

## A Survey for External and Internal Parasites that Infect Basin Ornamental Fish in Hyderabad India

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### Abstract:

*The present study was carried out to survey on external and internal parasite on water fish basins in city (Hyderabad). For this aim 350 samples were obtained from 50 water fish basins and after arriving to the laboratory parasite examination started immediately. At the end of 5 month study on parasites the lucrative business of ornamental fish culture in are facing loses due to the invasion of different external- and internal-parasites. The present study shows that the ornamental fish (Goldfish - Carassius auratus) are mainly affected with external parasites like Ichthyophthirius sp, Dactylogyrus sp, Gyrodactylus sp, Argulus sp. and endoparasites like Procamallanus sp. and Cucullanus sp. The intensity of infection is high in case of Ichthyophthirius sp. and the intensity of the infection is high in summer months when the temperature is high or moderately high. In cooler months the intensity of the infection is lower as because the parasites are unable to breed or scarcity of food particles.*

**Key words:** parasite, Goldfish, Hyderabad ,external, ornamental.

### Introduction

Parasites causing significant economic losses in aquaculture, knowledge of Fish are continuously exposed to stressful essential prerequisite of preventative procedures for procedures

in rearing facilities e.g. transport, over the parasite problem in aquaculture. The aim of present handling and overcrowding (1, 2). One stressor study was to identify external parasites of cold water fish influencing fish health is that imposed by parasites. External parasites are the most common parasites that infect ornamental fish (3). There is a tremendous scope for the aquarium fishes play pioneer role in aquarium fish production in the country. By culturing imported exotic fishes locally, or the colorful resources of indigenous fishes, India not only earns the foreign exchange, but also enters into the world market of ornamental fishes. The ornamental fish trade plays an important role for socioeconomic upliftment of the backward class and females in our World with little investment of money. Catching, keeping, breeding of ornamental fishes for the aquaria is a good economic activity which has not so far properly realized, hence not properly organized in India. The business has been found to be a very profitable economic activity and deserves the scientific study and development. The business can either be the main or subsidiary economic activity to earn money for the culturists. The varieties of indigenous fishes are increasing the demand of Indian ornamental fishes in foreign countries. However, the business is not without risk. The culturist cannot supply the fishes as per demands because of problems due to the diseases. A huge loss of stocked fish often occurs. The aim of the present study provides relevant information of various pathogens that invade the ornamental fish in various fish farms when the fish suffer from a disease they are sometimes treated rapidly and the real causative agent cannot be observed.

## **Materials and Methods**

The study was conducted the period of November 2013 to March 2013, water fish basins of were surveyed and culturists interviewed to get information about the fish pathogens and

diseases. During this period, of goldfish, *Carassius auratus* were collected and examined to find out the pathogens. To study the pathogens, the fish were killed; the body mucus and pieces of organs were taken in the slide with a drop of 0.65% saline solution for microscopic observation. The external surface of the fish was examined thoroughly using dissecting microscope. The fins, nostrils, operculum and buccal cavity were examined for external parasites (Monogeneans, crustaceans) Gills were examined completely under a dissecting microscope. The smears of the gills were examined under the microscope. Pieces of gills were treated with 4% formalin, shaken and the sediment examined under a microscope. The entire digestive system was taken in a Petri dish More Details with physiological saline solution (0.65%). The gut was divided into sections and each section examined for parasites. Drawings of the parasites were made and identification done using appropriate keys reported by Yagamuti, Frimeth,. (4),(5).

## Results and Discussion

By examining of 350 sample Fish (Goldfish - *Carassius auratus*) has been identified five types of parasites *Cucullanus* sp , *Procamallanus* sp, *Argulus* sp, *Dactylogyrus* sp, *Gyrodactylus* sp, *Ichthyophthirius* sp Observed and increase the number of parasites in the months with high temperature We conclude from the that there is a relationship between temperature and increasing the proportion of parasites That's where in the month of November the high rate of injury more than the rest of the months Decrease in January and February And increasingly also in March Schδperclaus (6) reported that the *Ichthyophthirius* is the most important pathogenic parasites of the fish. Mortality rate of infected fish by *Ichthyophthiriasis* could reach almost 100%. *Ichthyophthiriasis* outbreaks occur during the summer months when temperatures are at the peak reported by Ogut. (7) *Gyrodactylus* sp. infection is high mainly

in the autumn with moderate temperature and low in the winter season. The similar work of Davioda et al. (8) showed the intensity of Dactylogyrus was high in moderate high-temperature months than cooler months. King et al.(9) observed that the intensity of Gyrodactylus sp. was high in warm aquarium waters in warmer months. The report also concluded that at the higher temperature, the parasite was capable of reproducing on host. (10),(11) Edema et al.(12), Okaka (13) and Khalil (14) reported that Nematode parasites were found to infect most fish species. The parasites reported in this study (Procamallanus sp., Cucullanus barbi and Spinitectus sp.). Through this study has shown the intensity of the infection of different parasites are low in cooler months, and intensity increases with the temperature Identify the types of parasites that infect ornamental fish.

