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Gastrointestinal Parasites of the Roucktail Rock Agama, *Laudakia stellio* from Gaza Strip, Palestine

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Abstract

Palestine is located to the east of the Mediterranean Sea between 29 and 33 North latitude 35 and 39 longitude, the West Bank and Gaza Strip are two regions in Palestine. Parasitological examination of the gastrointestinal tract of 67 roucktail rock agamas (*Laudakia stellio*) from the Gaza Strip, Palestine recovered 2 species of nematodes, *Parapharyngodon bulbosus* and *Strongyluris calotis*, 1 species of cestode *Oochoristica tuberculata* and 1 species of ciliated protozoan, *Nyctotherus hardwickii*. Prevalence of *P. bulbosus* was (100 %), *S. calotis* (67 %), *O. tuberculata* (78 %) and *N. hardwickii* (90 %). Mean intensity \pm SD and ranges were *P. bulbosus* 40.5 ± 24.2 , (1-115), *S. calotis* 34.3 ± 21.6 , (0-74); *O. tuberculata* 1.5 ± 0.5 , (0-2). *Nyctotherus hardwickii* and *O. tuberculata* are reported for the first time from the Gaza Strip, Palestine.

Keywords: Lizards, *Laudakia stellio*, Agamidae, Nematoda, Cestoda, Protista, Prevalence, Intensity, Gaza Strip, Palestine

1. Introduction

At least 8 species of lizards are known from Gaza Strip; the Mediterranean chameleon, *Chamaeleo chamaeleon*; the desert monitor, *Varanus griseus*; the Mediterranean gecko, *Hemidactylus turcicus*; the yellow Fan-fingered gecko, *Ptyodactylus hasselquistii*; the Bosc's lizard, *Acanthodactylus boskianus*; the ocellated skink, *Chalcides ocellatus*; the sand fish skink, *Scincus scincus* and the rocktail rock agama, *Laudakia stellio*. The most common of these *L. stellio* (Linnaeus) is commonly found in agricultural areas, gardens and groves where they bask on stone walls, rocks, buildings, and trees (Abd-Rabou et al, 2007).

The agamid lizard *L. stellio* has been reported as a host of several protozoan and helminth parasites. Two nematodes *Spauligodon auziensis* (Seurat, 1917), *Parapharyngodon bulbosus* (Linstow, 1899) and one cestode, *Oochoristica* sp. were reported from *L. stellio* in Arish, North Sinai Governorate, Egypt (Ghobashy, 2006). *Laudakia stellio* from Turkey, harboured 6 species of Nematoda, *Foleyella*

candezei (Fraipoint, 1882), (Witenberg & Gerichter, 1944 and Myers et al, 1962) *Parapharyngodon kasauli* (Chatterji, 1935), *Parapharyngodon tyche* (Sulahian and Schacher, 1968), *Thelandros taylori* (Chatterji, 1935), *Strongyluris calotis* (Baylis & Daubney, 1923) and third-stage ascaridoid larvae (Yildirimhan et al, 2006).

The lack of information on helminths and protozoa parasitising lizards in the Gaza Strip, led us to examine *L. stellio* for gastrointestinal parasites and to report their prevalence and intensity.

2. Material and Methods

Sixty-seven *L. stellio* were killed with an overdose of Nembutal (sodium pentobarbital). The body cavity was opened and the digestive tract was removed. Each organ was carefully examined for helminths and protozoa. The helminths were fixed in 70% ethanol for further study and

identification. Parasite terminology is in accordance with Bush et al (1997).

3. Results and Discussion

Results are shown in Table 1. All (100%) of the 67 *Laudakia stellio* were infected with the nematode *Parapharyngodon bulbosus*. The number of worms ranged from 1-115 with a mean intensity 40.5 ± 24.15 . Forty-six (67.16%) were infected with the nematode, *Strongyluris calotis*. The number of *S. calotis* ranged from 1-74 with mean intensity 34.3 ± 21.6 .

Table 1. Prevalence, Mean Intensity and Range of The Gastrointestinal Parasites of *Laudakia stellio* from Gaza Strip, Palestine

S. No.	Parasite Species	Prevalence		Mean Intensity \pm SD		Range [®]
		%	(N)	MI	\pm SD	
1	<i>Parapharyngodon bulbosus</i>	100	67	40.5	± 24.15	1-115
2	<i>Strongyluris calotis</i>	67.16	46	34.3	± 21.6	1-74
3	<i>Oochoristica tuberculata</i>	77.61	52	1.5	± 0.5	1-2
4	<i>Nyctotherus hardwickii</i>	89.55	60	-	-	-

Fifty-two (77.61%) were infected with the cestode *Oochoristica tuberculata*. The number of *O. tuberculata* ranged from 1-2. Sixty lizards (89.55%) harboured *Nyctotherus hardwickii*, which was the only protozoan recovered.

We report 3 species of helminths and 1 species of protozoan infecting *L. stellio* in the Gaza Strip. Host lists for *O. tuberculata* and *S. calotis* were published by Yildirimhan et al (2006); two additions should be made to the host list for *O. tuberculata*, *Chalcides ocellatus* in Libya (Ibrahim et al, 2005) and *Lacerta agilis* in Romania (Mihalca et al, 2007). To our knowledge there is no current host list for *P. bulbosus*, but it is known to occur in agamid lizards of Egypt and Greece (Ibrahim and Soliman, 2005 and Roca et al, 2009); nor a host list for *N. hardwickii* but it has been reported from *L. stellio* collected in Turkey (Ucuncu et al, 2001). The Gaza Strip is a new locality record for each of these four parasite species. The nematode *S. calotis* has been reported from different *Laudakia spp.* in Pakistan (Goldberg et al, 2003).

The nematode *S. calotis* and the cestode *O. tuberculata* have been reported previously in *L. stellio* from Turkey and Egypt (Ghobashy, 2006 and Yildirimhan et al, 2006).

4. Conclusion

It is concluded that Roucktail rock agamas is infected with a considerable number of helminths and protozoa, which could be transmitted to human.

It is recommended to control these roucktailrock agamas by screening homes windows in Gaza strip.

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