The comparison study of Chemical Composition and Nutritional Value in Common carp *Cyprinus carpio* L. from Shatt Al-Arab and earthen ponds

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Abstract

The present investigation aimed to compare the chemical composition, amino acid profile and fatty acid composition in common carp (*Cyprinus carpio* L.) collected from different sources from Basrah Governorate, southern Iraq. Wild specimens were obtained from the natural waters of the Shatt al-Arab River at Karmat Ali, while other samples were collected from the earthen ponds of the Fish Farming Unit, College of Agriculture, University of Basrah, as well as from floating cages in Al-Nashwa, Qurna District. Sampling was carried out during November 2024. Amino acids were analyzed using ion-exchange chromatography followed by post-column ninhydrin derivatization, employing an automatic analyzer (Shimadzu Spd–6 Av UV–Visible detector) with High-Performance Liquid Chromatography (HPLC). Fatty acid composition, including saturated and unsaturated fractions, was determined using Gas Chromatography–Mass Spectrometry (GC–MS). Results revealed significant variations ($p<0.05$) in the chemical composition among fish from the different resources. Wild fish from the Shatt al-Arab exhibited the highest protein content (19.37%) and the lowest lipid content (2.97%). A total of 18 amino acids were identified, comprising both essential and non-essential types, with the highest concentration of essential amino acids (24.35 µg/100 µg protein) recorded in fish from floating cages. Fatty acid analysis demonstrated notable differences, with the lowest saturated fatty acid (SFA) content (28.24 µmol/100 ml oil), the highest monounsaturated (MUFA) and polyunsaturated fatty acid (PUFA) contents (39.87 and 39.83 µmol/100 ml oil, respectively) were observed in Shatt al-Arab specimens in compared with cultured fish.

Keywords: *Cyprinus carpio* L., proximate composition, Amino acid, fatty acid.

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Introduction

Fishes is the primary source of high-quality protein it is the most consumed and desired food by consumers in most parts of the world, its contribute approximately 60 –70% of protein countries (FAO, 2024). The nutritional composition of fish consists of various chemical constituents and is influenced by both external and internal factors, including water quality, environmental changes, diet composition, feeding habits, feed availability, species, sex, age, seasonal variations, migration, spawning season, genetic background and size (Hu and Chan, 2020). Determining the chemical composition of fish is essential to assess their freshness, nutritional value and to plan for their efficient utilization and processing, as well as to provide the technical information necessary for proper handling and marketing (Hantoush *et al.*, 2014). Fish contain well-balanced amounts of proteins, lipids, minerals, and vitamins essential for growth and energy production (Marta *et al.*, 2015). Fish muscle typically contains high levels of protein, reaching up to 20% of the wet weight, and is particularly rich in essential amino acids in both quality and quantity required for tissue synthesis and physiological functions (Nur *et al.*, 2020). Essential amino acids such as lysine, methionine, cysteine, tryptophan, and threonine are considered highly effective dietary supplements, enhancing human growth, cell development and tissue maintenance (Tambalis and Arnaoutis, 2022). Additionally, fish proteins contain bioactive peptides that play vital roles in hormone synthesis and regulation of blood glucose levels (Fernandes *et al.*, 2014). Fish`s fats are easily digestible and contain a high percentage of polyunsaturated fatty acids, representing by omega-3, especially eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). These fatty acids are essential for normal growth, reduction of blood cholesterol levels, and lowering the risk of coronary heart disease and vascular disorders by up to 50% (Runge *et al.*, 2021). They also play a crucial role in brain function, especially memory, the enhancing immune response, and treating certain skin and neurological disorders (Innes and Calder, 2020).

In addition to these nutritional benefits, fish flesh also contains several fat-soluble vitamins (A, D, E, and K) and essential minerals such as sodium, iron, calcium, and iodine. These micronutrients are vital for hormone and enzyme synthesis and contribute to multiple physiological and biochemical processes necessary for tissue development and energy production (Abraha *et al.*, 2018). The aim of this study is to evaluate the nutritional value of common carp (*Cyprinus carpio* L.) collected from different habitats Shatt al-Arab and floating cages in earthen ponds.

Materials And Methods

Fish samples

In this study, adult common carp (*Cyprinus carpio L.*) were used. The wild-caught fish were obtained from natural waters in Karmat Ali, Basrah Governorate, while the cultured fish were collected from earthen ponds at the Fish Farming Unit, College of Agriculture, University of Basrah. Additional samples were obtained from floating cages in Al-Nashwa, Qurna District, Basra Governorate. Fish were collected from November 2024 and transported in an insulated polystyrene container chilled with ice. Upon arrival at the laboratory, approximately five fish from each treatment were taken. The lengths and weights of the fish were measured, after which fish were dissected from the abdominal side, and the internal organs, fins, scales, skin, The muscle tissue was separated from the rest of the body, by cutting and transformed into small pieces using sharp cutting tools.

