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Research Note

HELMINTH PARASITES IN FISHES FROM VALDIVIA AND TORNAGALEONES RIVER ESTUARIES IN THE SOUTH OF CHILE

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The fishes living in the Chilean river estuaries have a great economic importance (D. Boré et al., 1989, *Chile: sus recursos pesqueros,* CORFO – IFOP, 168 p.) and their parasitic fauna little know. Only one study on parasites of *Mugil cephalus* Linnaeus, 1758 in the Bio-Bio river estuary (36° 49' S; 73° 10' W) is recorded (J. Fernandez, 1987, *Gayana Zool., 51:* 3-58).

Chilean estuaries are small and numerous with respect to the rest of South America and their size allows a marked marine and limnetic influence along a few kilometres, which determines the presence of fish populations, generally amphidromics, in some phases of their life (H. Campos & C. Moreno, 1985, In *Fish community ecology in estuaries and coastal lagoons,* p. 407-414. UNAM Press).

This paper presents the first parasitic records of fishes caught at the confluence of the Valdivia river and Tornagaleones river estuaries, in the locality of San Juan (39° 55' S; 73° 24' W), the prevalence and mean intensity of infections are also given.

Between December 1888 and January 1989, 57 adult fishes – of both sexes – were caught by means of mesh gill nets. The fishes belonged to the following species and their number and standard length (mean ± standard deviation in cm) are indicated: 30 *Austromenidia laticlavia* (Valenciennes, 1835) 17,0 ± 1,1; 7 *Eleginops maclovinus* (Valenciennes, 1830) 31,8 ± 4,8; 9 *Cauque mauleanum* (Steindachner, 1896) 21,3 ± 2,3; 3 *Macrouronus magellanicus* (Lömberg, 1907) 134,3 ± 55,7 and 8 *Aphos porosus* (Valenciennes, 1837) 28,3 ± 1,5.

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The fish examined were classified in three categories depending on their habitat and spawning place. (1) They live and lay their eggs in the sea, being able to reach estuary zones (*A. laticlavia, M. magellanicus* and *A. porosus*). (2) They deposit their eggs in the estuary, but many inhabit limnetic and marine zones (*E. maclovinus*) and (3) They carry out their egg-laying in limnetic zones and, it seems, in the upper part of the estuaries (C. mauleanum) (H. Campos & C. Moreno, 1985, *loc. cit.*).

The necropsy, isolation, fixation, staining and/or clearing of helminth parasites were carried out as explained in previous papers (P. Torres et al., 1990, *Bol. Chil. Parasitol., 45:* 47-55). Helminths were sought in the alimentary canal, liver, gaseous bladder, gonads, kidney, spleen and heart of the fish.

Table shows the different helminth taxa, their hosts, prevalence and mean intensity of infection (mean number of parasites per infected fishes).

The three fish species of category 1 showed 4-5 helminth taxa, while in those of categories 2 and 3, 3 and 2 taxa, respectively, were found (Table).

The four parasitic taxa of *A. laticlavia, Capillaria* sp., *Scolex pleuronectis* Mueller, 1778, and *Corynosoma* sp. of *A. porosus* together with *Corynosoma* sp. of *C. mauleanum,* correspond to first records for these hosts (Table). *Monorcheides popovicii* Szidat, 1950 and *Heterosentis magellanicus* (Szidat, 1950) are reported for the first time in *E. maclovinus* of Chile. The other taxa have been recorded in previous papers in the respective hosts (J. Fernandez & C. Villalba, 1985, *Rev. Chil. Hist. Nat., 58:* 109-120; P. Torres et al., 1988, *Bol. Chil. Parasitol., 43:* 37-41).

