

Effect of Herbal Plant (Garlic) Against *Common Disease* in Gold Fish, *Carassius Auratus* (Linn. 1758)

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Abstract: The Herbs (medicinal plants) are widely used by the traditional medical practitioners for curing various diseases in their day-to-day practice. These herbal plants are easily available in our surrounding area. Generally it is found, Gold fishes are frequently effected from microbes, bacterial, fungal, parasite etc. Disease fish were collected from ornamental Fish Farm. Collected fishes were feed with garlic supplemented feed and normal feed. Separately Garlic (*Allium sativum*) paste was added to normal feed and prepared feed was applied the aquarium containing disease-affected Gold fishes (*Carassius auratus* L.). Experimental trial was continued for 8 weeks consecutively to observe the development of immunity against the common pathogens. Result shows that the after treatment fish were healthy and energetic.

Key words: Gold fishes (*Carassius auratus* L.), Garlic (*Allium sativum*), microbes, bacterial, fungal, parasite

I. INTRODUCTION

Since ancient time, fishes have been playing an important role in human civilization. Ornamental fish culture has gained popularity in the world as hobby for decorating home and passing time when we feel heavy mental stress. Ornamental fish trade is a foreign exchange earner, besides being a source of employment. Healthy, disease free and colourful varieties of ornamental fish have a relatively high demand in the aquarium fish trade. When aquaculture production becomes more intensive, the incidence of fish disease including infectious disease has increased and because of it, the entrepreneurs incurred significant economic losses. Now a day, many fish farms and hatcheries several antibiotics, vaccines and chemotherapeutic agents as well as some immune stimulants have been used to prevent various types of microbes, viral, bacterial, parasitic and fungal diseases. Fish diseases are cause both by action of infectious agents and due to unsatisfactory environmental factors including water quality, inadequate diet and stress.

The herbs (medicinal plants) use of plants is very old. The writings indicate that therapeutic use of plants is as old as 4000–5000 B.C. and Chinese used first the natural herbal preparations as medicines. In India, however, earliest references of use of plants as medicine appear in Rig-Veda, which was written between 3500–1600 B.C. Later the properties and therapeutic uses of medicinal plants were studied in detail and recorded empirically by the ancient

physicians in Ayurveda (an indigenous system of medicine) which is a foundation of ancient medical science in India. Throughout India, the herbs /medicinal plants (leaves, stem, flower, root, seeds and even whole plant) are widely used by the traditional medical practitioners for curing various diseases in their day-to-day practice.

Most of the sulphur found in whole garlic cloves are of two types found in equal quantities: the *S*-alkylcysteine sulfoxides and the γ -glutamyl-*S*-alkylcysteines. The most abundant sulfur compound in garlic is alliin (*S*-allylcysteine sulfoxide), which is present at 10 mg/g in fresh garlic or 30 mg/g dry (Lawson 1998). Recent studies from Korea have further elucidated novel sulphur containing nitrogenous compounds responsible for the greening process of crushed or bruised garlic. These compounds are not released when the garlic is finely peeled and have been found to differ significantly from other green plant pigments (Lee et al. 2007). It is clear that even with a plant medicine as well characterized as garlic, there is still much to be learned.

The garlic herb is an effective herbal remedy to treat viral, bacterial, fungal, and other parasitic infections in the body. A compound released by crushed raw garlic called allicin, is known to be much more potent as an antibiotic than the common antibiotics such as penicillin and tetracycline used in most standard medical regimens. The remedies made from the garlic are also effective and potent for treating intestinal worms as well as problems such as candidacies. Garlic remedies can also be used topically to treat thrush affecting the mouth or the vaginal cavity. The general rate of digestion is improved by garlic; the herb also helps alleviate excessive gas and abdominal distension in the body. The remedies made from the garlic also help boost the rate at which food is absorbed and assimilated in the intestines. Garlic is also a good remedy for blood sugar related problems in diabetics as the herb boosts the secretion of insulin in the pancreas - thus helping the body had better regulate sugar levels.

II. MATERIALS AND METHODS

Carassius auratus is a medium size, peaceful, hardy fish and most popular ornamental fish belonging to the family Cyprinid. This fish is commonly known as the Gold fish.

For the study, disease effect 10 nos. of *Carassius auratus* species were collected from south 24 Parganas ornamental fish Farm during the month of June, 2010 to study the herbal treatment of disease fishes. For the study of that fishes were kept in separated glass aquarium after collection and carried to the CIFE, Kolkata Centre laboratory.