Table 1. Ranges and averages of total lengths and weights of common carp (*Cyprinus carpio*) under study.

Treatment	Total length range (cm)	Average length (cm)	Total weight range (g)	Average weight (g)
Shatt Al-Arab	23.33 – 30.77	27.05	697 – 1454	1075.5
Earthen ponds	21.83 – 29.55	25.69	625 – 1432	1028.5
Floating cages	22.14 – 31.67	26.90	711 – 1896	1303.5

Determination of proximate composition

Moisture contents were assessed by drying in an oven at 105°C. The ash percentage was measured by sample combustion the into a muffle furnace for 16 hours at 525°C. Protein content was determined by applying the semi-micro Kjeldahl method, with the result multiplied by a conversion factor of 6.25. Lipid content determination was applied using Soxhlet extraction according to the method of AOAC (2000).

Estimation of Amino Acids

Amino acid profiles of SBM and FSBM were determined according to Vidotti *et al.* (2003). It was analyzed on an ion-exchange column with post-column ninhydrin derivatization, being detected by a UV-Visible detector (Shimadzu SPD-6 AV) Shimadzu within an automated system. High-performance liquid chromatography (HPCL) equipment, which was supplied and maintained by the Ministry of Science and Technology in Baghdad, Iraq, was used for this procedure.

Estimation of total fatty acids

The total fatty acid content in the oils extracted from the fish samples was analyzed According to Abdulkadir *et al.* (2010). The oils were examined using Gas Chromatography-Mass Spectrometry (GC-MS), a comprehensive spectral analysis technique, at the laboratories of the Chemistry Department, the Ministry of Science and Technology, Baghdad, Iraq.

Results

Chemical Composition

Table (2) the chemical composition analysis of common carp (*Cyprinus carpio*) samples, the findings indicated variations in chemical composition depending on the nature of environment. The highest moisture content was recorded in fish caught from the Shatt Al-Arab River, with an average of 76.14%, whereas the averages were 72.39% and 71.11% for fish cultured in earthen ponds and floating cages, respectively. The results also revealed differences in the ash percentage of the muscle tissue of common carp under study. The highest ash content was observed in fish cultured in earthen ponds (1.92%), while the lowest value was recorded in fish caught from the natural waters of Shatt Al-Arab (1.37%). For fish cultured in floating cages, the ash content was 1.76%.

Table 2. Proximate analysis of fish.

Component	Shatt Al-Arab	Earthen ponds	Floating cages
Moisture	76.14	72.39	71.11
Protein	19.37	18.88	17.12
Fat	2.97	6.68	9.55
Ash	1.37	1.92	1.76

Amino Acids

The result shows of Table (3) and Fig. (1 and 2), which present the amino acid analysis using HPLC for the studied fish species, indicated the presence of 18 amino acids in a balanced composition of essential and non-essential amino acids, with varying proportions among the different fish sources. For the essential amino acids, the results shows that Leucine was recording a highest levels, with values of 4.11 µg/100 µg protein in fishes from in wild-caught fish, 3.66 µg/100 µg protein in fish from earthen ponds, and 3.14 µg/100 µg protein in floating cages, In contrast, Tryptophan was recorded at the lowest levels across all fish types, with averages of 0.82, 0.63, and 0.87 µg/100 µg protein in floating cages fish, pond-cultured fish, and wild-caught fish, respectively. Overall, the highest total content of essential amino acids was recorded in Wild-caught fish (24.35 µg/100 µg protein), while the lowest was recorded in pond-cultured fish (19.94 µg/100 µg protein), floating cage fish contained 20.55 µg/100 µg protein. Regarding non-essential amino acids, Serine was was recorded a highest level in all fish types, with averages of 10.88, 10.13, and 10.34 µg/100 µg protein in shat Al-arab fish, earthen ponds and floating cage fish respectively. Conversely, Tyrosine had the lowest values, with averages of 2.63, 2.09, and 2.34 µg/100 µg protein in shat Al-arab fish, pond-cultured, and cage-cultured, respectively. In general, the highest total content of non-essential amino acids was found in Wild-caught fish (51.17 µg/100 µg protein), while the lowest was in pond-cultured fish (45.78 µg/100 µg protein). floating cage fish had a total of 48.26 µg/100 µg protein.

Table 3. Amino acid profiles (µg/ 100 µg protein) of fish meat under study.

