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Chemical Composition and Yield of Edible part of *Tilapia zilli* (Gerv,1848) intruder to Iraqi Water

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Abstract: This study explains the chemical composition and yield of edible part of *Tilapia zilli* which is in come to Iraqi water and were fished from Al-Dabab in south of Al- Hammar marsh. Fishes are divided to four parts as head , skin and bones, viscera and meat. The meat constituted high weighty ratio from another parts (49.60%). Chemical composition was counted for *Tilapia zilli*, protein (18.43%), fat (11.17%), moisture (66.54%) and ash (3.47%). Chemical composition was counted for every parts (head, skin and bones, viscera and meat) for *Tilapia zilli*.

Key word**:** *Tilapia zilli***,** chemical composition, yield of edible, fish of parts

Introduction

Tilapia Family spread in freshwater and brackish water in many countries of the world and grown in almost 100 countries(7).The tilapia considers best species for breeding, because afford critical environmental conditions such as high density of fish, water poor quality or contaminated, low water -level in the concentration of dissolved oxygen as well as borne diseases prevalent and its rapid growth and ease of reproduction and its ability to devour a large amount of food (3; 26).The reproduction was studied by many researchers(18; 15; 17; 12; 14; 25; 11; 22; 13; 1; 23).Some of the species have strange and rarely behavior in reproduction from other species, as they carry eggs or larvae in its mouth while others builds nests(16). *Tilapia zilli* feeds on attached algae on rocks, as well as fish and snails (10). Researchers interested in recent years considerable attention in studies of the chemical composition of the fish because of its great importance and there are a number of researchers have suggested that there were differences in the values of amino acids and fatty acids between fish in the chemical composition, also stressed that the chemical composition may be putting the economic value for fish(9; 5;28; 6; 30).

There are little studies on tilapia in Iraqi waters because it extraneous newly

Iraqi waters, there two studies, first study by Saleh (27) a recording of a new species *Tilapia zilli* in Al-Musayyiab in the province of Babylon, and the second study by Mutlak and Al-Faisal (20) recorded two intruders from tilapia *Oreochromis aureus* and *Tilapia zilli* from the southern part of Al- Massab Al-Aam near the species of Basra. This study was conducted to know the nutritional value of this type of fish through the study of the chemical composition and yield of edible.

Materials and Methods

Tilapia were collected by trawling from Al-dabab in South of Iraq(Figure1). Fresh samples were transported in refrigerated containers with ice to the laboratory. Standard lengths and weights of fish were recorded. Fish body was divided into four parts : head, skin with bones, viscera (including genitals) and meat. And each part was weighted to study the composition of weighted and dressing percentage. Then were dried using oven on 105°C and then were milled and were stored until the chemical analysis. The analysis of chemical composition of the fish's body, as well as four parts separately. Standard methods were used to estimate the moisture, protein, fat and ash (4).

Figure (1): Photograph of sampling area.

Results

A table (1) represents numbers and rates of lengths and weights tilapia which used in the study, as lengths ranging from 14-16.4 cm at a mean of 15.22 cm, weights ranged between 60.97 - 94.70 g and the rate amounted 78.1g.

Table (1): Numbers of the *Tilapia zilli* and average lengths and weights.

Species	Fish number	Standard length rate(cm)	Weight rate (g)
Tilapia zilli	28	15.22 14.0-16.4	78.1 60.97-94.70

A table (2) represents the percentages of body components of tilapia fish is the head, skin and bones, viscera and flesh to estimate the yield of edible of this species of fish, as it appeared from the results that meat was higher percentage (49.60%) from other components.

Table (2): Body components ratios for *Tilapia zilli* as a percentage of the average weight of the fish.

Species	Head%	Skin& bones%	Viscera %	Meat %
Tilapia zilli	14.82 13.45-15.10	24.51 20.65-28.12	10.13 8.67-11.10	49.60 42.15-57.03

Table (3) explained the percentages of chemical components (moisture, protein, fat and ash) and the four parts of body for tilapia fish, the results showed that percentage of moisture and protein higher in meat compared with the rest of the body parts where amounted (73.03%) and (19.10 %) respectively. The head record rate low in protein (16.07%). While the skin and bones got the highest percentage of fat (15.35%).

