

## RESEARCH NOTE

## Helminths Parasites of *Eupsophus roseus* (Anura: Leptodactylidae) from Southern Chile

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*Eupsophus roseus* Dumeril & Bibrón, 1841 is a small sized (2.6-9.5 cm) endemic frog of the temperate *Nothofagus* forests of Southern Chile (JR Formas 1979 *Univ Kansas Mus Nat Hist Mongr* 7: 341-369). In this species the following parasite endohelminths have been reported: *Oswaldocruzia neghmei* Puga, 1981, *Rudolphitrema chilensis* Puga, 1986 (S Puga 1994 *Bol Chil Parasitol* 49: 81-84) and *Centrorhynchus* sp. (P Torres & S Puga 1996 *Mem Inst Oswaldo Cruz* 91: 717-719).

The aims of this survey were to determine the prevalence and mean intensity of infection by parasitic helminths in a population of *E. roseus* from Southern Chile.

Forty four live specimens of *E. roseus* were collected by hand from Isla Teja (39°48S; 73°15W) in the Province of Valdivia during different seasons between 1994 to 1997. They were kept moist and cool in cages and taken to the laboratory within 6 hr of capture and killed by pithing within the next 24 hr. Snout-vent length was determined prior to necropsy. The abdomen was opened by a longitudinal incision from vent to throat and the gastrointestinal tract was removed, slit longitudinally, and examined for helminth parasites under a dissecting microscope. Mesenteries, liver, spleen, gonads, and urinary bladder were also examined. Sex was determined after necropsy. Hel-

minths were washed in saline solution. Nematodes were fixed in ethanol 70°GL or 10% formalin. Acanthocephalans and trematodes were held in distilled water at 4°C for 24 hr, and fixed in alcohol-formalin-acetic acid and 10% formalin, respectively. Nematodes and acanthocephalans were cleared in lactophenol and trematodes were stained with Gower's carmine for identification.

The terminology used has been taken from A Bush et al. (1997 *J Parasitol* 83: 575-583). The Fisher and Mann-Whitney U tests were used to study the differences in prevalence and mean intensity of infection respectively (S Siegel 1991 *Estadística no Paramétrica*, Trillas, México, 344 pp.).

Four helminths taxa were found (Table I), two of them (*A. artigasi* and *Cosmocerca* sp.) for the first time in *E. roseus*. All parasite specimens were adults, with the exception of *Centrorhynchus* sp. (cystacanths). *A. artigasi*, *R. chilensis* and *Centrorhynchus* sp. are parasites of *E. roseus* and *Eupsophus calcaratus* (Günther, 1881) and have not been observed in other anuran species (S Puga 1994 *Bol Chil Parasitol* 49: 81-84, Torres & Puga *loc. cit.*, Puga & Torres *loc. cit.*). The highest prevalences of infection were registered for the nematode species whose genera include direct life cycles species (RC Andersen 1991 *Nematode Parasites of Vertebrates*, CAB International, United Kingdom, 578 pp.), in contrast to *Centrorhynchus* sp. and *R. chilensis* which present indirect life cycles. *A. artigasi* showed the greatest mean intensity infection (Table I).

The sex was determined in 33 anurans, of which only four were males. In view of this the analysis of prevalence and mean intensity of infection with respect to the size of the hosts and the seasons in which they were collected, were made only with females. *A. artigasi* was only found in the smaller female frogs (2.6-6 cm), but *Cosmocerca* sp. was observed in females of different length (2.6-9.5 cm) (Table II). The prevalence of infection by *Cosmocerca* sp. was highest (P=0.036) in the larger female frogs, but the mean intensity was similar in frogs of all length (U=0.50; P>0.05). *A. artigasi* was isolated in three of four seasons in the small female frogs (infected/examined), from the Summer (2/10), Autumn (1/3), and Winter (3/7). *Cosmocerca* sp. was recovered three of four season during Summer (4/10), Winter (1/7), and Spring (1/2) in the small sized animals and among the larger ones in Winter (3/3). *Centrorhynchus* sp. and *R. chilensis* were registered in Winter (2/10) and Autumn (1/5), respectively.

Voucher specimens of different taxa have been deposited in the collection of the Institute of Parasitology, Universidad Austral de Chile, Valdivia, Chile (IPUAT No. 0259-0261).

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TABLE I

Prevalence, mean intensity and site of helminths recovered from 44 adults of *Eupsophus roseus* from Valdivia, Chile

Helminths	Prevalence (%)	$\bar{X} \pm SD^a$ (range)	Site
Trematoda			
<i>Rudolphitrema chilensis</i>	5	1.5 ± 0.7 (1-2)	Small intestine
Nematoda			
<i>Aplectana artigasi</i>	23	7.7 ± 6.3 (1-22)	Rectum
<i>Cosmocerca</i> sp.	46	2.1 ± 1.3 (1-5)	Rectum
Acanthocephala			
<i>Centrorhynchus</i> sp.	9	2.5 ± 1.0 (2-4)	Liver

a: mean intensity ± standard deviation

TABLE II

Prevalence and mean intensity of infection by intestinal nematodes in 25 adult females of *Eupsophus roseus* of different snout-vent length from Valdivia, Chile

Nematodes	Standard length (in cm)			
	2.6-6 (n = 22)		6.1-9.5 (n = 3)	
	Prevalence %	$\bar{X} \pm SD^a$ (range)	Prevalence %	$\bar{X} \pm SD^a$ (range)
<i>Cosmocerca</i> sp.	27	17±1.2 (1-4)	100	2±1.0 (1-3)
<i>Aplectana artigasi</i>	27	11±6.5 (6-22)	0	0

a: mean intensity ± standard deviation