Amino Acid			Shatt Al-Arab	Earthen ponds	Floating cages
Essential Amino Acids (EAA)	Arginine	Arg	3.89	3.21	3.03
	Histidine	His	1.92	1.15	1.46
	Isoleucine	Iso	1.81	1.54	1.76
	Leucine	Leu	4.11	3.66	3.14
	Lysine	Lys	2.81	2.19	2.12
	Methionine	Met	1.85	1.48	1.72
	Phenylalanine	Phe	2.06	1.86	1.93
	Threonine	Thr	2.62	2.38	2.55
	Tryptophan	Trp	0.87	0.63	0.82
	Valine	Val	2.41	1.84	2.02
	Σ EAA		**24.35**	**19.94**	**20.55**
Non-Essential Amino Acids (NEAA)	Glycine	Gly	6.86	5.22	5.64
	Glutamine	Glu	8.93	8.18	8.79
	Proline	Pro	3.14	2.82	2.96
	Serine	Ser	10.88	10.13	10.34
	Cysteine	Cys	0.15	0.11	0.12
	Aspartate	Asp	9.94	9.36	9.72
	Tyrosine	Tyr	2.63	2.09	2.34
	Alanine	Ala	8.64	7.87	8.35
	Σ NEAA		**51.17**	**45.78**	**48.26**
ΣAA			68.81	65.72	75.52
ΣEAA/ΣAA			29.86	30.34	32.24
ΣEAA/ΣNEAA			42.58	43.55	47.58

*EAA, Essential Amino Acids; NEAA, Non-Essential Amino Acids.

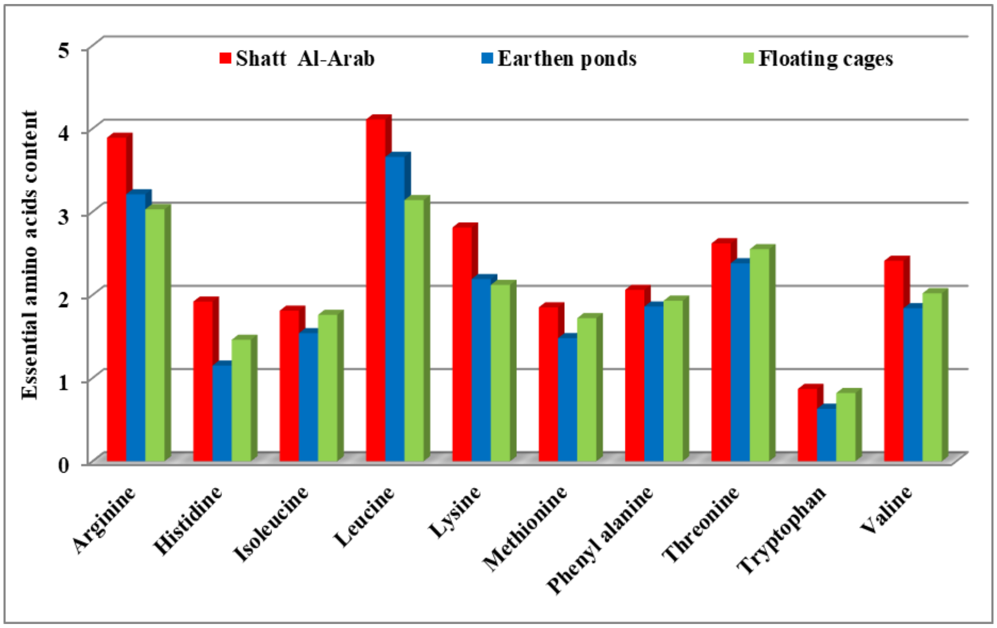

Figure 1. Proportions and composition of essential amino acids (µg/ 100 µg protein) of fish meat under study.

