

# EFFECT OF MINT (*MENTHA ARVENSIS*) LEAF SUPPLEMENTED DIET ON HEMATOLOGICAL CHANGES IN COMMON CARP *CYPRINUS CARPIO*.

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## Abstract-

Experimental fish *Cyprinus carpio* fed with diet containing Mint leaf and another control. Hemoglobin content ( Hb ), Red blood cells ( RBCs ) count were measured after 4 weeks of feeding. The result obtained showed that haemoglobin content and the RBCs volume were significantly different among the dietary group. Fish fed with Mint leaves based diet recorded higher value of Hb. Compared to the values obtained before experiment and control. The result of this study suggested that the dietary supplementation of mint residue could be potential, less expensive and positively affected haematological parameters and boost immune response of cultured carp

**Keywords-** *Cyprinus carpio*, Hemoglobin, Red blood cell, Mint leaves.

## 1. INTRODUCTION-

Aquaculture production has increased tremendously in India and common carp is economically and nutritionally important cultured fish species. With increasing fish culture activities, several bacterial diseases, causing mortality in fish have been reported world over in fresh water aquaculture. Bacterial diseases and infections are very common in fishes ( 4 ). Use of natural feed additives is becoming more important for fish feeding rather than chemical feed additives due to the cumulative effects of the chemical components on animal and human health. Therefore use of herbal medicines seems to be an attractive alternative to control fish diseases and enhance the growth (2,8 ). An ancient traditional medicine usually involves the use of plants extract, often in aqueous solutions because of their wide therapeutic values ( 2 ). Natural antibiotics can be derived from plants; the medicinal plants are the store houses and sources of safer and cheaper chemicals. Among these plants, mint species have been exploited by man since more than two thousand years. *Mentha arvensis* is a perennial herb belonging to the Lamiaceae family and it is one of the oldest medicinal herbs. It has been used in both eastern and western traditions ( 6 ). The ancient Egyptians, one of the most medically-advanced cultures, cultivated and used mint leaves for indigestion while the ancient Romans and Greeks also took mint to soothe their stomachs, in 18<sup>th</sup> century, the plant was used by Europeans and gained popularity for stomach and menstrual disorders ( 6,8 ).

## 2. MATERIALS AND METHODS

### 2.1 FISH

The fish samples were collected from the Bhategaon fish culture center. The fishes are divided into two groups one is control and another is experimental group, each group contain ten fishes. The experimental group fishes were fed with mint leaves supplemented diet and control group fishes were fed with normal fish meal for about 4 weeks. Fishes were fed twice daily at 3% of body weight.

### 2.2 EXTRACT PREPARATION

Mint leaves were collected from the local market from Nanded. The leaves were washed with distilled water and wipe with cotton cloth. Allow to shadow dry for four to five days, the dried leaves were powdered using motor and pestle and subjected to soxhlet extraction for preparation of extract. The mixture was evaporated using rotary evaporator and stored in refrigerator.

### 2.3 EXPERIMENTAL PROCEDURE AND FEEDING

The experiment was carried out in two glass aquarium( 50×34×27) each aquarium contains five fishes for 4 weeks in fishery laboratory; one is control and the another is experimental aquarium. The water level in each tank was maintained at volume of 35 liters throughout the experiment. Water in each aquarium was replaced every three days to maintain relatively uniform physiochemical parameters and prevent fouling from feed remaining water in each aquarium was aerated using aerators. The extract was mixed with the fish meal for the experimental aquarium.

## 2.4 HAEMATOLOGICAL ANALYSIS-

Haematological analysis of the fish was carried out at the fishery science Department of zoology. Blood is withdrawn from pelvic fin for estimation of Hb and RBCs count. First of all the fish was wiped with dry tissue paper to avoid contamination with mucus, the needle was inserted at right angle to the vertebral column of fish. The blood was taken under gentle aspiration until about 3ml had been obtained. The needle was gently withdrawn and blood sample was transferred into heparinised bottle as described by the method (15). The collected blood sample was later on introduced into Neubauer counting chamber and the cells were counted under the microscope at 100 X objective. Haemoglobin is calculated using Sahil's haemoglobinometer.

**Table1. Hb and Red blood cell count of common carp *Cyprinus carpio* before and after the feeding experiment.**

Parameters	Before experiment	Control	After experiment
Hb (gm %)	4.80±0.30	5.6±0.35	6.30±1.41
RBC ×10 <sup>12/L</sup>	1.04±0.17	2.11±0.52	1.75±0.43

Values are ± SD ( p > 0.05 ).

## RESULTS

There was increased in values of Hb and Red blood cell count after the feeding experiment when compared with the values obtained before the experiment as shown in the table 1.

## DISCUSSION

Hematology becomes a necessary research tool for further interpretation of dietary effects. examination of the fish before and after the experiment revealed that the fish were in good condition free from disease and infections. When we compared the values recorded before the experiment there was an increase in hematological parameters. This study revealed that the use of mint leaves extract residues in fish feed induced increases in the blood parameters like hemoglobin and RBCs; the study shows that the extract residues do not result in anaemia and this could support its use in aquaculture as safe plant immunostimulants.

## CONCLUSION

In conclusion, this work revealed that the cultured fish can be affected by mint feed intake. Therefore, dietary supplementation of *Mentha arvensis* leaves feed should be encouraged since the values obtained are within the limits for cultured fish and no trace of infection such as anemia were observed in the cultured fish *Cyprinus carpio*. Mint is also very useful to treat in fish diseases.

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