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Pathogenic Conditions of Cichlids in Natural and Man-Made Ponds in Ibadan

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Abstract
A total of 354 fishes from three different stations A,B and C belonging to the family cichlidae were examined for ecto and endo parasites. The cichlids harboured the larva trematode; *clinostomum tilapiae, Neascus species* and *Acanthocephalans*. From all the parasites, *clinostomum tilapiae* had the highest percentage of infection (66%) and the lowest percentage of infection was found in *Euclinostomum* (1%). There was significant difference in the percentage of infections at A&B, but at station C, there was no significant difference of all the fish hosts examined *Oreochromis niloticus* had the highest percentage level of infection 67% and the least percentage level of infection was found in *Sarotherodon galilaeus* 22.5%.
Keywords- *cichlids*, Endoparasite, Ectoparasite, ponds, Ibadan.

Introduction

Fish farming occupies a position second only to crop production in the food sector in Nigeria. With a population of about 140 million, Nigeria is the largest consumer of fish and fishery products in Africa (Fagbuaro *et al,* 2004). Parasitic infections in fishes cause production and economic losses through direct fish mortality, reduction in fish growth and stamina (Cowx 1992; Olofintoye 2006).

There are two principal reasons why the disease of tilapia (genera: *Tilapia, Sarotherodon and Orechromis species*) have been less well studied than those of other groups of cultured fish. The first is that such fishes are generally found in countries where diagnostic facilities are less than adequately developed and losses cannot be estimated accurately. Secondly, the culture of *tilapias* has only been intensified recently (Ovie et al, 2002).

During the last decade however, research on therapy and control of diseases of cold water fish culture in Europe and North America have assisted in protecting fish stocks in commercial ponds(Hoffman, 1975). Our knowledge of the disease and pathology of fish in our tropical and subtropical waters is far from adequate (Akinpelu, 1983).

This study reports on the pathogenic conditions of cichlids in natural and man-made ponds in Ibadan.

Materials and Methods

A total of 354 live tilapia species were collected at the three different stations randomly by fisherman using cast nets and drag nets. The fish specimen were transported to the laboratory. The weight (g) and standard length (cm) measurements and sexes were determined. The parasites recovered from gills, eyes, body cavity, liver, gonads, stomach and intestine were allowed to die in 0.9% normal saline, cleared with Xyloi and mounted in Canada balsam. After examination under a microscope, the specimens were stored in vials with 70% alcohol. The parasites were identified using Yamaguti (1959 and 1961). Percentage level of infection and intensity were used for analysis.

Results and Discussion

From the three stations sampled, of the seven species of fish hosts belonging to the family cichlidae, five species harboured larval trematodes. The larva trematodes were found to infect more than one host. This conforms with the report of Awachie (1965) and Ukoli (1965) of chichlids of Lake Chad.

Sarotherodon Melanotheron ha the highest parasitic infection of 81.8%, 4.18 and 5.33 as mean number per host and infected host respectively. The lowest percentage of infection was found in *S. galilaeus* (20%) table 1.

Table 2 shows that there is no relationship between the percentage infection with the sex of host. At 5% level of significance tabulated value 11.07 is grater than the calculated value 771. It was observed that the males had higher percentage of parasitic infection than the female but the difference in parasitic infection and the sex of the fish hosts is not statistically significant ($p>0.05$).

Table 3 shows that the fish hosts with sizes (grams (21- 50.9; 51 – 80.9, recorded the highest percentage of infection while size 10 – 29.9, 381 – 410.9 recorded in larger sizes of fish hosts. Low level of infection in larger sizes of fish hosts were also reported by Prah (1969) in Dam reservoir in Ghana.
significant difference in the percentage of infection of *E. heterestomium* at the three stations.

I was observed that at stations A and B, the intestine had the highest parasitic load while at station C,

the body cavity had the highest parasitic load. The reason may be due to their diet and their environment which is being regulated at station c.