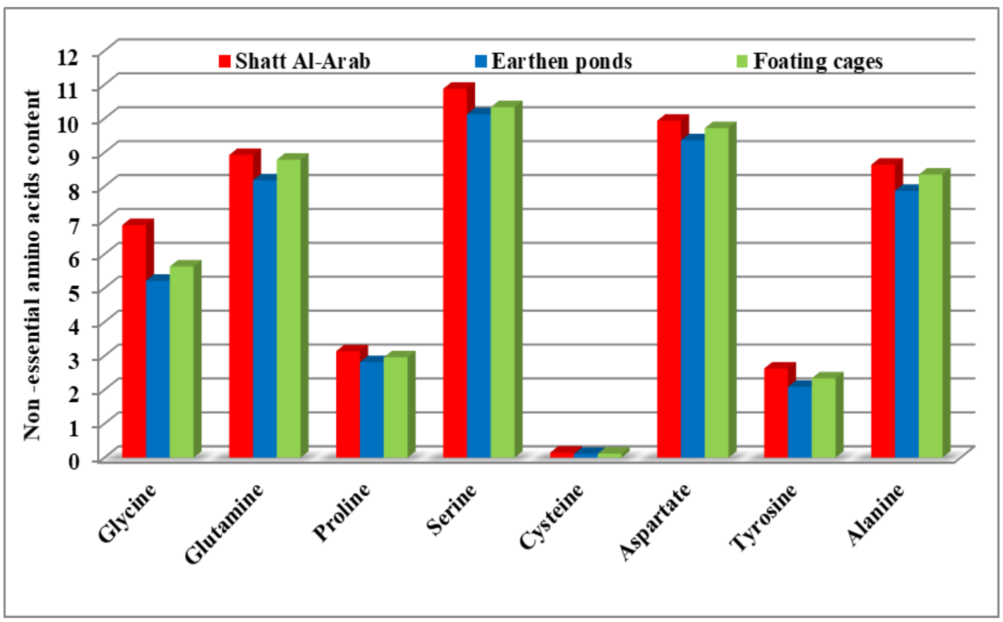

Figure 2. Proportions and composition of Nonessential amino acids (µg/ 100 µg protein) of fish meat under study.

Fatty Acids

Table 4 shows and Fig. (3, 4, and 5) show the fatty acid composition of the studied fish species. The findings revealed clear variations in fatty acid proportions among the fish. For saturated fatty acids, palmitic acid was the most abundant in all fish, with values of 12.89, 17.27, and 15.31 µmol/100 ml oil for Shatt Al-Arab fish, pond-cultured fish, and cage-cultured fish, respectively. In contrast, behenic acid recorded the lowest levels in all fish, with values of 0.51, 0.76, and 0.57 µmol/100 ml oil for Shatt Al-Arab, pond, and cage fish, respectively. Other saturated fatty acids also varied in their proportions depending on the fish type. Overall, the highest total saturated fatty acid content was found in cage-cultured fish (39.61 µmol/100 ml oil), while the lowest was recorded in Shatt Al-Arab fish (28.24 µmol/100 ml oil) and pond-cultured fish (32.39 µmol/100 ml oil). Regarding monounsaturated fatty acids, oleic acid was the most dominant in all fish, with values of 23.37, 24.22, and 24.86 µmol/100 ml oil, whereas myristoleic acid was present in the lowest amounts, with values of 0.87, 0.62, and 0.51 µmol/100 ml oil for Shatt Al-Arab, pond, and cage fish, respectively. Overall, the highest total monounsaturated fatty acid content was recorded in Shatt Al-Arab fish (39.87 µmol/100 ml oil), followed by pond-cultured fish (39.23 µmol/100 ml oil) and cage-cultured fish (37.78 µmol/100 ml oil). As for polyunsaturated fatty acids, linoleic acid showed the highest values across all fish, with averages of 10.11, 8.88, and 7.14 µmol/100 ml oil for Shatt Al-Arab, pond, and cage fish, respectively. In contrast, eicosatrienoic acid recorded the lowest levels, with values of 1.69, 1.56, and 1.48 µmol/100 ml oil in Shatt Al-Arab, pond, and cage fish, respectively. Other polyunsaturated fatty acids varied according to fish species. In general, the highest total polyunsaturated fatty acid content was found in Shatt Al-Arab fish (39.83 µmol/100 ml oil), while the lowest was observed in cage-cultured fish (30.76 µmol/100 ml oil). Pond-cultured fish had a total of 36 µmol/100 ml oil.

Table 4. Fatty acid profiles (µmol/100 ml) of fish meat under study.

Fatty acid			**Shatt Al-Arab**	**Earthen ponds**	**Floating cages**
Saturated fatty acids SFA	Lauric	C12:0	0.55	0.83	0.69
	Myristic	C14:0	2.23	2.97	2.64
	Palmitic	C16:0	12.89	17.27	15.31
	Margaric	C17:0	3.56	5.25	4.02
	Stearic	C18:0	5.67	5.96	5.04
	Arachidic	C20:0	2.83	6.57	4.12
	Behenic	C22:0	0.51	0.76	0.57
	Σ SFA		**28.24**	**32.39**	**39.61**
Mono Unsaturated fatty acids MUSFA	Myristoleic	C14:1 w5	0.87	0.62	0.51
	Palmitoleic	C16:1 w7	6.92	6.03	4.33
	Heptadecanoic	C17:1 w7	2.77	2.62	2.58
	Oleic	C18:1 w9	23.37	24.22	24.86
	Gadoleic	C20:1 w9	2.39	2.25	2.08
	Nervonic	C24:1 w9	3.55	3.49	3.42
	Σ MUSFA		**39.87**	**39.23**	**37.78**

