

# Gastrointestinal helminths of three species of *Dicrodon* (Squamata: Teiidae) from Peru

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**ABSTRACT** – Three species of *Dicrodon* from Peru (*D. guttulatum*, *D. heterolepis* and *D. holmbergi*) were examined for helminths. Found were one species of Cestoda *Oochoristica fretisai*, and three species of Nematoda, *Pharyngodon micrurus*, *Skrjabinodon capacyupanquii*, and *Thubunaea parkeri*. Three new host records are reported. Previous helminth records of *Dicrodon* are listed.

THREE species have been assigned to the genus *Dicrodon*, two, *Dicrodon heterolepis* and *Dicrodon holmbergi*, are endemic to Peru; the third, *Dicrodon guttulatum*, is known from Peru and Ecuador (Peters & Orejas-Miranda, 1986; Lehr, 2002). There are reports of nematodes from *D. heterolepis* and *D. holmbergi* (Table 1) but to the best of our knowledge there are no reports of helminths from *D. guttulatum*. The purpose of this study is to establish the initial helminth list for *D. guttulatum*, add to the helminth list of *D. heterolepis* and to summarize the helminths recorded from *Dicrodon* sp. as part of an ongoing survey of helminths from the lizards of Peru.

## MATERIALS AND METHODS

Five specimens of *D. guttulatum* (mean snout-vent length [SVL] = 112 mm ± 31 SD, range = 74-143 mm, 2 females, 3 males LACM 122797-122801, collected June 1976, Lambayeque Department, 7 km SW Motupe, 06°09'S 79°43'W, Peru), 4 specimens of *D. heterolepis* (SVL = 106 mm ± 5 SD, range = 100-111, all male, LACM 76923, 76925, 76927, 76928, collected November 1968, Ancash Department, 18 km N Huarmey, 10°05'S 78°05'W, Peru) and 5 specimens of *D. holmbergi* (SVL = 108 mm ± 13 SD, range = 90-120, all females, LACM 122750, 122754, 122760, 122762, 122763 collected 6 June 1976, La Libertad Department, 1 km N Puente Chao, 8°31'S, 78°40'W Peru) were borrowed from the herpetology collection of the Natural History Museum of Los Angeles County (LACM), Los

Angeles, California and examined for helminths. These specimens had been fixed in 10% neutral buffered formalin and preserved in 70% ethanol. The body cavity was opened by a mid-ventral incision and examined under a dissecting microscope. Helminths were removed, placed on a glass slide in a drop of glycerol, covered with a coverslip and examined under a compound microscope. Nematodes were identified from the glycerol slides; cestodes were regressively stained in hematoxylin and mounted in Canada balsam for identification.

## RESULTS AND DISCUSSION

Helminth number, prevalence (number infected hosts/total number hosts X 100), mean intensity (mean number helminths) ± 1SD and range for the three host species examined in this study are shown in Table 2. Voucher specimens were deposited in the United States National Parasite Collection, Beltsville, Maryland, USA: *Dicrodon guttulatum*: *Pharyngodon micrurus* (USNPC 100635), *Skrjabinodon capacyupanquii* (USNPC 100636); *Dicrodon heterolepis*: *Oochoristica fretisai* (USNPC 100637), *Pharyngodon micrurus* (USNPC 100638), *Thubunaea parkeri* (USNPC 100639); *Dicrodon holmbergi*: *Skrjabinodon capacyupanquii* (USNPC 100640).

*O. fretisai* was originally described from specimens taken from the small intestine of a *D. heterolepis* collected at Trujillo, Peru by Rêgo & Ibáñez (1965). The life cycle of *O. fretisai* has not been studied, but Conn (1985) reported insects to

Lizard	Helminth	Reference
<i>Dicrodon guttulatum</i>	<i>Pharyngodon micrurus</i>	this paper
	<i>Skrjabinodon capacyupanquii</i>	this paper
<i>Dicrodon heterolepis</i>	<i>Oochoristica freitasi</i>	Rêgo & Ibáñez (1965); this paper
	<i>Pharyngodon micrurus</i>	Freitas & Ibáñez (1963); this paper
	<i>Thubunaea parkeri</i>	this paper
<i>Dicrodon holmbergi</i>	<i>Skrjabinodon capacyupanquii</i>	Freitas <i>et al.</i> (1968); this paper
	<i>Thubunaea parkeri</i>	Baylis (1926)

**Table 1.** Helminth species and corresponding *Dicrodon* sp.

serve as intermediate hosts for the congener *Oochoristica anolis*.

*P. micrurus* was described from specimens taken from *D. heterolepis* also collected at Trujillo, Peru (Freitas & Ibáñez, 1963). *P. micrurus* is a member of the Oxyuroidea, which have direct life cycles and do not require intermediate hosts (Anderson, 2000); infection presumably occurs through ingestion of eggs. *D. guttulatum* is the second host known to harbour this helminth. *S. capacyupanquii* was described from *D. holmbergi* collected at Viru, Peru by Freitas *et al.* (1968). The mode of infection is probably similar to that of *P. micrurus*. *D. guttulatum* is the second known host to harbour *S. capacyupanquii*. *T. parkeri* was described by Baylis (1926) from specimens taken from *Tropidurus occidentalis* (currently *Microlophus occidentalis*) and *Dicrodon calliscelis* (currently *D. heterolepis*) collected in Peru. The

life cycle of *T. parkeri* has not been studied but the congener *Thubunaea baylisi* presumably utilizes an insect intermediate host (Anderson, 2000).

*D. guttulatum* represents a new host record for *P. micrurus* and *S. capacyupanquii*; *D. heterolepis* represents a new host record for *T. parkeri*. Peru has a diverse lizard fauna consisting of over 170 species (Lehr, 2002); thus, it is of interest to note that the helminths listed in Table 1 are not shared by a large number of hosts. Subsequent studies are required to adequately characterize the helminth diversity exhibited by Peruvian lizards.

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Helminth	<i>D. guttulatum</i>				<i>D. heterolepis</i>				<i>D. holmbergi</i>			
	N	P	X±SD	Range	N	P	X±SD	Range	N	P	X±SD	Range
<b>Cestoda</b>												
<i>O. freitasi</i>			—————		1	25	1±0	—			—————	
<b>Nematoda</b>												
<i>P. micrurus</i>	359	40	180±180	52-307	1204	100	301±170	76-486			—————	
<i>S. capacyupanquii</i>	728	100	146±181	34-468			—————		1733	100	347±260	64-720
<i>T. parkeri</i>			—————		22	50	11±7	6-16			—————	

**Table 2.** Number (N), prevalence (P), mean intensity ± 1 SD (X±SD) and range of occurrence for gastrointestinal helminths in three species of *Dicrodon* from Peru.

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