HELMINTHS INFECTING *Mabuya dorsivittata* (LACERTILIA, SCINCIDAE) FROM A HIGH-ALTITUDE HABITAT IN ITATIAIA NATIONAL PARK, RIO DE JANEIRO STATE, SOUTHEASTERN BRAZIL

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ABSTRACT

We analysed the helminth fauna associated with the lizard *Mabuya dorsivittata* (Scincidae) from a high-altitude area in Itatiaia National Park, Rio de Janeiro State, Brazil. Of the 16 lizards examined, 12 (75%) were infected by at least one helminth. Only two helminth species were found: *Physaloptera retusa* and *Skrjabinodon spinosulus* (Nematoda), the former with a prevalence of 68.8% and a mean infection intensity of 3.6 ± 2.8 and the latter with a prevalence of 56.3% and a mean infection intensity of 2.6 ± 2.6. The helminth fauna of the studied population of *Mabuya dorsivittata* was considerably poorer than those of other previously studied populations of congeners.

Key words: Reptilia, lizard, Scincidae, *Mabuya dorsivittata,* Itatiaia National Park, Atlantic Rainforest.

RESUMO

Helmintos infectando *Mabuya dorsivittata* (Lacertilia, Scincidae) em uma área de altitude no Parque Nacional do Itatiaia, Rio de Janeiro, Brasil

Analisamos a fauna de helmintos associada ao lagarto *Mabuya dorsivittata* (Scincidae) de uma área de altitude no Parque Nacional do Itatiaia, Rio de Janeiro, Brasil. Dos 16 lagartos examinados, 12 (75%) estavam infectados por pelo menos um helminto. Apenas duas espécies de helminto foram encontradas: *Physaloptera retusa* e *Skrjabinodon spinosulus* (Nematoda), tendo a primeira prevalência de 68,8% e intensidade média de infecção de 3,6 ± 2,8 e a segunda prevalência de 56,3% e intensidade média de infecção de 2,6 ± 2,6. A fauna de helmintos da população de *Mabuya dorsivittata* estudada foi consideravelmente pobre em comparação com as de outras populações congenéricas previamente estudadas.

Palavras-chave: Reptilia, lagarto, Scincidae, *Mabuya dorsivittata,* Parque Nacional do Itatiaia, Mata Atlântica.

INTRODUCTION

The Neotropical *Mabuya* Fitzinger, 1826, constitute a unique monophyletic radiation of that widespread genus, which is characterized by morphological characteristics such as an advanced placental structure and a high and variable number of presacral vertebrae (Blackburn & Vitt, 1992; Bauer, 1993; Greer *et al*., 2000). Although some information on endoparasites associated with South American *Mabuya* species exists in the literature (e.g., Vicente *et al*., 1993; Van Sluys *et al*., 1997; Ribas *et al*., 1998; Vrcibradic *et al*., 1999, 2000, 2001, 2002a, b), there is as yet no data on the

helminth fauna associated with the relatively widespread (see Cei, 1993) species *M. dorsivittata* Cope, 1862. Also, most of the above works deal with helminth faunas of *Mabuya* populations from Brazilian coastal sand-dune habitats ("restingas"; see Eiten, 1992), with the exception of the work of Vrcibradic *et al*. (1999) on a population of *M. frenata* inhabiting an altered environment within a Cerrado-Atlantic forest transitional area. The purpose of this study is to present data on the helminths of *M. dorsivittata* from a high altitude population in southeastern Brazil. We also compare the helminth fauna of this host population to those of other congeneric populations for which there is available data.

MATERIALS AND METHODS

Lizards (n = 16) were collected in February 2000 in the Prateleiras region (22º23'S; 44º40'W; altitude 2460 m) of Itatiaia National Park, Rio de Janeiro State, Brazil. The Prateleiras Peak, at over 2600 m, is the second highest point of that park, which is situated within the Mantiqueira mountain range. Area vegetation consists of montane scrubby and grassy fields, known as "campos de altitude" (Eiten, 1992; Scarano *et al*., 2001), with numerous large boulders scattered among the tall grass. While basking on the boulders, lizards were collected with rubber bands and glue-traps placed on the boulder tops. The animals were euthanized with ether, fixed in 10% formaline and stored in 70% alcohol.

Subsequently, they were dissected in the laboratory and their digestive tracts and body cavities were examined under a stereomicroscope to check for endoparasite presence. All helminths found were cleared in phenol and mounted on slides for identification under a microscope. Voucher specimens of helminths were deposited at the helminthological collection of the Instituto Oswaldo Cruz (CHIOC 34679-81). We follow Bush *et al*. (1997) in the use of eco-parasitological terms throughout the text. In addition, descriptive statistics are always given as the arithmetic mean ± one standard deviation. For each nematode species, the number of individuals (i.e., infection intensity) was correlated with lizard snout-vent length (SVL) using simple regression analyses.