Poly Unsaturated fatty acids PUSFA	Linoleic	C18:2 w6	10.11	8.88	7.14
	Linolenic	C18:3 w3	5.55	5.21	4.37
	Eicosatrienoic	C20:3 w3	1.69	1.56	1.48
	Arachidonic	C20:4 w6	7.53	6.89	5.77
	EPA	C20:5 w3	5.32	5.31	5.12
	DHA	C22:6 w3	9.63	8.15	6.88
	Σ PUSFA		**39.83**	**36**	**30.76**

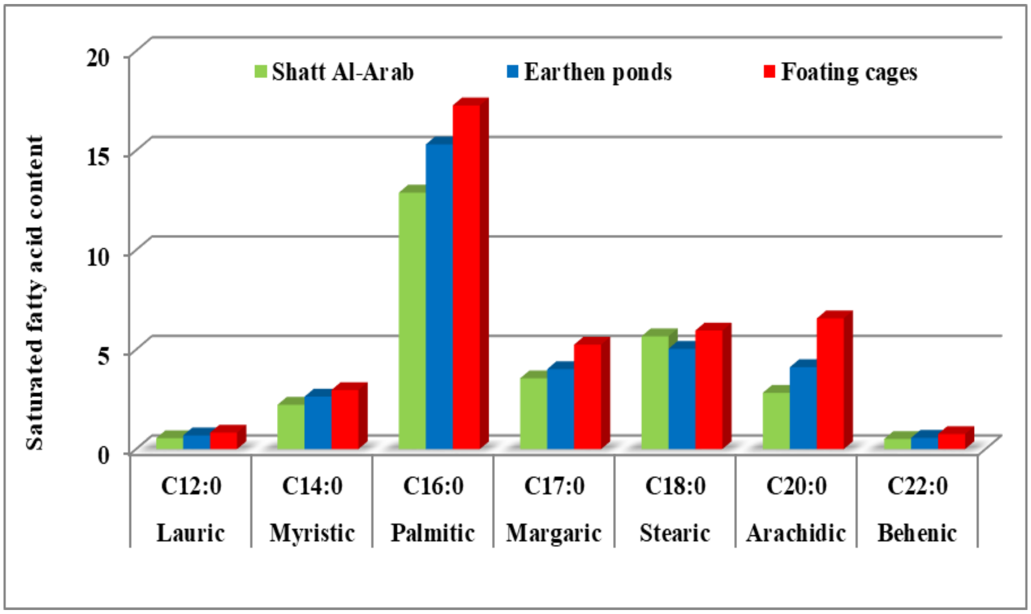

Figure 3. Saturated fatty acids (µl/ 100 µl oil) of fish meat under study.

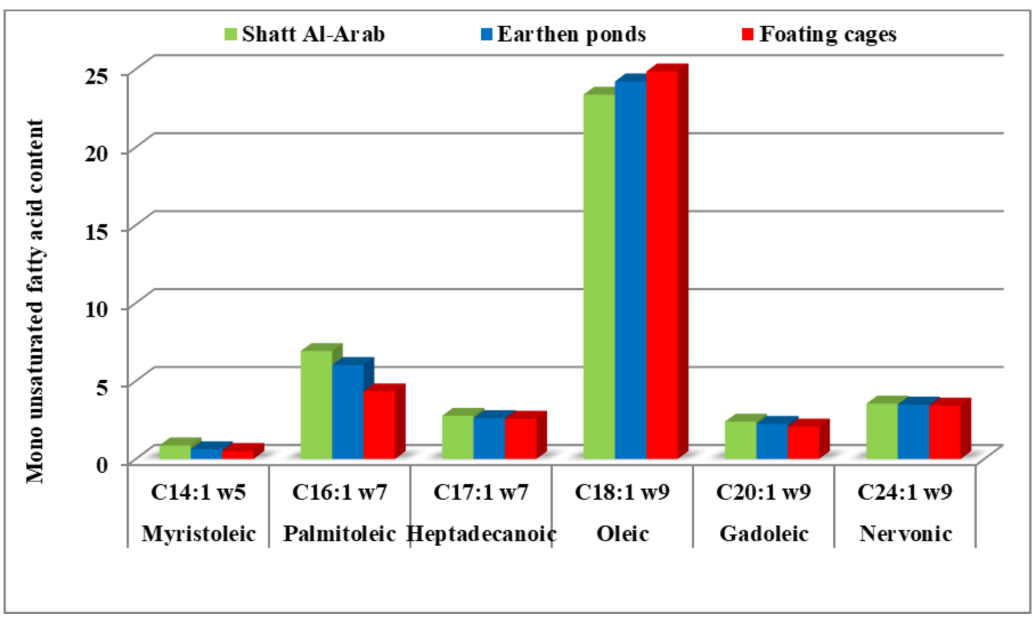

Figure 4. Monounsaturated fatty acids (µl/ 100 µl oil) of fish meat under study.