Two glass aquariums (30 cm x 22 cm x 22 cm) were fitted with aerators and filled with well water. At that time, a disease-affected gold fish (*Carassius auratus* L.) was collected from ornamental fish farms and that gold fishes (*Carassius auratus* L.) were kept in two aquariums each 5 nos. (Five) fish. The weight of the individual fish was taken. Tanks were divided into two parts. A basal feed was prepared using rice bran, master oil cake, fishmeal, wheat flour and four common herbs Garlic (*Allium sativum*) paste.

Feed ingredients were mix for 5 minutes and added water at 200mL kg⁻¹ well mix for another 5min. Then, the mixture was prepared the ball like structure and Autoclave for 45 minutes. After autoclave the herbal ingredients mix well properly.

Table 1 Details of feed developed in the laboratory

Parameters	Normal Feed	Garlic Paste added Feed
Ingredients of prepared feed	Rice bran (400 g), Master oil cake (250 g), Wheat flour (200 g), Fish meal (50 g), Binder (50 g), Calcium Propionate (50 g)	Rice bran (400 g), Master oil cake (250 g), Wheat flour (200 g), Fish meal (50 g), Binder (50 g), Calcium Propionate (50 g)
Additive(s)	Nil	Garlic Paste (50 g)

Floating Cylindrical feed of 1 mm diameter were prepared as per the details given in Table 2 and

Table 2 Pellet characteristics:

Feed mill used for processing	used
Processing temperature	45 ⁰ c
Cilindrical diameter	1mm
Type	Floating

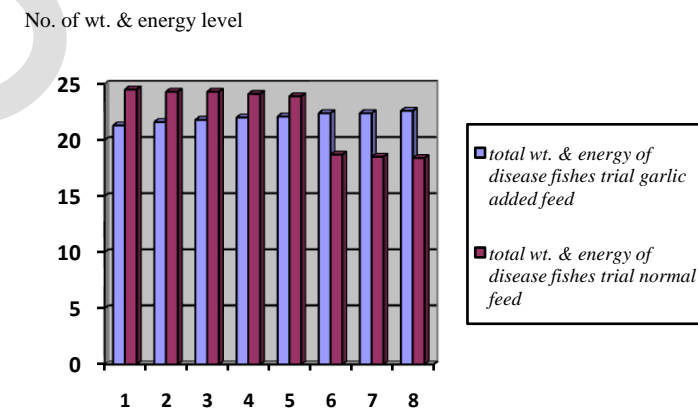
Dried in a hot air oven for 12-24 hrs at 45⁰C. The dried cylindrical feed were packed in plastic bags and stored in a

cool dark place. Infection is commonly brought on by bad water conditions, injury, poor diet, or as a secondary infection in a fish which does other disease already stress. Fin rot starts at the edge of the fins, and destroys more and more tissue until it reaches the fin base. Feeding trials were carried out for 8 weeks and fish were fed twice daily at 3% of the body weight. Then, the edge of the fins, and destroys more and more tissue are gradually develop. Growth rate is well and fish’s survival rate is high than before and pigmentation in the skin of fish were determined after 8 weeks.

III. RESULT & DISCUSSION

In this study, the fish feed was prepared Garlic (*Allium sativum*) pest were chosen because of their recorded ability to enhance the activity of the immune system. Garlic (*Allium sativum*) is a traditional Indian medicine used for the prevention and treatment of various human diseases in India and other Asian countries.

Infection generally started on by bad water conditions, injury, poor diet, or as a secondary infection in a fish which does other disease already stress. Fin rot starts at the edge of the fins, and destroys more and more tissue until it reaches the fin base. While some diseases will infect the entire community, diseases that only infect one or several fish treated in isolated tanks. In addition, some health problems that develop are only secondary problems, in which both illnesses will need to be treated.



It is possible that this is the result of enhancement of some components of non-specific immune system of the fish by Garlic (*Allium sativum*). There is strong evidence that feeding trials were carried out for 8 weeks and fish were fed twice daily at 3% of the body weight. After the activity of the innate immune system of fishes and increased the disease resistance. Often fungus developed giving the wound a fluffy appearance. It is easily treated and the fin will grow back if not too badly damaged area. With the proper treatment, most fish diseases will be cure. The most important factor in your fish surviving an illness or disease is speed! You should closely observe your fish on a daily basis and watch for any changes in their

appearance or behavior. The best prevention is to make sure that there aren't any sharp objects in the aquarium for fish to injure themselves.

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