**Table (1): the overall proportion of external parasites**

Month	November	December	January	February	march	total
Number of fish examined	80	71	62	65	72	350
Number of infected fish	40	39	28	29	37	173
Incidence (%)	50	54.9	45.1	44.6	51.3	49.4

**Table (2) illustrates the types of parasites and the percentage of injury Fish**

Type of Fish	Type of parasite	Number of fish examined	Number of Infection Fish	Number of Infection Fish%
Goldfish Carassius auratus	Cucullanus sp	350	40	11.4
	Procamallanus sp	350	72	20.5
	Argulus sp	350	32	9.1
	Dactylogyrus sp	350	38	10.8
	Gyrodactylus sp	350	48	13.7
	Lchtyophthirius sp	350	76	21.7

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## REFERENCES

- Barton, B.A. and G.K. Iwama, 1991. Physiological changes on fish from stress in aquaculture with emphasis on the response and effects of corticosteroids. Annual Review of Fish Diseases, 1:3-26. [1]
- Wendelaar Bonga, S.E., 1997. The stress response of fish Physiological Reviews, 77: 591-625. [2]
- MacMillan, J.R., 1991. Biological factors impinging control of external protozoan fish parasites Ann Rev Fish Dis., 1: 119-131. [3]
- Yagamuti S. Systems Helminthum Vol. 3 Part 1 and 2; New York: Nematode Interscience; 1961. p. 1261. [4]
- Frimeth J. General procedures for parasitology. In: Thoesen J, editor. Suggested procedures for the detection and identification of certain finfish and shellfish pathogens. 4<sup>th</sup> ed. Fish Health Section, Bethesda, MD: American Fisheries Society; 1994. [5]
- Schäperclaus W. Diseases caused by ciliates. Schäperclaus W, Kulow H, Schreckenbach K, editors. Fish Diseases. New Delhi: Amerind Publishing; 1991. p. 702-25. [6]
- Ogut H, Akyol A, Alkan MZ. Seasonality of *Ichthyophthirius multifiliis* in the trout (*Oncorhynchus mykiss*) farms of the eastern black sea region of Turkey. Turk J Fish Aquat Sci 2005;5:23-7. [7]
- Davidova M, Jarkovsky J, Matejusova I, Gelnar M. Seasonal occurrence and metrical variability of *Gyrodactylus rhodei* Zitnan 1964 (Monogenea, Gyrodactylidae). Parasitol Res 2005;95:398-405. [8]

- King TA, van Oosterhout C, Cable J. Experimental infections with the tropical monogenean, *Gyrodactylus bullatarudis*: Potential invader or experimental fluke? *Parasitol Int* 2009;58:249-54. [9]
- Lester RJ, Roubal F. Phylum Arthropoda. In: Woo P, editor. *Fish Diseases and Disorders: Vol 1. Protozoan and Metazoan Infections*. Wallingford, UK: CAB International; 1995. p. 475-598. [10]
- Mikheev VN, Pasternak AF, Valtonen ET. Light-mediated host searching strategies in fish ectoparasites, *Argulus foliaceus* L. (Crustacea: Branchiura). *Parasitology* 2000;120:409-16. [11]
- Edema CU, Okaka CE, Oboh IP, Okogub BO. A preliminary study of parasitic infections of some fishes from Okhuo River, Benin City, Nigeria. *Int J Biomed Health Sci* 2008;4:107-12. [12]
- Okaka CE. Plerocercosis and other helminth infection among fresh water fishes of Osiomo and Benin rivers in Southern Nigeria. *Trop Freshwater Biol* 1998; 7:73-80. [13]
- Khalil LF. Checklist of the Helminth parasite of African Freshwater fishes. Common Wealth Agricultural Bureaux Technical Communication. Abingdon, Berkshire, England: Burgess and Son Ltd; 1971. p. 1-80 [14]