



The Effect of Formulated Dietary Nutrition and barley on Fatty Acid Composition in Common Carp (*Cyprinus carpio*) in Polyuculture Fish Farming

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Abstract

This study was conducted to investigate the effects of feeding dry commercial and barley food on the fatty acid composition of common carp (*Cyprinus carpio*) in in poly-culture method. To do so, 1000 fish with an average weight of 11.22 ± 2.71 g distributed in 9 ponds of 1 ha and fed with 1: barley, treatment 2: 50-50 as barley-commercial dry food, treatment 3: Commercial dry foods were fed for a period of 8 months. At the end of the period, the fatty acid composition of common carp fillet fed with different treatments was evaluated. The results showed that there was not a significant difference between the rates of saturated fatty acids in common carp fillets fed with different treatments ($p > 0.05$). The highest rate of polyunsaturated fatty acids was observed in common carp fillets fed with oats treatment ($P < 0.05$) and the dominant fatty acids were respectively 18:1n9 and 16:1n7. The highest rate of Omega-3 polyunsaturated fatty acids was observed in common carp fillets fed with formulated dietary nutrition ($P < 0.05$) and dominant fatty acids were respectively 18:3n3, 20:3n3, and 22:6n3 and were significantly different from the treatment fed with oats ($P < 0.05$). The highest rate of Omega-6 polyunsaturated fatty acids was observed in common carp fillets fed with formulated dietary nutrition and dominant fatty acids by 18:2n6, 18:3n6, 20:3n6 respectively were significantly different from the treatment fed with oats ($P < 0,05$). IT index in the treatment fed with formulated dietary nutrition (0.44 ± 0.025) was significantly lower than that of other treatments ($P < 0.05$). In general, the use of formulated dietary nutrition in feeding common carp improved the quality of fatty acid composition.

Keywords: common carp (*Cyprinus carpio*), fatty acid, oats, formulated dietary nutrition