

INFLUENCE OF PROBIOTIC FEED ADDITION ON CARP MEAT CHEMICAL COMPOSITION

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Abstract

For the first time in our country, an attempt for intensive carp production reared in an intensive cage culture farm was made, without the use of antibiotics and chemical treatments i.e. probiotic food supplementation in carp production. This experiment aimed to assess the effect of the probiotic *Paenibacillus alvei*, added to carp food on meat chemical composition.

The experiment was set in reservoir Kozjak, Macedonia on a registered aquaculture production subject for 180 days. *Paenibacillus alvei* DZ-3 was incubated in NB (nutrient broth) at 37°C/24h/180 rpm. The biomass was collected at 4000 rpm/15 min. and washed with 5 mL of PBS (phosphate buffer) (pH = 7.2) twice consecutively. After that, it was diluted in PBS to 1.5×10^8 CFU/mL (= Mcfarland 0.5). There were three experimental groups (A, B, and C). Probiotic concentration for groups A and B was 1 mL/kg food and 2 mL/kg, respectively. Group C was a control group and fish were fed without probiotic addition. The handling procedure of commercial food and probiotic addition was carried out by spraying, mixing, and drying. The percentage representation of fat, protein, moisture, and ash in the meat of common carp (*Cyprinus carpio*) was determined according to standard methods. These research results were analyzed through the ANOVA variance test, (Principal component analysis-PCA), Tucky test (post-hoc analysis) descriptive statistical presentation through the measures of dispersion: (min-max), standard deviation (sd), and coefficient of variance (CV).

The protein percentage of fish from group B, fed with a higher concentration of probiotics, presented higher values compared to control group C. Fat percentage in meat of group A fed with lower probiotic concentration presented higher values, compared to the control group. The moisture results showed a statistically significant difference ($p < 0.05$) between groups A and B, but not with group C. Ash percentage did not present statistical significance between all three groups.

The highest percentage of proteins was presented in group B. It was concluded that a higher concentration of probiotics added to fish food affects the higher percentage representation of proteins in carp meat.

Key words: Probiotic, Food, Carp, Cage system, Meat chemical composition.