

PARASITES OF HOUSE GECKO SPECIES *GEHYRA MUTILATA* AND *HEMIDACTYLUS FRENATUS*: A PRELIMINARY SURVEY FROM TWO SELECTED URBAN SITES IN SRI LANKA

P.D. Mahagedara and R.S. Rajakaruna*

Department of Zoology, Faculty of Science, University of Peradeniya

Introduction

Parasitism remains a neglected aspect of Sri Lankan reptile biology, hence little is known about the parasites that infect geckos. As part of a broader survey of the parasites of endemic element of Sri Lankan vertebrates, Cruz and Ching (1975) carried out the first study on helminths of three gecko species; *Hemidactylus brookii*, *H. triedrus lankae* and *Cnemaspis kandianus*. Subsequently, two more studies have been carried out, one on the golden gecko, *Calodactyloides illingworthorum* inhabiting Nilgala fire savanna in Monaragala district (de Silva *et al.*, 2004) and another on geckos of Knuckles massif (de Silva *et al.*, 2005). Here we aim to identify the parasites found in two house gecko species, the four-clawed gecko (*Gehyra mutilata*) and the common house gecko (*Hemidactylus frenatus*) and determine prevalence and intensity of infections. *Gehyra mutilata* has a wide distribution, ranging from Madagascar, Southeast Asia, and Japan through Indo-Australian archipelago to pacific islands and coastal Mexico while *H. frenatus* has a worldwide subtropical-tropical distribution, although it has a patchy occurrence outside Asia.

Materials and Methods

Both *G. mutilata* and *H. frenatus* are nocturnal and found in houses almost everywhere in Sri Lanka. Specimens

were caught from two selected urban sites in Kandy and Kegalle districts from August 2007 to January 2008. External parasites were examined soon after anesthetizing the geckos and the parasites were slide mounted and identified. Specimens were dissected and the gut, body cavity and different organs were examined for parasites. Blood smears were prepared and stained with Leishman's dye. Parasites isolated were slide mounted, stained with Borax Carmine and identified. Smears were prepared from the gut content and were fixed in Shouning's fixative and then double stained in Harris' Heamatoxyline and Eosine. The prevalence and the mean intensity of different types of parasites were determined. The difference of prevalence in overall infection was compared between the male and female, two sites and two species using a chi square test.

Results and Discussion

A total of 45 geckos from both species were examined. The overall prevalence and the intensity of infections in the male and female geckos collected from the two sites are given in the Table 1. The parasitic fauna found in the two species consisted of five broad groups including mites, nematodes, digenetic trematodes, acanthocephalans and protozoan ciliates (Table 2). A mite

species belonging to the genus *Geckobia* was identified from *H. frenatus* with a prevalence of 19% (4/21) and an average intensity of five (Table 2). Of the endoparasites, nematode infection was the most common type which included pin worms (Family: Oxyuridae), with a high prevalence of 41.6% in *G. mutilata* and 28.6% in *H. frenatus*. One unidentified nematode species was isolated from the small intestine. In addition to the adult worms, strongyle type eggs and three types of unidentified nematode eggs were also found in the gut of *H. frenatus*. Previously, strongyloide and strongyle type helminth eggs have been reported in the golden gecko, *C. illingworthorum* (de Silva *et al.*, 2004). *Acanthocephalus* sp. (present only as cystacanths) and ciliates were found in *H. frenatus*. In a previous study *Acanthocephalus serendibensis* has been reported from the small intestine of Kandyan day gecko (Cruz and Cheng, 1975). Furthermore, one unidentified fluke was found in both gecko species.

Cruz and Cheng (1975) identified a digenetic trematode belonging to genus *Paradistomum* from the small intestine of *H. brookii pavimaculatus*. There were no parasites in the blood or body cavity of the geckos dissected. However, Cruz and Ching (1975) have reported two blood parasites, *Haemogregarina treidri* and *Trypanosoma pertenu* from *H. triedrus lankae*.

There was no significant difference in the prevalence of infection between the two study sites, Kandy and Kegalle ($\chi^2=0.55$, $df=1$, $p>0.05$). However, a significant difference was observed in the overall infection between the two sexes ($\chi^2=5.20$, $df=1$, $p<0.05$) where females had a significantly higher prevalence than males. Even though there was no significant difference in the prevalence of parasites between the two species ($\chi^2=1.16$, $df=1$, $p>0.05$), *H. frenatus* harboured parasites of all five groups while *G. mutilata* had only nematodes and flukes (Table 2).

Table 1. Overall prevalence and intensity of infections in the two gecko species.

Host	Site	Prevalence	Intensity	Sex	Prevalence	Intensity
<i>G. mutilate</i> (24)	Kegalle 12	8/12 (67%)	3	Male 7	2/7 (29%)	1
	Kandy 12	5/12 (42%)	2	Female 17	10/17 (59%)	3
<i>H. frenatus</i> (21)	Kegalle 10	3/10 (30%)	1	Male 7	1/7 (14%)	1
	Kandy 11	5/11 (45%)	2	Female 14	8/14 (57%)	5

Table 2. Site of infection, prevalence and intensity of parasites (adults and eggs) recorded from *G. mutilata* and *H. frenatus*.

Type of Parasite	Site of infection	Prevalence (%)		Mean intensity (Range)	
		<i>G. mutilata</i>	<i>H. frenatus</i>	<i>G. mutilata</i>	<i>H. frenatus</i>
Mites	Skin—underarm, between toes	-	4/21 (19%)	-	5 (2 – 7)
Nematodes	Small intestine	10/24 (42%)	6/21 (29%)	4 (1 – 8)	3 (1 – 3)
Digeneans (Flukes)	Stomach & Small intestine	3/24 (12.5%)	1/21 (5%)	2 (1 – 4)	1
Acanthocephalans	Small intestine	-	2/21 (10%)	-	7 (5 – 10)
Ciliates	Stomach	-	1/21 (5%)	-	20

Conclusion

The two gecko species harboured a wide range of parasites but the types of parasite varied between the two species. While this provides the first empirical evidence of a survey of parasites from *G. mutilata* and *H. frenatus*, it highlights the need for further studies specifically to identify these parasites and eggs to species level.

References

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