

Effect of Herbal plant (Tulsi) 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 Tulsi (*Ocimum Sanctum*) dust 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.), Tulsi (*Ocimum Sanctum*), 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.

Tulsi “Queen of herbs” is describing as sacred and medicinal plant in ancient literature. The name Tulsi is deriving from ‘Sanskrit’, which means “matchless one”. In India, the plant is grown throughout the country from Andaman and Nicobar islands to the Himalayas up to 1800 meters above the sea level. It is also abundantly found in Malaysia, Australia, West Africa and some of the Arab countries. *Ocimum sanctum* (Linn) is the most prominent species of the genera. The leaves of the plant are considered to be very holy and often form a consistent part of the Hindu spiritual rituals (*Tirtha* or *Prasada*). *Ocimum sanctum* has two varieties i.e. black (*Krishna Tulsi*) and green (*Rama Tulsi*), their chemical constituents are similar. Both the varieties also have common medicinal properties.

Ocimum sanctum belongs to Family Labiaceae. It is finding throughout tropical and semitropical region of India and other Asian countries (Godhwani et al, 1988; Pattanayak et al., 2010). It is a branched, fragrant and erect herb and a mature plant attains height of about 75 to 90 cm. Its leaves are nearly round and up to 5 cm long with margin, i.e. entire or toothed. Flowers are small having purple to reddish colour, present in small compact cluster or cylindrical spike. The fruits are small and yellow to reddish in colour. Different parts of the plant are traditionally utilize in the Ayurveda and Siddha systems for treatment of several ailments like infection, skin disease, hepatic disorder, common cold and cough, malarial fever and as an antidote for snake bite and scorpion sting (Godhwani et al, 1988).

Tulsi originates in Asia and Africa as well as some Pacific islands. The trade caravans along the Silk Road brought Tulsi to Europe from India in the 16th century. The colonists migrating to America brought it with them in the 17th century. Tulsi has a history of being a sacred herb in the Hindu religion in India. Hindu households used this herb to protect the spirit of the family. The British made Indians swear an oath on a sprig of Tulsi instead of a Bible in a court of law during British colonial rule.

The chemical composition of *Ocimum sanctum* (Tulsi) is a complex of many nutrients and some commonly recognized biologically active compounds those are involved in pharmacological activities against different disease conditions (Rahal, 2006). These well established nutritional and pharmacological properties of the whole herb in its natural form result from synergistic interactions of many different active phytochemicals (Bharavi et al., 2010).

Tulsi found all over the country. It is an annual plant, 30-90 cm high, much branched; stem and branches usually purplish, sub- quadrangular; 2.5-5 by 1.6-3.2cm. elliptic oblong obtuse, pubescent on both sides and minutely gland-dotted. It is a branched, fragrant and erect herb plant. The Tulsi flowers are small, reddish-purple in color, present in small compact clusters on cylindrical spikes. The fruits are small and the seeds are reddish-yellow in color. The Tulsi plant with light green leaves is called RamaTulsi and the plant variety with dark red leaves is called Krishna or Shyama /Manjari Tulsi. A variety of white Tulsi also found.

Tulsi plant has a lot of significance for humankind, due to the manifold medicinal benefits it provides. It is known to promote the longevity of life. The extracts obtained from the plant extensively brought to use for curing various diseases such as the common cold, inflammation, malaria, heart disease, headaches, stomach disorders, kidney stones, heart disorders, and many more. The Indian basil Tulsi also aids in the purification of atmosphere.

In Ayurveda Tulsi (*Ocimum sanctum L.*) has been well documented for its therapeutic potentials and described as Dashemani Shwasaharni (antiasthmatic) and antikaphic drugs (Kaphaghna) (9). Although the traditional medical practitioners in India have been widely using this medicinal plant for management of various disease conditions from ancient time, not much is known about the mode of action of Tulsi, and a rational approach to this traditional medical practice with modern system of medicine is also not available. In last few decades several studies have been carried out by Indian scientists and researchers to suggest the role of essential oils & eugenol in therapeutic potentials of *Ocimum sanctum L.* (4, 12). The present article incorporates the names of some important plants of genus *Ocimum*, therapeutic uses of *Ocimum sanctum L.* and pharmacological actions & sources of eugenol.

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 common herbs Tulsi (*Ocimum Sanctum*) dust.

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	Tulsi Dust (50 g)

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

Table 2 Pellet characteristics

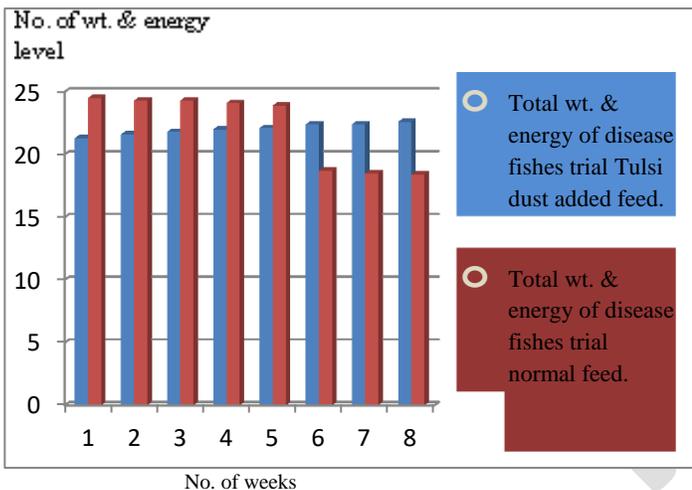
Feed mill used for processing	used
Processing temperature	45 ^o c
Cylindrical diameter	1mm
Type	Floating

Dried in a hot air oven for 12-24 hrs at 45^oC. 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 Tulsi (*Ocimum Sanctum*) dust were chosen because of their recorded ability to enhance the activity of the immune system. Tulsi (*Ocimum Sanctum*) 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 Tulsi (*Ocimum Sanctum*). 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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