Summary

Effect of prebiotic, bay laurel's (*Laurus nobilis*) leaf extract, on growth, food conversion, survival and health of common carp (*Cyprinus carpio*) was studied in the laboratory. Three concentrations [T1 (1%), T2 (2%) and T3 (3%)] of leaf extract in addition to control were investigated in eight aquariums (two replicates for each). Experiment was conducted from 1 February to 4 May including 21 day for acclimatization. Two growth parameters (daily and specific growth rate), while many health parameters were used such as glucose concentration in blood plasma and for blood serum, concentrations of (total protein, albumin, globulin, cholesterol, alkaline phosphatase enzyme, aspartate amino transferase enzyme and alanine transporter enzyme) and also bacterial parameters in the intestine such as total bacterial content and lactic acid bacteria.

Results appeared that highest weight increment (7.63 g) achieved by T2 compared with the lowest (5.42 g) that achieved by control. Results also appeared that no fish mortalities occurred during experiment. Better food conversion (65.4) achieved by T2 compared with 6.59, 5.46 and 5.2 for control, T1 and T3 respectively. Highest daily growth rate (0.099 g/day) was achieved by T2 comparing with (0.07, 0.078 and 0.081) g/day achieved by control, T1 and T3 respectively. Highest specific growth rate (0.975 %/day) was achieved by T2 comparing with other treatments.

Lowest total protein concentration (3.29 mg/100 ml) in blood serum was achieved by control while the highest (5.37 mg/100 ml) achieved by T2. Statically analysis showed no significant differences ($p>0.05$) in albumin concentration in blood serum of four treatments and the lowest concentration (1.43 mg/100 ml) at control and the highest (2.6 mg/100 ml) at T2. Highest

concentration of glucose in blood plasma was 71.7 mg/100 ml for T3, while the concentrations were 55.25 mg/100 ml and 56.4 mg/100 ml for control and T2 respectively. Lowest concentration of cholesterol in blood serum was 174.4 mg/100 ml for T2 and then T3, while the concentrations were 228.5 mg/100 ml and 224.7 mg/100 ml for control and T1 respectively.

Results pointed that highest value (69.75 IU/L)of alkaline phosphatase for control and lowest value (47.75 IU/L) for T2, and statically analysis showed significant differences ($p<0.05$) in concentrations of alkaline phosphatase between T2 and other three treatments, while there were no significant differences ($p>0.05$) between these three treatments. Results appeared high reduction in concentration of alanine transporter enzyme and aspartate amino transferase enzyme of T2 compared with control. Concentration of alanine transporter enzyme was 3.55 IU/L for T2 and 6.3 IU/L for control, while the concentration of aspartate amino transferase was 34.4 IU/L for T2 compared with 52.75 IU/L for control.

It was pointed that total bacterial account in fish intestine before experiment was 4.37 Log CFU/g, while lactic bacteria was 2.1 Log CFU/g. Statically analysis appeared significant differences ($p<0.05$) in total bacterial account between fishes before and after experiment in T2 and T3, while there aren't significant differences ($p>0.05$) in T1 and control. Statically analysis appeared significant differences ($p<0.05$) in lactic bacteria between fishes before and after experiment in all treatments.

Results showed an increasing in total intestinal bacteria in the three treatments with prebiotics at the end of experiment, where it was (4.96, 5.65 and 5.53) Log CFU/g for T1, T2 and T3 respectively compared with 4.88 Log CFU/g for control. Results appeared an increasing in intestinal lactic bacteria

in the three treatments with prebiotics at the end of experiment, where it was (2.54, 2.93 and 2.54) Log CFU/g for T1, T2 and T3 respectively compared with 2.48 Log CFU/g for control.

Seventy four fish (ten before experiment and 64 after) were investigated for parasitic fauna. Results of investigation appeared that gills of fishes infected by *Dactylogyrus* spp. before and after experiment. Incidence of infection was 50% and mean intensity of infection was 1.6 before experiment, while after experiment incidence of infections were (37.5, 31.25, 31.25 and 37.5)% for T1, T2, T3 and control respectively and mean intensity of infections were 1.3, 1, 1.2 and 1.2 respectively also. Statically analysis showed significant differences ($p<0.05$) in incidence of infections and intensity of infection between fishes before and after experiment in all treatment, while there weren't any significant differences ($p>0.05$) in these two parameters between these treatments after the end of experiment. It was concluded from this study that better results of growth and health achieved by fishes in treatment T2 where 2% of prebiotic was added to their food.

Effect of bay laurel's (*Laurus nobilis*) leaf extract as prebiotic on growth and health status of common carp *Cyprinus carpio* L.

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