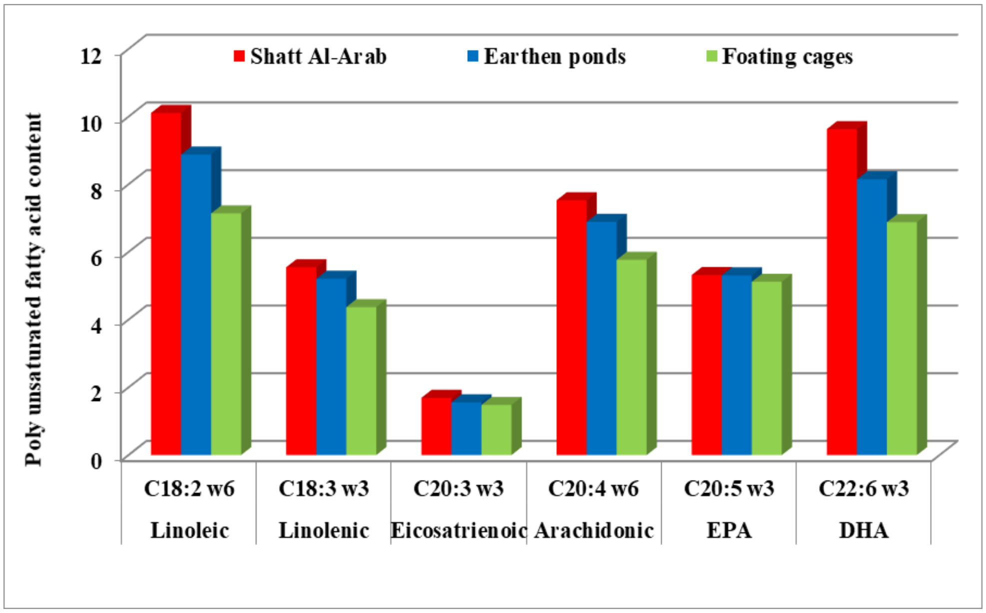

Figure 5. Polyunsaturated fatty acids (µl/ 100 µl oil) of fish meat under study.

Discussion

Chemical Composition

Most fish contain moisture ranging from 50–80%, ash from 0.8–2%, fat content up to 25%, and protein levels between 15–30% (Ghaly *et al.*, 2013). The variation in chemical composition values is attributed to several factors such as species, sex, age, physiological condition, season, time and method of capture, as well as sexual maturity and dietary regime (Rahman *et al.*, 2020). Li *et al.* (2021) observed differences in moisture values of Asian carps (bighead carp, black carp, common carp, grass carp, and silver carp), ranging between 48.76% and 66.76%. These findings were consistent with Makarova *et al.* (2019), who reported variations in moisture levels of common carp muscles, attributed to initial differences and the inverse relationship between moisture and other components. Similar results were confirmed by Alahmad *et al.* (2021) in their study on the nutritional value of Bighead Carp *Hypophthalmichthys nobilis*. The variability in fat content of the studied fish is related to differences in chemical composition depending on species, particularly their fat content (Begum *et al.*, 2012). Differences in fat content between species, and even within the same species, can be explained by sex, age, diet, and fat distribution in fish muscles (Maghfira *et al.*, 2023). Moreover, the inverse relationship between moisture and fat may account for these variations, as higher fat levels are associated with lower moisture content, in addition to the classification of fish as either lean or fatty (Calanche *et al.*, 2019). Protein levels in fish muscles are influenced by their moisture and fat content, as variations in protein values have been observed. These values are not constant, since they differ according to age, size, diet, season, physical activity, and sexual condition (Al-Hamadany *et al.*, 2022). Jiang *et al.* (2024) confirmed that increasing crude fat levels in the diet can enhance protein and fat levels in muscles, improve feed utilization, and increase the nutritional value of common carp *Cyprinus carpio*. Indeed, the composition of muscle nutrients is an important factor influencing the nutritional value of fish (Xie *et al.*, 2021). Mineral content also varies depending on fish species, diet, type of feed, and dietary supplements (Kaliniak-Dziura *et al.*, 2024). Differences in chemical composition depending on culture systems were consistent with many studies. For instance, Ahmed (2022) reported that the chemical composition of common carp reared in plastic ponds was 70.2%, 2.12%, 3.24%, and 22.08% for moisture, ash, fat, and protein, respectively. Similar findings were obtained by Al-Humairi *et al.* (2019) in their study on Yellow Barbell *Carasobarbus luteus* and common carp *Cyprinus carpio* caught from the Euphrates River, where moisture, ash, fat, and protein contents were 71.15% and 71.00%, 1.5% and 2.96%, 2.17% and 4.04%, and 26.12% and 22.59% for *C. luteus* and *C. carpio*, respectively. He *et al.* (2025) indicated that chemical composition values vary with fish size, where larger fish showed higher protein accumulation along with significant reductions in fat and moisture contents. These changes were attributed to several factors, including the quantity and quality of consumed feed, feed conversion efficiency, and locomotor activity, which corresponds to the increased metabolic requirements of larger and more mature fish (Ahmed *et al.*, 2022). Accordingly, the substantial depletion of fat reserves may be primarily due to higher energy expenditure associated with increased activity and routine metabolism in larger common carp (Wang *et al.*, 2025). These findings are consistent with the studies of Hantoush *et al.* (2014), Salih and Al-Habib (2013), Ibrahim and Al-Khshali (2019), Suprayudi *et al.* (2023), and Obeed and Al-Noor (2025).

