RESEARCH ARTICLE

Epidemiological Study of Internal Parasites in the Usual Carp Fish Cypinus Carpio

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Received: 28th February, 2022; Revised: 05th April, 2022; Accepted: 17th May, 2022; Available Online: 25th June, 2022

ABSTRACT

Samples of 90 Carp fish (cyprinid fish) were collected from the basins for several areas (Isaac, al-Sa'i, Castle, Heat, Talker) between January and February 2021 to show that they were infected with gastrointestinal parasites and using direct examination with crystal violet dye. The results of a direct examination with crystal violet showed a variation in the types of parasites detected, with the highest rate of *Rhabdochonakazirensisk* parasites at 20%, *Neoechinorhynchus* at 16.5%, *Cryptosporidium* parasites at 10%, and *Cucullanellus minutes* at 6.5%. Monthly changes in the incidence of fish with various parasites were also studied, with the highest incidence for December being cryptosporidium at 13.3%. While January recorded the highest incidence of *Rhabdochonakazirensisk* parasite by 50% in The Good Month of February, the highest rate of *Neoechinorhynchus* parasite was 33.3%. The study also recorded a different infection rate depending on the type of parasite and its relation to fish weight, with 100% infection rates with *Neoechinorhynchus* and *Rhabdochonakazirensisk* parasites in fish weights ranging from 710 to 800 g. In comparison, the highest 100% showed duck infection *Cucullanellus minutes* at fish weights between 110 and 200 g and the highest incidence of cryptosporidium was recorded at 100% at fish weights 40–100 g and 210–300 g.

Keywords: Carp fish, Cyprinid, *Neoechinorhynchus*, *Rhabdochonakazirensisk*, *Cucullanellus minutes*.

International Journal of Drug Delivery Technology (2022); DOI: 10.25258/ijddt.12.2.40

How to cite this article: Mohammad MJ, Al-Samarrai ASM. Epidemiological Study of Internal Parasites in the Usual Carp Fish Cypinus Carpio. International Journal of Drug Delivery Technology. 2022;12(2):692-694.

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

Fish is a major source of food around the world and a major source of protein for more than 1.5 billion people. Fish are also important as they are a source of work and income, and 95% of those who depend on fish in their lives live in developing countries. Demand for fish has increased steadily, with the world's production for human consumption rising from 27 to 121 million tons per year. Analysts expect that fish demand will continue to increase as population growth, income rise, and diet develop.[1] Fish are considered to be the precursors of many parasites, including what is satisfactory to fish, and some of us are satisfactory to other fish or may be satisfactory to the vertebrate meat-eaters, including humans. Fish are exposed to diseases and parasites, and these infections are common and are more dangerous when exposed to stress due to a malfunction in the natural conditions surrounding them, and this stress may cause the death of fish and mass destruction coupled with significant material losses.[2]

Studies have shown that infections are increasing on fish farms compared to natural water. No matter how much man tries to bring the living conditions of fish closer to the conditions of their usual environment, these conditions remain far from normal conditions due to fish congestion caused by intensive culture and the competition of fish for a specific food, and between me. The accompanying total breeding processes change in physical, chemical and life specifications of water so that these fish, during their lifetime, becomes vulnerable to various parasites and diseases even if it is taken into account that fish have the ability great for disease resistance as long as it is in good living conditions.[3,4]

Fish are infected with many pathogens that are diverse between bacterial, parasitic, viral, and physical and chemical factors 5 as fish are infected with many types of parasites that belong to most of the people of the animal kingdom, including protozoans, monogeneans, bi-origin Digeneans, acanthocephalans, Leeches, and Molluscans, as well as Nematoda.[5,6]

The presence of parasites in their wide range is specific to the fish environment and therefore exposes them to significant losses causing many diseases, such as their impact on growth, weight loss, lack of fertility, and decrease in food activity causing this loss, especially in water exposed to industrial pollutants and lacking nutrients as well as the emerging relationship between parasites and additives by

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many researchers in several areas such as (ecology, vesaling) and the relationship between the parasite and the host. It has an impact on the life cycle, reproduction, death of the parasite and host and controls for this relationship different conditions such as geographical location, a season of the year, temperature, biological host and size and habits of the host in addition to factors affecting the environment on the host.[7]

MATERIALS AND METHODS

The study was conducted from the beginning of January to the end of February 2021 on the usual carpio L carprinus. To show that she could be infected with gut parasites.

Collection of Samples

Ninetable models of regular carp were collected from the docks for several areas (Isaac, al-Sa'i, Castle, Heat, Talkative), after which the fish were brought to laboratories for the purpose of anatomy and calculation of measurements and weights.

Measurements and Weights

Measurements of the length and width of the fish used in the study were taken where the length of the fish was measured from the front end of the line to the end of the sin fin, ranging from 12 to 37 cm, and the width was measured from the root of the dorsal fin to the root of the abdominal fin by a ruler and was between 4 to 12 cm. The weight of the fish was then taken by a scale sensitive to large measurements, and their weight ranged from 40 to 900 g each fish separately.

The Age of Fish

To determine the age of the fish, we do the following:

- Using a medical scalpel, we make pieces in the crusts on the central length.
- These crusts are close to a candle or a lamp with a 12 cm and 5 to 10 seconds
- Examine the obvious veins in the form of black or brown lines, but not every line is an annual loop.

