INFLUENCE OF DIETARY PROTEIN DEFICIENCY ON AMINO ACID AND FATTY ACID COMPOSITION IN TILAPIA, *OREOCHROMIS NILOTICUS*, FINGERLINGS

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Abstract

The influence of dietary protein deficiency on the amino acid and fatty acid compositions of tilapia (*Oreochromis niloticus*) fingerlings was studied. Two experimental diets (0.81% and 33.32% protein, dry matter) were prepared. The protein content of fish fed diet 1 (0.81% protein) decreased from 57.14% to 49.18% in eight weeks. Fish fed diet 2 (33.32% protein) had higher protein and amino acid contents. The lipid content of fish fed diet 1 was higher than that of fish fed diet 2, suggesting that carbohydrates transformed into lipids. The levels of fatty acids 16:0 and 18:2 n-6 in fish fed diet 1 remained nearly unchanged and did not reflect the diet, demonstrating that fatty acids in diet 1 may not have been incorporated into the triglycerides of the tissues. Possible impairment of lipid secretion from the liver, caused by depletion of protein in the blood lipoprotein, may have affected the transport of lipids to the muscles. A dietary protein deficiency results not only in a deficiency of essential amino acids in the body but also affects transport and storage of lipids within the fish.

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