Amino Acids

The result shows a clear variationsin the composition and proportions of amino acids among the studied fish species. These differences can be attributed to habitat, feeding habits, chemical composition, as well as seasonal and physiological changes. Amino acids are well-balanced, ranging between 25–50%, which makes fish proteins of high quality and nutritional value since they must contain both essential and non-essential amino acids (Ghaly *et al.*, 2013). Al-Sabagh *et al.* (2016) confirmed that essential amino acids can be obtained in balanced amounts and in abundance through fish consumption when they are fed protein-rich diets, dietary supplements, probiotics, and growth enhancers. Tambalis and Arnaoutis (2022) reported that fish proteins contain all essential high-quality amino acids such as lysine, methionine, cysteine, tryptophan, and threonine, which are vital for body growth (Nur *et al.*, 2020). These amino acids are Appeared in at high levels and are considered effective dietary supplements in improving health performance by enhancing the growth of body and brain cells and tissues (Hixson, 2014). The results are consistent with those of Al-Humairi *et al.* (2019), who evaluated the amino acid profile of Yellow Barbell (*Carasobarbus luteus*) and Common Carp (*Cyprinus carpio*), where 18 amino acids were detected with values of 225.39 µg/100 µg protein in *C. carpio* and 261.21 µg/100 µg protein in *C. luteus*. Similarly, Tenyang *et al.* (2016) studied six fish species and reported the presence of 17 amino acids with variable concentrations, where Glutamic acid (161.5–190.3 mg/g protein), Aspartic acid (108.6–

148.2 mg/g protein), Glycine (52.7–70.8 mg/g protein), Arginine (42.5–57.6 mg/g protein), Proline (57.7–81.9 mg/g protein), Isoleucine (59.5–93.0 mg/g protein), Leucine (83.4–102.1 mg/g protein), and Lysine (60.5–74.7 mg/g protein) were the most abundant. Al-Humairi *et al.* (2021) also compared amino acid composition in two groups of cage-cultured common carp and observed differences in the proportions of essential and non-essential amino acids, with Lysine, Arginine, and Valine being the most abundant. Ahmed (2022) identified seven essential amino acids important for humans and ten other non-essential amino acids in muscles of pond-cultured common carp, and confirmed that the nutritional value of cultured fish is not inferior to that of wild fish. Additionally, these findings agree with Pyz-Lukasik and Kowalczyk-Pecka (2017), who studied amino acid profiles in bighead carp and grass carp belonging to the Cyprinids family.

