African Scientist Vol. 7, No. 4, December 31, 2006
Printed in Nigeria

1595-6881/2006 $12.00 + 0.00

http://www.klobex.org

AFS 2005020/7401

A Survey of External and Internal Parasites of Fishes Found Around The Burrow Pits of Kano Metropolis

A. H. Bichi

Department of Biological Sciences, Bayero University, Kano, Nigeria

(Received July 13, 2005)

ABSTRACT: A total of eighteen fishes belonging to two families Claridae and Chichlidae were encountered in this study. Out of the eighteen fishes, nine (50%) were found to harbour mostly parasites of the class Nematoda.

Key Words: Parasites; Fishes; Burrow pits; Kano; Nigeria.

Introduction

Fish parasites have been shown to cause mortality or they tend to lower the general health of the fish making them susceptible to other more dangerous pathogens (Lim, 2003). The fish also function as host to a wide spectrum of parasites and as intermediate hosts to a number of parasites of man and animals. In aquatic culture, fish health is of utmost importance. The health of fish can be affected by environmental factors, nutrition as well as pathogens (Zaman, 1985). Parasites are important in that they affect the productivity of the fish in the systems through mortality, decreasing growth rate, reducing the quality of the meat and making the hosts more susceptible to more pathogenic parasites (Anderson, 1979).

So far, only fishes from rice fields have extensively been studied in terms of parasitology (Zaman, 1985; Lim, 1987). However, many of these studies are not intensive studies but surveys for only specific group of parasites (Lim, 1987). There is also paucity of information on the effects of water quality on the biology (development) and ecology of parasites in tropical systems. Such knowledge will enable us to control parasites in tropical systems (Esch *et al.*, 1977).

The aim of this study is to undertake a survey of the general fish parasites around the burrow pits of Kano metropolis in relation to the health implication, they might cause.

Materials and Methods

Collection of samples

Fish samples were collected in the morning between 7 – 8:00a.m. Different types of fishing gears were used to collect the samples. Samples were kept in iced box and transported to the laboratory in the Department of Biological Sciences, Bayero University, Kano. In the laboratory, the fishes were sorted according to species and their length and weight measured using measuring board and top weighing balance respectively.

Using hand lens and dissecting microscope the outer covering of the fishes was observed for sign of any ecto-parasite. If found they were counted and identified, then stored in sampling bottles. After that, the gills were opened by removing the operculum, the mouth cavity was removed and observed for signs of endo-parasites. Then the fishes were dissected and the intestine removed, washed and observed for identification of endoparasites.

Results

A survey on parasite of fishes conducted around the burrow pits of Kano metropolis shows the following species of fish to be most commonest found in the area (Table 1).

Table 1: Species of fish found in some of the burrow pits of Kano metropolis

Locality	Species	Weight (g)	Total length (cm)	Standard length (cm)
Yankura	*Clarias gariepinus*	80	25.0	21.0
		70	23.5	20.0
		100	24.0	21.0
		140	27.5	23.0
		140	26.5	23.0
		150	29.0	25.0
		220	32.0	28.0
		200	32.0	27.0
Dorayi	*Tilapia zillii*	20	11.0	8.6
		20	11.0	8.5
		20	11.5	9.0
		60	15.0	12.0
		60	15.0	13.0
Sharada	*Tilapia nilotica*	60	14.5	11.0
		140	19.0	15.0
Sabon Kofa	*Clarias gariepinus*	85	24.0	21.0
		100	25.0	21.0
		72	24	20.0

Out of the 18 fishes examined, nine of them (50%) were infected with mostly parasites of the class Nemotoda (Table 2). In Yankura, out of the 8 *Clarias* examined only one was infected with the fish tapeworm (*Diphyllobothrium*), whereas the remaining 7 species were not infected. In Sharada and Dorayi all the fishes encountered were infected giving 100% infection rate. In Sabon Kofa, out of the three fishes encountered, only one was found to be infected (Table 2).

Table 2: Identification and number of parasites found in the fishes of burrow pits of Kano metropolis

Locality	**No. of fish examined**	**No. of fish infected**	**% infection**	**Identification of parasite**
Yankura	8	1	12.5	Tapeworm, *Diphyllobthrium*,
Sharada	2	2	100	Slender worms, round worms (Nematodes)
Dorayi	5	5	100	Slender worms, round worms (Nematodes)
Sabon kofa	3	1	33.3	Slender worms, round worms (Nematodes)
Total	18	9	50.0	

Discussion

Fishes are exploited commercially in two main ways, to feed humans and animals who are then eaten by man. Many fishes die before slaughter and in addition to aggressive behaviour and diseases, fish die from toxic algal blooms and oxygen starvation in hot weather (Lymberg, 1992). The study of fish parasite is important even in times of integrated systems because parasites have been shown to lower fish productivity, decrease fish health, making them more susceptible to diseases and cause even mortalities (Lim, 2003), this will result in loss of economic returns and loss of good protein sources.

Results obtained in this study indicated a high prevalence rate of parasites in the study area especially around Sharada and Dorayi axis. This result did not compare well with what Bichi and Bizi (2002) obtained in Challawa George Dam of Kano State, which is low prevalence of parasite infection in that area. The high rate of infection in this study could be attributed to high pollution in the metropolis which encourages the growth of parasites, especially along the Sharada and Dorayi axis, which receives polluted effluents from industries located in the area. Connor (1994) reported that organic waste cause an acute and highly localized problem of pollution which increases the chance of fishes being infected with parasites.

From this study, Nematodes are mostly the parasites collected (Slender and Round worms) from the fish species collected from Sharada, Dorayi and Sabon Kofa. The fish collected from Yankura was the only one found with fish tapeworm *Diphyllobothrium.* Some nematodes species are generalists occurring across wide areas and in many habitats, while others may be much more specialized and restricted to a few places.

References

Anderson, R.M. (1979). Population Biology of Infectious Diseases; Part 1. *Nature* 280: 361 – 367.

Bichi, A.H. and Bizi, A.G. (2002). Survey of ectoparasite and endoparasites of the fishes of Challawa George Dam, Karaye Kano, Nigeria. *NISEB Journal* 2(3): 219 – 222.

Cannor, S. (1994). The effect of wet and dry season on a cultivated aquatic ecosystem. *Monographia Biologicie* 34 Dr. W. Junk Publishers 288pp.

Esch, G.W. Hazen, T.C. and Aho, J.M. (1977). Parasitism and r and k selection pp 9 – 62. In: Regulation of parasite populations. Esch G.W. (ed) Academic press. 253pp.

Lim, L.H.S. (1987). Distribution and diversity of monogenous in fresh water fishes of Peninsular Malaysia, Kuala Lumpur. *Reviews in fish biology and fisheries* 2: 144 – 176.

Lim, L.H.S. (2003). Fish parasites in integrated farming systems in Peninsular Malaysia. *Journal of Parasitology* 82: 389 – 399.

Lymberg, P. (1992). The welfare of farmed fish compassion in world farming. *Advances in Parasitology* 35: 85 – 144.

Zaman, Z. (1985). Parasite fauna of paddy field of catfish (genus: *Clarias*) from Kedah and Perak, Peninsular Malaysia Ph. D thesis University Siam Malaysia, Pulau Pinang.