Fishers from stations A and B has most parasites in the gills and the reason may be because they feed on detritus bethos, plankton etc which transmits parasites. There is significant difference in percentage of infection at stations A and B during the months of April to June. The reason may be that the molluscan intermediate host must have been swept away by the tide as rainfall increases during the month of June. This was also reported by (Ukoli, 1966, Eyo et al 2001; 10 and Nwuba et al, 1999),

Table 4 – Distribution pattern of the parasite types among the various fish organ in the study area.
Table 1

Fish Host	Number examined	% Infected	Total No of parasite	Mean No of parasite per host	Mean number of infected host
Oreohromis niloticus	3	0	0	0	0
Sarotherodon melanotheron	11	81.8	48	4.18	5.33
Sarotherodon galilaeus	20	10	4	0.2	2
Tilapia mariea	1	100	1	1	1
Hemichromis bimaculatus	10	20	2	02	1
Tilapia zilli	71	45.07	115	1.60	3.60

Table 2 – Relationship between the sex of cichlids and infection rate
INFECTION RATE OF PARASITES

Fish Host	Sex of Host	Total No of examined	A. ghanensis	Neascus	P. longa	Acanthella	C. tilapiae	A. tilapiae	E. heretostoum	A.corti
Oreochromas Niloticus	Male Female	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Sarotherdon Nelanotheron	Male Female	6 14	0 3(21.43%)	1(16.66%) 0	1(16.66%) 2(14.29%)	0 (2(14.29%)	0 1(7.14%)	1(16.66%) 1(7.14%)	0 0	0 0
S. galilaeus	Male Female	15 9	0 2(22.22)	0 1(11.11)	0 0	0 0	0 0	0 0	1(16.66%) 0	0 0
Tilapia mariea	Male Female	0 1	0 0	0 0	0 0	0 0	0 1(100%)	0 0	0 0	0 0
Hemichromis Bimaculatus	Male Female	0 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Tilapia zilli	Male Female	36 40	1(2.78%) -	4(11.11) 1(2.5)	2(5.56) 5(5)	31(8.33\0 5\912.5\0	1(2.78) 4(10)	2(5.56) 5(12.5)	0 0	0 0

Table 3

Fish Host	Size (g)	No examined	% infected	No infected	Mean no per host	Mean no per infected host
S. melanotheron		1	1	100	1	1
S. galilaeus	10- 20.9	1	0	0	0	0
O. niloticus	-	-	-	-	-	-
Tilapia zilli			0	0	0	0
H. fasciatus		1	0	0	0	0
T. mariea		-	-	-	-	-
H. bimaculatus		-	-	-	-	-
S. melanotheron		4	3	75	1.25	1.67
S. galilaeus	21 -50.9	22	10	45.45	1.09	2.4
O. niloticus		7	3	42.86	1.71	4.0
Tilapia zilli		24	5	20.83	0.29	1.4
H. fasciatus		14	7	50	1.07	2.14
T. mariea		-	-	-	-	-
H. bimaculatus		1	0	0	0	0

Table 4

Parasite	Eyes		Gonads		Gills		Intestine		Liver		Operculum		Month	
	Prev %	GM I	Prev %	GM I	Prev %	GM I	Prev %	GM I	Prev %	GM I	Prev %	GM I	Prev %	GM I
Allocreadium ghanesis	0	0	0	0	0	0	3.11	1.65	0	0	0	0	0	0
Phagicola longa	0	0	0	0	0	0	7.63	1.57	0.85	1.26	0	0	0	0
Neascus	0	0	0	0	0	0	3.39	1.67	0	0	0	0	0	0
Acanthella	0	0	0	0	0	0	9.61	1.85	0	0	0	0	0	0
Clinostomum tilapiae	0.28	1.0	0.85	1.0	12.4	1.60	0.28	1.0	3.11	1.42	3.96	1.70	1.70	1.82
Acanthogyrus tilapiae	0	0	0	0	0.28	1.0	7.00	1.74	0	0	0	0	0	0
Euclinostomum heterostomum	0	0	0	0	0	0	1.41	3.78	0	0	0	0	0	0
Alloglossidium corti	0	0	0	0	0	0	0.57	1.73	0	0	0	0	0	0
Overall parasite load	0.28	1.0	1.13	1.0	12.4	1.62	23.2	2.27	3.96	1.39	3.96	1.70	15.2	2.18

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