Fatty Acids

The significant differences in fish fat content and composition are influenced by feeding, migration, and spawning season, and also vary depending on species, age, sex, environment and seasonal changes (Hu and Chan, 2020). Lipids in fish flesh are nutritionally important as they are rich in long-chain omega-3 polyunsaturated fatty acids (PUFAs), particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (Innes and Calder, 2020). These fatty acids are mainly found in marine fish, and their levels vary depending on the water-to-fat ratio. During migration and spawning, fat content decreases, while it increases during post-spawning feeding periods. Such variations in fat content affect the nutritional value of fish (Okwuosa *et al.*, 2021). Pinte *et al.* (2021) reported that older fish tend to have higher fat and lower moisture content, and vice versa. An inverse relationship also exists between protein and fat in fish muscles, particularly in white muscles, which contain more protein and less fat compared to red muscles. The present study showed that monounsaturated fatty acids (MUFAs) were more abundant than saturated fatty acids (SFAs) and polyunsaturated fatty acids (PUFAs) in all tissues. These results are consistent with Afkhami *et al.* (2011), who reported SFA and PUFA values of 25.18% and 31.55%, respectively, in grass carp. Hoseini *et al.* (2013) also highlighted that MUFAs represent the most significant group of fatty acids in grass carp (*Ctenopharyngodon idella*) and bighead carp (*Hypophthalmichthys nobilis*). According to WHO recommendations, the daily intake of EPA and DHA should range between 0.3–0.4 g, while α-linolenic acid intake should be 0.8–1.1 g/day. A daily intake of 2 g of n-3 PUFAs can adequately meet human nutritional requirements (Newton, 1996). Herc *et al.* (2024) determined fatty acid levels in common carp (*Cyprinus carpio*), where MUFAs represented the predominant group, followed by SFAs and PUFAs, with oleic acid being the most abundant, followed by palmitic acid. These findings are also consistent with Yeganeh *et al.* (2012). He *et al.* (2025) observed changes in fatty acid values of common carp, where long-chain PUFAs (LC-PUFAs) and MUFAs, particularly C18 unsaturated fatty acids, showed a clear accumulation pattern dependent on body size (Xie *et al.*, 2021). These adaptive responses are directly linked to the physiological requirements of each size group to support tissue growth or meet energy demands during reproduction (Tocher, 2015). Al-Jumaiee *et al*. (2025) also reported variations in saturated and unsaturated fatty acid composition among studied fish species depending on dietary diversity, species type, and spawning season. These findings were in agreement with Dvoretsky *et al*. (2023), who demonstrated differences in fatty acid and omega profiles depending on dietary habits and habitat. Al-Humairi *et al*. (2021) found significant differences in saturated and unsaturated fatty acid levels between two groups of cage-cultured common carp, with SFAs accounting for 34.24% in group H1 and decreasing significantly to 27.79% in group H2 of total muscle fat content. Ćirković *et al*. (2012) reported an SFA value of 24.23% in common carp flesh. Similarly, Ahmed (2022) confirmed that cultured common carp is a good source of PUFAs, particularly DHA and EPA, which have beneficial health effects.

Conclusions

In conclusion, the study showed that common carp is a good source of many essential and key nutrients that are influenced by both internal and external factors such as different habitats observed in the current study. Its nutritional value is supported by its high contents of proteins and amino acids, particularly essential amino acids, as well as saturated and unsaturated fatty acids, which are available in sufficient amounts to support human health and help prevent diseases, especially cardiovascular diseases.

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دراسة مقارنة للتركيب الكيميائي والقيمة الغذائية لأسماك الكارب الشائع (*Cyprinus carpio* L.) من نهر شط العرب والأحواض الترابية

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المستخلص

أجريت الدراسة الحالية لمقارنة التركيب الكيميائي وصورة الأحماض الأمينية وتركيب الأحماض الدهنية لأسماك الكارب الشائع *Cyprinus carpio* L. والتي جمعت من مصادر مختلفة، المجموعة الأولى جمعت من المياه الطبيعية لشط العرب موقع كرمة علي/محافظة البصرة، في حين جلبت الأسماك المستزرعة من الأحواض الترابية لمزرعة الأسماك التابعة لوحدة الأستزراع المائي/كلية الزراعة/جامعة البصرة، وتم الحصول على الأسماك من الأقفاص العائمة في ناحية النشوة التابعة لقضاء القرنة/محافة البصرة، جلبت الأسماك خلال شهر تشرين الثاني 2024، قدرت الأحماض الأمينية بأستخدام عمود التبادل الأيوني وأشتقاق النهيدرين بعد العمود في جهاز التحليل الذاتي Shimadzu Spd – 6 Av uv – Visible detector بأستعمال جهاز High Performance Liquid Chromatography (HPLC)، وأستعملت كروموتوغرافيا الغاز (GC-MS) تقنية التحليل الطيفي الشامل لتقييم محتوى الأحماض الدهنية المشبعة وغير المشبعة، كشفت الدراسة وجود فروق معنوية ($p<0.05$) في التركيب الكيميائي بين أنواع الأسماك المدروسة حيث بلغت أعلى قيمة للبروتين وأقل نسبة للدهن في أسماك شط العرب 19.37 % و 2.97 % على التوالي. كما أظهرت النتائج وجود 18 حامضاً أمينياً وبنسب متفاوتة من الأحماض الأمينية الأساسية وغير الأساسية بين الأسماك المدروسة حيث بلغت أعلى قيمة للأحماض الأمينية الأساسية 24.35 ميكروغرام/100 ميكروغرام بروتين لأسماك الأقفاص العائمة، لوحظت أختلافات في وجود الأحماض الدهنية المشبعة وغير المشبعة حيث بلغت أقل قيم SFA 28.24 ميكرومل/100 مل زيت وأعلى قيمة لمجموعة MUSFA و PUSFA 39.87 و 39.83 ميكرومل/100 مل زيت لأسماك شط العرب مقارنة بالأسماك المستزرعة.

الكلمات المفتاحية: *Cyprinus carpio* L، التركيب التقريبي، الأحماض الأمينية، الأحماض الدهنية.