



# Comparative Study of Amino and Fatty Acids Synthesis in Two Different Groups of Common Carp (*Cyprinus carpio* L.) Cultured in Floated Cages

Kadhim O.M. AL-Humairi, Sajed S. AL-Noor<sup>1</sup> and Riyadh A. Al-Tameemi<sup>1</sup>

AL-Musaib Technical College, AL-Furat AL-Awsat Technical University, Babil, Iraq

<sup>1</sup>Department of Fisheries and Marine Resources, College of Agriculture, University of Basrah, Basrah, Iraq

E-mail: com.kdm@atu.edu.iq

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**Abstract:** The purpose of this research was to show the comparative analysis for fatty acids and amino acids in muscle tissues of two groups of common carp (*Cyprinus carpio* L.) H1 (old production line, 1982) and H2 (the new production line, 2009) which are important from economical, commercial and nutritional point of Iraqi consumer. These groups were farmed in floating cages at Euphrates River, Babylon province, Iraq lasted for 90 days. The fishes were fed on commercial diet (Alear, Denmark<sup>®</sup>) with 30% protein and 7% fat. After finishing the experiment, all samples were analyzed. There was a similarity in body components regarding to moisture, protein and ash proportions from both H1 and H2, whereas the total amount of fat content was high in H1 (7.21%) and low in H2 (4.12%). H2 has ability for body protein synthesis higher than fat deposition as compared with H1. The saturated fatty acids (SFA) in fishes muscle was 34.24 and 27.79% in relation to total fatty acids (TFA) for H1 and H2 respectively. This is in turn reflects on SFA/unsaturated fatty acids (USFA) which was in high ratio in H2 (2.61%) compared to H1 (1.29%). Monounsaturated fatty acids constitute high part of TFA (45.08%) in H2 whereas was 39.23% in H1. The total SFA and MUFA was low in muscle of H2. The SFA/PUFA nearest to 1 in H2 (0.98%). The  $\omega 6/\omega 3$  in H1 and H2 were 0.44-0.48. The muscles of common carp for both groups contain all essential amino acids (EAA) but in different proportions. Although there were individual differences, some of them were significant in the ratios of essential and nonessential amino acids between the two groups of fish. The total ratios of essential and nonessential amino acids did not show significant differences and were similar between the two groups. High levels in EAA especially lysine (Lys), arginine (Arg) and valine (Val) was in new production line (H2). It should take in consideration importance of H2 as one of valuable common carp which was introduced to Iraq in 2009, and is characterized by its high nutritional value due to its contents of USFA and EAA compared to old production line H1.

**Keywords:** *Cyprinus carpio*, Fatty acids, Amino acids, GC-MS, HPLC

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