

Nematode Parasites of a Puerto Rican Tree Frog, *Eleutherodactylus coqui*

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ABSTRACT

Five of ten *Eleutherodactylus coqui* from Puerto Rico were infected with *Parapharyngodon garciae* (Schmidt and Whittaker, 1975) Adamson, 1981. This constitutes the first report of this pharyngodonid nematode in *E. coqui* and the second from leptodactylid frogs. One tree frog was infected with a female *Aplectana* sp. Specific identification of this cosmocercid nematode could not be determined in the absence of a male.

INTRODUCTION

A review of the literature concerning nematode parasites of tree frogs from Puerto Rico revealed a single report (Schmidt and Whittaker, 1975) on the intestinal nematodes of *Eleutherodactylus* spp. We report a new host record of a pharyngodonid nematode in *Eleutherodactylus coqui* Thomas, 1966, from that island.

MATERIALS AND METHODS

Ten *Eleutherodactylus coqui* and one *E. antillensis* Reinhardt an Lutken, 1863, collected at Carr. 3362 k.m.3.6, Guama, Puerto Rico were examined for helminths. Nematodes detected in the large intestines of six frogs were fixed in steaming acetic alcohol (1 part glacial acetic acid and 3 parts 95% ethanol) and cleaned for study in glycerine. Measurements are in micrometers unless otherwise indicated, the range being followed by the mean in parentheses. Voucher specimens have been deposited in the United States National Museum (USNM) Helminthological Collection, Beltsville, Maryland as indicated. Frogs were deposited in the Southern Illinois University at Carbondale (SIUC) Herpetological Collection, Carbondale, Illinois.

RESULTS AND DISCUSSION

Eight mature and four immature females and two mature male pharyngodonid (Oxyurida) nematodes were found in the large intestine of five of ten coquies, *Eleutherodactylus coqui*. In addition, one of the ten coquies contained one female cosmocercid (*Ascaridida*) nematode. The pharyngodonid nematodes agree with the description of *Parapharyngodon garciae* (Schmidt and Whittaker, 1975) Adamson, 1981. *E. antillensis* was found negative for nematodes.

Parapharyngodon garciae

Dimensions: females (N=8), Body 4.4 to 6.1 mm (4.8) long by 400 to 600 (509) wide at vulva; buccal cavity 10 to 15 (13) deep by 11 to 15 (12) wide; esophagus 550 to 780 (664) long, esophageal bulb 114 to 143 (124) long by 136 to 160 (147) wide; nerve ring 300 to 400 (348) from anterior end; excretory pore 0.95 to 1.2 (1.0) mm from anterior end; tail 187 to 320 (251) long; eggs 70 to 81 (77) long by 37 to 46 (42) wide; male (N=1), Body 1.2 mm long by 120 wide; buccal cavity 10 deep by 10 wide; esophagus including bulb 110 long; esophageal bulb only 66 long by 57 wide, nerve ring from anterior end 92; excretory pore from anterior end 90; tail spike 51 long; spicule 33 long. Specimens deposited: USNM Helm. Coll. No. 84025-84028.

Parapharyngodon garciae was reported by Schmidt and Whittaker (1975) as *Thelandros* (*Parapharyngodon*) *garciai*. They considered *Thelandros* Wedl, 1862, to comprise two subgenera, namely *Thelandros* in which the male lacks lateral alae and *Parapharyngodon* Chatterjee, 1933, in which lateral alae are present on males. Adamson (1981), however, considered *Parapharyngodon* a valid genus and transferred *Thelandros* (*P.*) *garciai* to *Parapharyngodon* and noted that *Parapharyngodon* spp. occur in insectivorous reptiles and amphibians whereas *Thelandros* spp. are essentially parasites of herbivorous and omnivorous reptiles. Adamson and Nasher (1985) restricted the definition of *Thelandros* to include only those species in which the pre- and adanal papillae are pedunculated and the opening to the spicular pouch is markedly postanal while in *Parapharyngodon* the pre- and adanal papillae are sessile and the spicular pouch opens into the cloaca. Baker (1987) listed thirty-three species of *Parapharyngodon* occurring in amphibians and reptiles. *Parapharyngodon garciae* is the only species of *Parapharyngodon* reported from leptodactylid anurans of Puerto Rico and until the present report was restricted to *Eleutherodactylus portoricensis* Schmidt, 1927, and to *E. antillensis*. The finding of *P. garciae* in *E. coqui* in the present report constitutes a new host record and the second report of this helminth in tree frogs from this locality. To our knowledge, *Poekilostrongylus puertoricensis* Schmidt and Whittaker, 1975, is the only nematode previously reported from *E. coqui*.

Aplectana sp.

A single female *Aplectana* was found in the large intestine of one coqui. Specific identification could not be determined in the absence of a male. Schmidt and Whittaker (1975) also reported females of two species of *Aplectana* from the large intestines of *Eleutherodactylus locustus* Schmidt, 1920, *E. richmondi* Stejneger, 1904, and *E. coqui*. Likewise, specific identification could not be determined in the absence of males. Specimens deposited: USNM Helm. Coll. No. 84029.

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LITERATURE CITED

- Adamson, M. L. 1981. *Parapharyngodon osteopili* n.sp. (Pharyngodonidae: Oxyuroidea) and a revision of *Parapharyngodon* and *Thelandros*. *Systematic Parasitology* 3:105-117.
- Adamson, M. L., and A. K. Nasher. 1984. Pharyngodonidae (Oxyuroidea; Nematoda) of *Agama yemenensis* in Saudi Arabia: hypothesis on the origin of pharyngodonids of herbivorous reptiles. *Systematic Parasitology* 6:299-318.
- Baker, M. R. 1987. Synopsis of the nematoda parasitic in amphibians and reptiles. Memorial University of Newfoundland Occasional Papers in Zoology No. 11. 325 pp.
- Schmidt, G. D., and F. H. Whittaker. 1975. Nematode parasites of Puerto Rican tree frogs, *Eleutherodactylus* spp: two new species and a proposal of *Poekilostrongylus* gen. nov. (Trichostongylidae). *Parasitology* 70:287-294.