RESULTS

Two helminth species were recovered from the lizards: the nematodes *Physaloptera retusa* Rudolphi, 1819 (Spirurida; Physalopteridae) and *Skrjabinodon spinosulus* Vicente, Vrcibradic, Rocha & Pinto, 2002 (Oxyurida; Pharyngodonidae). *Physaloptera retusa* is a widespread species and has been recorded in many New World lizard and snake species (e.g., Baker, 1987; Vicente *et al*., 1993; Roca, 1997; Vrcibradic *et al*., 2000). *Mabuya dorsivittata* represents a new host record for *P. retusa*. *Skrjabinodon spinosulus* was recently described in the present population of *M. dorsivittata* (Vicente *et al*., 2002) and is only the second species of the genus recorded from South America (see Vicente *et al*., 2000). Of the 16 lizards examined, 12 (75%) were infected by nematodes. Of the twelve infected lizards, eight (66.7%) harbored both nematode species. The four uninfected ones had a snout-vent length (SVL) range of from 40.0-46.3 mm and were all immature (judging by the state of their gonads). Infected lizards ranged from 58.8 to 74.3 mm in SVL (mean = 64.9 ± 3.5 mm) and were all sexually mature. *Physaloptera retusa* always occurred in the stomach (two lizards also had worms in the esophagus) and had a prevalence of 68.8% (11/16) and a mean infection intensity of 3.6 ± 2.8 (range 1-10). *Skrjabinodon spinosulus* was found in the small and large intestines (especially the former) and had a prevalence of 56.3% (9/16) and a mean infection intensity of 2.6 ± 2.6 (range 1-9). Infection intensities were not correlated with host SVL for either *P. retusa* ($r^2 = 0.04$; $p = 0.54$; $n = 11$) or *S. spinosulus* ($r^2 = 0.002$; $p = 0.91$; $n = 9$).

DISCUSSION

The helminth fauna of the studied population of *M. dorsivittata* was poor, especially when compared to other Brazilian congeneric populations (Table 1). Nevertheless, it should be pointed out that in some cases (Vrcibradic *et al*., 1999, 2002a, b) helminth richness values include parasites found in only one host individual, representing accidental occurrences. Thus, a larger sample of *M. dorsivittata* could result in an increase in helminth richness, by augmenting the chance of sampling

rare or accidental helminths. However, richer helminth assemblages have been reported from *Mabuya* populations represented by samples smaller than ours (Vrcibradic *et al*., 2000, 2001, 2002b). It is possible that the low richness of the helminth community of the Itatiaia population of *M. dorsivittata* may be a result of the relative isolation (insularity effect) of the study area, as observed in other studies (e.g., Dobson *et al.,* 1992; Van Sluys *et al*., 1997). The "campos de altitude" can be considered "habitat islands" relative to the surrounding wet Atlantic rainforest environment. Nevertheless, despite the poorness of the helminth fauna, both nematode species occurred with high prevalences and can be considered as "core" species (see Dobson & Pacala, 1992; Bush *et al*., 1997) for the studied *M. dorsivittata* population. *Mabuya dorsivittata* occurs with relatively high density at the study area, a fact that may be partially responsible for the high prevalences of infection observed (see Aho, 1990).

We cannot say if the low species richness and high infection rates observed in the present study are typical of the host species or if they are due to characteristics of the study area, since no available data on parasite assemblages exist for other *M. dorsivittata* populations. Also, most data in Table 1 refer to populations from a single type of habitat (restinga). More studies on other populations of *M. dorsivittata* and *Mabuya* species/populations from different habitats throughout Brazil are needed to obtain a better idea of the parameters of helminth communities in those skinks and to assess the relative importances of host phylogeny and habitat type on these parameters.

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TABLE 1

Richness of nematode and helminth assemblages for different populations of *Mabuya* spp. in Brazil. Non-nematode helminths include pentastomids (*Raillietiella* sp.), acanthocephalans, the cestode *Oochoristica ameivae,* and the trematode *Paradistomum parvissimum*. State codes are: RJ = Rio de Janeiro; ES = Espírito Santo; SP = São Paulo; BA = Bahia.

Host species	Locality	Nematode richness	Total helminth richness	Source
M. agilis	Linhares, ES	2	4	Van Sluys *et al*., 1997; unpubl. data
M. agilis	Barra de Maricá, RJ	6	7	Ribas *et al*., 1998; unpubl. data
M. agilis	Carapebus, RJ	3	4	Vrcibradic *et al*., 2000; unpubl. data
M. agilis	Grumari, RJ	4	7	Vrcibradic *et al*., 2002a
M. agilis	Praia das Neves, ES	4	8	Vrcibradic *et al*., 2002b
M. agilis	Grussaí, RJ	5	9	Vrcibradic *et al*., 2002b
M. dorsivittata	Itatiaia, RJ	2	2	This study
M. frenata	Valinhos, SP	4	5	Vrcibradic *et al*., 1999
M. macrorhyncha	Barra de Maricá, RJ	3	6	Ribas *et al*., 1998; unpubl. data
M. macrorhyncha	Carapebus, RJ	3	6	Vrcibradic *et al*., 2000; unpubl. data
M. macrorhyncha	Trancoso, BA	3	7	Vrcibradic *et al*., 2001
M. macrorhyncha	Praia das Neves, ES	4	8	Vrcibradic *et al*., 2002b
M. macrorhyncha	Grussaí, RJ	4	7	Vrcibradic *et al*., 2002b

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