Chapter 10

DETERMINATION OF FEED CONVERSION RATE (FCR), BLOOD PARAMETERS AND NITRO BLUE TETRAZOLIUM (NBT) VALUES OF RAINBOW TROUT (*ONCORHYNCHUS MYKISS*) FED WITH SUPPLEMENTED FEEDS AT MACERATED, RIVIERA AND VIRGIN OLIVE (OLEUM EUROPA) OILS

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INTRODUCTION

Aquaculture is a major industry in many countries. As the demand in countries and demand increase, the sector will continue to grow. Fishing activities are increasing and naturally supplied resources are declining. As in more traditional animal forms, nutrition plays an intense role in production. Input costs also affect fish growth, health and production. Nutritional requirements of the species should also be known to develop nutritious, cost-effective diets (1). Food and nutrition affects the growth, reproduction and health of fish, physiological and environmental stress and their response to pathogens (2, 3).

Dietary lipids play an important role as potential energy supplier, essential fatty acids and soluble vitamins (4). They also affect the quality of the culture fish due to the effects of body tissue on the fatty acid composition (5). Changes in the feed of fisheries have been characterized by an increase in dietary lipid levels to reduce nitrogen waste and improve growth performance. Combined with the strong increase in aquaculture production, this evolution led to an increase in demand for fish oils, while its availability was limited. Fish oil is used in larger amounts than alternative lipid sources. Key alternatives include vegetable oils that reduce the share of marine resources in water resources (6). High quality marine fish oils are used almost exclusively as dietary lipid sources in the formulation of commercial fish feed. However, vegetable oils used as an alternative to fish oil were an important part of recent research on fish nutrition (7, 8).

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Hematocrit values are an indicator of physiological stress and oxidative stress in fish (22). Because red blood cells is one of the main production sites of free radicals. Hematocrit and hemoglobin values vary in cases where the blood needs to increase the oxygen carrying capacity or meet the increased energy needs. This gives good tips about the environment, nutrients and fish physiology (23). Reduction of RBC, Hb and Hct values in the macerated and riviera group shows that polyphenols are not as high as high enough to stress in the virgin olive oil (24).

FCR values have the best ratio of macerated oil group and virgin oil group is in the second place, the riviera oil group has the worst proportion. This may be due to the fact that more nutrients are fed into the macerated oil and content of these substances is very low in the riviera oil (25). In a study using olive leaf extract, the results were similar to those in our study at FCR (20).

In this study, the best FCR values were obtained using only standard commercial feed in the control group. However, although the FCR value was not favorable, survival rates, feed intake and weight gain rates were higher in the virgin olive oil group. This group was followed by the riviera and then the macerated oil groups. When the blood parameters and survival rates are considered, the benefits of olive oil have been observed. Although adding olive oil to feeds means additional expense in the short term, this study has shown that the producer will be able to make more profit in the long run. The producer will be able to determine the type of olive oil to be added according to the results of this study and according to the characteristics of its foundation.

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