Dissection of Fish and Detection of Parasites

The fish explained using anatomical tools by making a longitudinal incision in the abdominal area from the exit opening to the vertical area and observing the inner bowels of the naked eye, during which he identified her race after examining the male and female genitalia. The internal visceral examination was checked for large parasites, after which the gut was cut off from its contact area with the openings of the mouth and exit and placed in a Petri plate on the vesal solution for examination under the anatomy microscope. The intestines were also chopped, mixed with the vesal solution, placed on a clean glass slide, and examined under a microscope to observe the presence of parasites.

Dye Testing

The crystal violet dye is prepared from 2 g crystal violet powder, 20 mL at a concentration of 95%, and mixed together until the powder dissolves; then, add the mixture to 0.8 mg of ammonium oxalate with 80 mL distilled water we leave for a full yuk, and then we filter it with filtration paper, in which case the solution is concentrated and dilutable to a limit of 10 times. After the samples are proven by drying or ethanol alcohol, add a quantity of dye to the slide and leave for 2 minutes. It is then washed with distilled water and examined under a microscope.

RESULTS

A survey of the spread of internal parasites in the intestines of fish (carp) in fish basins was conducted by collecting 90 samples. Using direct diagnosis, the results showed a variation in the types of parasites detected. The highest was 20% for *Rhabdochonakazirensisk*, while the incidence of other parasites was 16.5% for neoechinorhynchus, 10% for cryptosporidium, and 6.5% for *Cucullanellus minutes*, as in Table 1.

The results in Table 2 showed monthly changes in the incidence of fish with various parasites. The table shows that the highest incidence in December was for the *Cryptosporidium* parasite at 13.3%. January recorded the highest incidence of Rhabdochonakazirensisk parasite by 50%, while in February, the highest rate of *Neoechinorhynchus* parasite was 33.3%.

The study in Table 3 showed changes in the incidence rate depending on the type of parasite and its relation to fish weight, where the highest 100% of *Neoechinorhynchus* infection was recorded in fish weights ranging from 710 to 800 g. In comparison, the highest rate showed 100% of infection *Cucullanellus minutes* at fish weights ranging from 110 to 200 g. The highest 100% of cryptosporidium infections were recorded at fish weights between 40–100 g and 210 g. 300 g, and the highest 100% infection of the parasite *Rhabdochonakazirensisk* at fish weights were between 710 and 800 g.

Table 1: Number of cases and percentage of carp infection with parasites

Parasite	Tested fish	Infected fish	%
Neoechinorhynchus	90	15	16.5
Cucullanellus minutes		6	6.5
Cryptosporidium		9	10
Rhabdochonakazirensisk		18	20

Table 2: Shows monthly changes in carp infection with parasites

		Neoechinorhynchus		*Cucullanellus minutes*		*Cryptosporidium*		*Rhabdochonakazirensisk*	
Months	*Tested fish*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
December	45	4	8.8	4	8.8	6	13.3	4	8.8
January	18	3	16.6	1	5.5	1	5.5	9	50
February	27	9	33.3	1	3.7	2	7.4	4	14.8
Total	90	15	16.5	6	6.5	9	10	18	20

Table 3: Rate of carp weights infected with parasites

Weight (g)	*Tested fish*	*Neoechinorhynchus*		*Cucullanellus minutes*		*Cryptosporidium*		*Rhabdochonakazirensisk*	
		No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
40–100	6	3	50	0	0	6	100	0	0
110–200	3	0	0	3	100	0	0	0	0
210–300	3	0	0	0	0	3	100	0	0
310–400	21	1	4.7	2	9.5	0	0	6	28.8
410–500	18	0	0	1	5.5	0	0	2	11.1
610–600	9	1	11.1	0	0	0	0	0	0
610–700	9	0	0	0	0	0	0	0	0
710–800	10	10	100	0		0	0	10	100
Total	90	15	16.5	6	6.5	9	10	18	20

DISCUSSION

Several studies on parasites have shown their use of regular carp. In Iraq and the world, as noted earlier in the epidemiological paragraph. The reason for the usual carp fish in the Tigris River is due to the benthic feeding nature of these fish. The larvae of some types of parasites spend about 60% of their life on the bottom of rivers; thus, increasing the proportion of the dumps endemic to the Benthic bottom host causes some parasites economic damage as it causes the disease to fish and in some cases the death of carp.[7,8]

Larvae of some types of parasites are spread in carp and crustacean fish, which are considered as their intermediate flashes, the most important of which are Abramis brama, Tinca tinca, Gobio gobio, Bilcca bilcca.[9] In addition to carp, especially the usual carp.

The pattern and nature of nutrition play an important role in parasitic infection, with the usual carp consuming both plant and animal substances such as aquatic insects, crustaceans, worms, softness, and plant residues. These fish inhale and eject benthic sediments and select nutrients, as well as stir water with their rapid movement and make it difficult to see and feed other fish, so that fish exploit and adapt food in the aquatic environment.[10]

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CONCLUSION

Carp fish are infected with four types of parasites. The highest incidence of carp fish was recorded with the parasite *Rhabdochonakazirensisk* and the difference in parasitic infection in some months of the year is relatively different.

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