



The effect of different amounts of Bio-Aqua probiotic supplement on some growth parameters and histomorphometry of rainbow trout (*Oncorhynchus mykiss*) fry.

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ABSTRACT

Background and Aim: Today, the beneficial effects of probiotics and their usage in farm animals have been well proven.

Materials and Methods: In this study, the effect of a probiotic product called Bio-Aqua ® was evaluated in a randomized design with four treatments in three replications. For this purpose, 360 rainbow trout with an average weight of 10 ± 0.5 grams were divided into several groups, including the control group (without probiotics), the first treatment (0.1 grams of probiotics per kilogram of food), the second treatment (2 0.0 gram of probiotic per kilogram of food) and the third treatment (0.3 gram of probiotic per kilogram of food). This ration was used for 45 days to evaluate the growth factors (survival rate, weight gain percentage, food conversion factor, specific growth factor, protein efficiency factor, food efficiency factor and the amount of food consumed) and intestinal tissue morphology (villi height, number goblet cells, the thickness of the epithelium layer, the thickness of the submucosa layer and the thickness of the muscle layer).

Results: The results showed that the indices of weight gain, food conversion factor, specific growth factor, protein efficiency, food consumption and food efficiency were the highest with a significant difference, related to third treatment 2 compared to others and the lowest amount was observed in the control group ($p < 0.05$). Also, in this survey, the survival rate was 100% and no casualties were recorded. Regarding the histological results, it should be said that the highest amount of villus height and the number of goblet cells with a significant difference are related to the second treatments and the third treatments and the lowest value was related to the control group ($p > 0.05$). Furthermore, no significant difference was observed in the thickness of the epithelium layer and muscle layer ($p > 0.05$). But the thickness of the submucosa layer was the highest in the third treatment ($p > 0.05$).

Conclusion: According to the present results, it can be concluded that the use of this probiotic supplement at the rate of 300 grams per ton of food can lead to improved growth performance and intestinal histomorphometry, which increases economic productivity.

Keywords: probiotic, growth factors, histomorphometry, Rainbow trout

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