A COPROLOGICAL SURVEY OF PARASITES OF SEVEN MAMMAL GROUPS AT SILENT VALLEY NATIONAL PARK, KERALA

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Abstract

During an ecological study in Silent Valley National Park, fecal samples of seven mammalian taxa were collected and analysed for parasites. The analysis revealed that Lion-tailed Macaques, Nilgiri Langur, Leopard, Porcupine, Small Indian Civet and Toddy Cat were hosts to nematodes, except Sloth Bear. Cestode infestation was recorded from Porcupine and Small Indian Civet and trematodes were found in the feces of Leopard and Toddy Cat.

Introduction

Silent Valley National Park is a rectangular table land in the southwestern corner of Nilgiris and is considered one of the most valuable gene reserves of the country. This 8,952 ha. pristine forest of Kerala State lies between the latitudes of 10°15' and 11°25'N and the longitudes 76°21' and 76°33'E. The height varies from 658 to 2383 m. The average ambient temperature is 23.8°C and a rainfall above 3000 mm. Out of the 60 species of mammalian fauna in the forests of Kerala, around 40 species are among the better known large and medium sized ones (Balakrishnan & Xavier, 1995). The ecological insulation of this National Park provides abode to many a number of mammals that have become extinct elsewhere.

In conjunction with an ecological study in the Silent Valley National Park, fecal samples were collected from the Lion-tailed Macaque (*Macaca silenus*), Nilgiri Langur (*Trachypithecus johnii*), Sloth Bear (*Melursus ursinus*), Leopard (*Panthera pardus*), the Indian Porcupine (*Hystrix indica*), the Small Indian Civet (*Viverricula indica*), and the Common Palm Civet or Toddy Cat (*Paradoxurus hermaphroditus*) for a parasitological investigation.

Materials and Methods

As part of an ecological survey conducted in the Silent Valley National Park, between June 1994 and December 1994, forty five fresh fecal samples were collected along tracks, roads, trails and river sides. It was identified to be of seven different mammal groups. When defecation was not directly observed, samples were differentiated by their size, animal presence and presence of scraps associated with them (Rabinowitz & Walker, 1991). Samples preserved in 10% formalin, were examined for parasite eggs, larvae, cysts, and oocysts by centrifugal salt floatation and sedimentation techniques.

Results and Discussion

Analysis of the samples indicated that parasitism was highly prevalent among many of the mammal groups in this National Park. Forty two of the 45 samples were found to be positive for parasitism. The prevalance of various species of parasites and the probable identity of those parasites are presented in Table 1. Of the 45 samples examined 58 per cent were found positive for parasites.

All Lion-tailed Macaque fecal samples collected were infected with nematodes of *Trichuris* species and *Oesophagostomum* species. Presence of *Trichuris* species was more when compared to the *Oesophagostomum* species. The presence of the two nematode parasites may be related to the feeding habit of the Lion-tailed Macaques. They are arboreal and infected animals can contaminate all feeding material in the process of their defecation from the tree tops, as it gets scattered. The ingestion of food, contaminated with eggs of the parasite and their third stage larvae causes infection (Soubsby, 1982). The same parasites were identified in the fecal samples of Nilgiri Langur which also eats fruits, flowers, leaves, shoots and buds (Balakrishnan & Xavier, 1995).

Nematodes of *Ancylostoma* species and trematodes of *Paragonimus* species were identified from fecal samples of Leopards. These parasites have been commonly reported from wild felids (Patton *et al.*, 1994). Ancylostomes are reported to infect a host through different ways viz. oral, dermal, transcolostural and prenatal routes (Soulsby, 1982; Georgi & Georgi, 1990). The carnivorus feeding habit of Leopards make them susceptible to these parasites.

Porcupines which feed on roots, fruits, and bark are very common in the forests. Nematodes of *Trichuris* species and *Ascaris*

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Table 1. Parasitic incidence in seven mammal groups of Silent Valley National Park.

Animal	Scientific Name	Sample Size	No. infested	Nematodes	%	Cestodes	%	Trematodes	%
Lion-tailed Macaque	*Macaca silenus*	3	3	*Trichuris* sp. *Oesophagostomum*	66.67 33.33	-	-	-	-
Nilgiri Langur	*Trachypithecus johni*	11	8	*Trichuris* sp. *Oesophagostomum*	87.5 75	-	-	-	-
Sloth Bear	*Melursus ursinus*	2	0	-	-	-	-	-	-
Leopard	*Panthera pardus*	4	3	*Ancylostoma* sp.	100	-	-	*Paragonimus* sp.	100
Porcupine	*Hystrix indica*	5	4	*Trichuris* sp. *Ascaris* sp.	50 50	*Hymenolep* sp.	25	-	-
Small Indian Civet	*Viverricula indica*	8	3	*Ascaris* sp.	66.67	*Diphylobothrium* sp.	33.33	-	-
Toddy Cat	*Paradoxurus hermaphroditus*	12	5	*Ancylostoma* sp.	100	-	-	*Paragonimus* sp.	20

species were identified in the fecal samples collected in the present survey. One sample was positive for *Ancylostoma* ova. Cestodes of *Hymenolepis* species were also identified in one sample.

Among the smaller mammals, Small Indian Civet scat samples contained nematode parasites of *Ascaris* species and cestode parasites of *Diphylobothrium* species. The samples from Toddy Cats had nematodes of *Ancylostoma* species and trematodes of *Paragonimus* species. The Sloth Bear was the only animal in which no parasites could be identified. Low sample size may be a reason for the absence of parasite ova in this animal.

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