The prevalence and mean intensity by one or more helminth taxa suggest be greatest in the hosts that live in the sea and estuaries,

TABLE

Prevalence and mean intensity of helminth in fishes from the Valdivia and Tornagaleones river estuaries, Chile

Helminth	Fish species (number examined)				
	Austromenidia laticlavia (30)	*Macrouronus magellanicus* (3)	*Aphos porosus* (8)	*Eleginops maclovinus* (7)	*Cauque mauleanum* (9)
	P/I[a]	P/I	P/I	P/I	P/I
Trematoda					
Lecithaster pacificum	14(47)/31(1-18)	0/0	0/0	0/0	0/0
Monorcheides popovicii	0/0	0/0	0/0	1(14)/4(4)	0/0
Cestoidea					
Nybelinia sp.	1(3)/1(1)	0/0	0/0	0/0	0/0
Grillotia heptanchi	0/0	1(33)/1(1)	0/0	0/0	0/0
Scolex pleuronectis	0/0	0/0	7(88)/13.9(3-29)	0/0	0/0
Nematoda					
Contracaecum sp.	3(10)/1.3(1-2)	0/0	0/0	0/0	2(22)/2(1-3)
Anisakis simplex	0/0	3(100)/9(4-18)	1(13)/1(1)	0/0	0/0
Anisakis physeteris	0/0	1(33)/8(8)	0/0	0/0	0/0
Pseudoterranova decipiens	0/0	1(33)/1(1)	6(75)/1.6(1-3)	0/0	0/0
Hysterothylacium sp.	0/0	1(33)/3(3)	0/0	0/0	0/0
Dichelyne (Cucullanellus) dichelyneformis	0/0	0/0	0/0	3(43)/1.7(1-2)	0/0
Capillaria sp.	0/0	0/0	2(25)/4(2-8)	0/0	0/0
Acanthocephala					
Corynosoma sp.	2(7)/1.5(1-2)	0/0	1(13)/1(1)	0/0	1(11)/1(1)
Heterosentis magellanicus	0/0	0/0	0/0	4(57)/13(5-26)	0/0
Total[b]	17(57)/3(1-19)	3(100)/13.3(5-29)	7(88)/18.9(4-34)	4(57)/15.3(7-26)	3(33)/1.7(1-3)

a: number of fish infected (% prevalence)/mean intensity (range); *b:* infection by one or more helminth taxa.

respect to *C. mauleanum,* a limnetic and estuarine fish. This aspect will be necessary investigate with greater sample.

The 14 taxa distributed among the five host species (Table) correspond to parasites recorded in marine environments or estuaries and only two have also been recorded in limnetic stretches of the Valdivia river basin: *Contracaecum* sp. and *Hysterothylacium* sp. (P. Torres et al., 1988, *loc. cit.*).

The infection by *Contracaecum* sp. in the fishes could be connected with the presence of *Contracaecum rudolphii* in seagulls, *Larus dominicanus* (Lichtenstein, 1823), *Larus maculipennis* (Lichtenstein, 1823) and in the cormorant *Phalacrocorax olivaceus* (Humboldt, 1805) in the estuary and lakes of the Valdivia river basin (P. Torres et al., 1983, *Z. Parasitenk, 69:* 397-399). However, in marine mammals, *Otaria byronia* (de Blainville, 1820), caught on the coast of Valdivia, infection by adults of *Contracaecum* sp. has also been recorded (Torres, unpublished); these hosts also enter the estuary of the Valdivia river (R. Schlatter, 1976, *Med. Amb. 2:* 86-90). In this way, the infection by *Contracaecum* in the fishes of the estuary could have a different origin. With respect to *Hysterothylacium* sp. of *M. magellanicus,* it represent to a species with a marine cycle already previously reported in this host caught on the coast of Valdivia (J. Fernandez & C. Villalba, 1985, *loc. cit.*).

The presence of *Anisakis* spp., *P. decipiens,* and *Corynosoma* sp. in the fish studied could also be connected to the infection of marine mammals and/or fish-eating birds that inhabit the coast of the south of Chile and that act as final hosts for those taxa (J. Fernandez & C. Villalba, 1985, *loc. cit.;* P. Torres et al., 1991, *J. Wild, Dis., 27:* 178-179).

The occurrence of the anisakids *A. simplex, A. physeteris* and *P. decipiens* in fishes is of zoonotic importance for the human communities that consume raw, smoked or insufficiently cooked fishes. Cases of human anisakiasis in Chile have been recorded since 1976 (J. Sapunar et al., *Bol. Chil. Parasitol., 31:* 79-83).

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