Table (3): The chemical composition of *Tilapia zilli* and four parts (head, skin with bones, viscera and meat).

Ingredients	Head	Skin with bones	Viscera	Meat	Fish body
Moisture	63.69 ±1.03	62.11 ±0.94	67.31 ±1.21	73.03 ±1.11	66.54 ±0.81
Protein	16.07 ±0.41	20.01 ±0.71	18.53 ±0.6 1	19.10 ±0.75	18.43 ±0.78
Fat	12.33 ±0.3 1	15.35 ±0.5 3	11.21 ±0.3 9	5.77 ±0.2 9	11.17 ±0.6 0
Ash	7.44 ±0.42	2.27 ±0.3 1	2.59 ±0.44	1.58 ±0.51	3.47 ±0.33

Discussion

A deficiency of protein is one of the large negative influences food in the many tropical countries, and economic fish is one of the important resources that can fill the gap, As well as there are a number of features in uneconomic fish such as nonentity of equality in the parts of the body, as it notes the head in some fish be large compared with other parts, and also notes the size of the tail, there is sensory specifications could lose economic bait fish such as meat tenderness and taste. Results showed that *T. zilli* have high percentage of meat(49.60%) is higher than the rest of the parts (head, skin with bones, viscera and meat).While Zaitsev *et al*., (29) found that the percentage of meat in the common carp (47%). We conclude that this species of tilapia acceptable economically despite its small size, and record maximum length observed (22.7) cm in the southern part of Al- Massab Al-Aam, this reflects the access of this species to economic size when compared to fish at other Prussian carp and *Liza abu* (21). As well as Mahomoud *et al.*, (19) found this species of fish are more widespread and supportive of economic activity in Egypt and up to a maximum

length of 22.05 cm and a maximum weight of 201g. As Al-Moasher (2) indicated that tilapia fish is one of the most species culture on the level of the world, because including the advantage of high growth and quality in taste. The changes in chemical composition of the body (moisture, protein, fat ash) depended on the type of food, this species of fish *T. zilli* its ability to devour large quantities of food and has ability to convert good diet and efficiently take advantage of the high food. In practical terms, the volume of production of freshwater fish on a commercial farm, also influenced by a number of other factors such as the composition and density of fish , Health and social welfare of the fish, and the use of appropriate feeding patterns and feeding with the optimal configuration of food, basic foodstuffs, minerals and vitamins and geographical site and the quality of the environment (8). Results showed that the ratios of chemical composition were 18.43% protein , 11.96% fat , 66.54% moisture and 3.47% ash. While (Osibona, 24) found in his study on this species in Nigeria the percentages of components was 19.55% protein and 0.96% fat and 76.75% moisture and 1.11% ash. These results can be put this species of fish on the list of economic fish due to a high percentage of protein, as well as an increase in the proportion of meat compared with other parts of the body as mentioned above.

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التركيب الكيميائي ونسبة التصافي لأسماك

البلطي(Gerv,1848) *Tilapia zilli* الدخيلة على المياه العراقية

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المستخلص: وضحت الدراسة الحالية التركيب الكيميائي ونسبة التصافي لأسماك البلطي *Tilapia zilli* التي دخلت إلى المياه العراقية والتي صيدت من منطقة الدباب في جنوب العراق. قسمت الأسماك إلى أربع أجزاء وهي الرأس، الجلد والعظام، الأحشاء واللحم. شُكل اللحم أعلى نسبة مئوية وزنيه من بقيت الأقسام إذ بلغت 49.60%. دُرس التركيب الكيميائي لسمكة البلطي(رطوبة, بروتين, دهن, رماد), إذ كانت (66.54%, 18.43%، 11.17% و3.47 %) على التوالي، ودُرس التركيب الكيميائي لكل جزء من أجزاء الجسم (الرأس،الجلد والعظام، الأحشاء واللحم) لسمكة البلطي.