

# Variation in Hb Content *Cyprinus carpio* Fed with Tulsi Extract Supplemented Diet

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**Abstract:** Herbal extract and herbs added to the feed suppliant provide better result to the aquaculture. The herbal additives are cheaper, easily available and eco friendly with minimum side effect to fish and consumer. In this study *Ocimum tenuiflorum* was incorporated in the food supplement in different concentration feed to fishes twice a day, after 48 hrs the hemoglobin (Hb) content was estimated. The result demonstrated progressive increase in the Hb content of *Cyprinus carpio*.

**Keywords:** *Cyprinus carpio*, *Ocimum tenuiflorum*, Hemoglobin, Herbs

## 1. Introduction

Plants are considered as one of the promising source of medicines and drugs in today's life. Medicinal plants are economically less expensive, effective, easily available and safe to use. Plant produces different bioactive molecules (Nair *et al.*, 2005) these compounds are alkaloids, flavonoids, steroids, resins, tannins and phenolic compounds etc. These compounds are extracted from different parts of the plant to treat various diseases of human beings all over the worlds from ancient time.

A large number of medicinal plants have been used for different treatment and growth promotion purpose in aquaculture (Direkbusarakom and Aekpanithanpong 1992, Rao *et al.*, 2006, Sharma *et al.*, 2010, Harikrishnan 2010, 2011 and Kolkovski & Kolkovski 2011). The oral administration of natural plants products promote various activities like growth promotion, stimulations, antimicrobial properties and stress reducer etc.

*Ocimum tenuiflorum* which belongs to the family Lamiaceae, commonly known as Tulsi, 'Holy Basil' and Mother Medicine of nature. The name given to the Tulsi is due to number of reasons, it have various medicinal properties like- antibacterial (Phadke and Kulkarni 1989), antipyretic and anti inflammantory (Singh and Majumdar 1995), antiasthmatic effect (Sharma 1983). Tulsi can be used for curing and preventing diseases like- cough and cold, fever and pain. The present study aims to investigate the efficiency of Tulsi supppimentated fish food diet on hemoglobin content changes in *Cyprinus carpio*.

## 2. Material and Method

### Collection of fish and management

The common carp (*Cyprinus carpio*) weighing about 100-150 gm were obtained from the local fish farm. Randomly 20 fishes are divided into four different sets. Each aquarium contains 5 fishes with well sufficient aeration, one aquarium was kept for control group (T<sub>0</sub>) and remaining three sets were for (T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub>) show the different concentration of *Ocimum tenuiflorum*. The control group (T<sub>0</sub>) feed with normal supplemented diet and another three group (T<sub>1</sub>, T<sub>2</sub>

and T<sub>3</sub>) were feed with 1%, 2% and 3% tulsi supplemented diet.

### Preparation of Tulsi (*Ocimum tenuiflorum*) extract

The tulsi leaves were collected locally washed in clean water and powered by grinder and sieved. The paste was then incorporated into fish feed at 5Kg/Kg of feed to prepare experimental fish feed diet and tulsi free fish food was used as a control diet.

### Preparation of fish food

Soyabean meal was taken 80 gm in powder form (soya cake) as main component add other ingredients like milk powder 60 gm, corn flour 20gm and egg 70 gm( only egg albumin), agar powder 4 gm as binding agent and add the paste of tulsi of different concentration 5gm, 10 gm, 15 gm for three types of experimental fish food. All the ingredients mix well and boiled cooled at room temperature after cooling add cod liver oil 3.5ml, vitamin mixture of B complex and vitamin E ( in capsules). It was kept in refrigerator for 12 hrs, then after 12 hrs squeezed over polythene sheet and dried at room temperature. The dried nodules were crushed into small pellets and sun dried to avoid fungal growth (Bhosale *et al.*, 2010).

### Experimental design

Take 20 fishes of about same size and approximate weight randomly divided into 4 groups T<sub>0</sub> (control), T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> (experimental group). The control group fishes feed with the plain fish food, and the experimental group fishes feed with the tulsi supplemented fish food twice a day according to their weight.

### Collection of blood

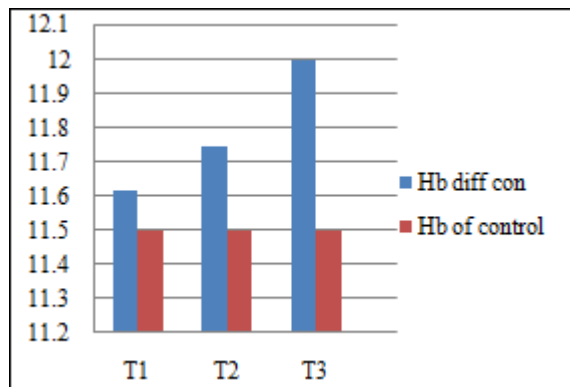
Each fish was anesthetized with clove oil (Merck Germany) at the rate of 50µL of clove oil per liter of water before collecting blood samples from fish. Blood was drawn out by using 10 ml hypodermal syringe and 24 guage needle. Hemoglobin content was determined by Sahli's hemoglobinometer.

### 3. Result and Discussion

**Table 1:** Effect of supplemented fish food diet of different concentration on hemoglobin content of *Cyprinus carpio*

Serial no.	Groups	Hemoglobin (gm%)
1	T <sub>0</sub>	11.50±0.31*
2	T <sub>1</sub>	11.62±0.20*
3	T <sub>2</sub>	11.75±0.16*
4	T <sub>3</sub>	12.00±0.13*

Values in the table are ±SD (n=6) where \* indicates P<0.05.



**Figure 1:** Effect of Tulsi supplemented diet on Hb content of fish *Cyprinus carpio*

Hematological parameters are used as an indicator of fish health status, in various fish species to detect physiological changes followed by different stress conditions (Agrawal and Mahajan 1980). Hemoglobin content in this study shows progressive increase in the content, as the concentration of extract in fish food increases slowly the hemoglobin content also increase, we can see in the above Fig. 1. This report is correlated with the findings of Scott and Rogers (1981).

The outcome of this study shows the use of *Ocimum tenuiflorum* seems to have potential as an additive to fish food, which promote growth and minimizes infections in fishes. That will help to produce healthy fishes for consumption.

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