. In this study, mixed parasitic infestation was reported in all the infested elephants. The probable causes of mixed parasitic infestation might be due to transportation of elephants from one place to other for work purposes which could have favoured the mixed parasitic infestation as reported by early researcher.

#### 4. Conclusion

Gastro-intestinal parasitism is generally not life threatening to healthy animals. However, changes in disease dynamics leading to diminish individual and/or population health, reproductive success and fitness when combined with other threats including concurrent disease, malnutrition, significant stressors, debilitated immunocompetence and decreased genetic variability. Therefore, Routine faecal examination for accurate diagnosis of infested parasitic condition is suggested to adopt proper deworming procedure for keeping these elephant population physically healthy.

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