

# **First Record of the *Tilapia Oreochromis niloticus* (Linnaeus, 1758) in Euphrates River at Al-Hindia Barrage – Middle of Iraq**

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## **Abstract**

*Tilapia Oreochromis niloticus* L. was recorded for first time in Euphrates River, The specimens (13 to 33 cm for total length, 11 to 31.5 cm of standard length and 30.6 to 1446 gm of weight) were collected from Euphrates River at Al-Musayab, before Al-Hindia barrage. Number of the gill rakers on the first arch is 27- 31. Dorsal fin with 12-13 rays and 16 spine, anal fin with 8-10 rays and 3 spines. The dorsal fin length relating to standard length is 53.47%, body depth is 42.78%, snout length is 12.05%, pectoral fin length is 31.47% , the eye diameter is 5.42% relation to standard length.

Key words: First record, *Oreochromis niloticus* , Euphrates River

## **Introduction**

Tilapia (Perciformes, Cichlidae) is the generic name of a group of cichlids endemic to Africa, native to the fresh water of tropical Africa. The Nile tilapia *Oreochromis niloticus* is a deep-body fish with cycloid scales. Silver in colure with olive/ grey/ black body bars, It is often red flushes during the breeding season [1], these fishes have been introduced into almost in every tropical and subtropical country to support the development of fresh-water aquaculture [2] This group consists of three important genera *Tilapia*, *Oreochromis*, and *Sarotheradon* [3]. All *tilapia* species are nest builders, fertilizing eggs and guarding in the nest by parents, *Sarotherodon* and *Oreochromis* are mouth brooders, The fertilizing eggs are picking up in their mouths then hold them through incubation for several days after hatching. In *Oreochromis* species only females practice mouth brooding, while in *Sarotherodon* species either the male or both male and female are mouth brooders [4]. The scientific name of the Nile Tilapia has been given as *Tilapia niloticus*, *Sarotherodon niloticus* and currently *Oreochromis niloticus* [5].

Tilapia was introduced into many countries for aquaculture. These fishes are at present widespread in several tropical and subtropical countries, where they have been cultured [6].

*Tilapia zillii* (Gervais, 1848) reported on the occurrence of cichlid fish in the Euphrates River at Al-Musaib City, Babylon province [7]. The same species recorded in Delmj March for the first time [8]. Mutlak and Al-Faisal [9] recorded two Cichlids *O. aureus* (Steindacher, 1864) and *T. zillii* from the south of the main outfall drain in Basrah City. Al-Faisal and Mutlak [10] Recorded *O. niloticus* for first time from Shatt Al-Arab, Abulheni *et al.*, [11] also recorded the same two cichlids *O. aureus* and *T. zillii* but from the Euphrates River at Al-Musaib City. The present study reports on the first record of the third kind *O. niloticus* in Euphrates River at Al-Musaib Middle of Iraq and record morphological and meristic measurements.

## **Materials and Methods**

The number exactly 100 specimens for *O. sp.* (13 to 33 cm for total length, 11 to 31.5 cm for standard length and 30.6 to 1446 gm for weight) were collected from Euphrates River at Al-Musayab, before Al-Hindia Barrage by using gill nets from January to May 2016. Samples were stored in cool box in order to let samples fresh until reach to the laboratory. Fish were cleaned by water. Digital balance and digital vernier are using for weighting, different measure of different fish parts were recorded. Many of meristic and morphometric characters were measured at fish and animal resources, department of fish culture. Percentage of morphometric measurements were calculates relative to standard length in *O. niloticus* from Euphrates river\ Al-Musayab. All measurements were taken on the left side of fish.

## **Results and Discussion**

Taxonomy [12]

Species: *Oreochromis niloticus* (Linnaeus, 1758)

Family: Cichlidae

Order: Perciformes

Class: Actinopterygii

The total length of fish sample was ranged between 13 to 33 cm, 11 to 31.5 cm for standard length and 30.6 to 1446 gm for weight. The percentages of different parts of the body to standard length were calculated (Table 1). The number of gill rakers on the first arch is 27- 31. Fish has 30 to 32 scales on the lateral line with 4 and 8 rows of scales above and under the lateral line respectively, dorsal fin with 12-13 rays and 16 spines, anal fin with 8-10 rays and 3 spines. More than eight dark slip was recorded on two sides of body, 4-5 on the caudel fin (Fig 1) .



**Fig 1: Tilapia Nilotic from Euphrates Rive**

**Table 1: Numerical measurements for *O. niloticus* from Euphrates River\Al-Musayab**

Numerical measurement	range
Gill rakers	27-31
Lateral line scale	30-32
Rows of scale a above lateral line	4
Rows of scale under lateral line	8
Upper part lateral line	19-21
Lower part lateral line	11-12
Dorsal fin soft rays	12-13
Dorsal fin spine	16
Anal fin soft rays	8-10
Anal fin spine	3
Dark slip on body	More than 8
Dark slip on caudel fin	4-5

The percentages of different body parts to standard length were measured, the dorsal fin length was 53.47% (Table 2), body depth was 42.78%, snout length was 12.05%, pectoral fin length was 31.47%, we recorded the mouth width and depth 9.36 and 8.63% respectively, upper and lower jaw length are 6.94 and 7.63, that mean is the lower longer than upper. The eye diameter is 5.42% relation to standard length.

The results agreements with [13] who found the maximum standard length is 60 cm, 15-18 spines and 11-13 soft rays in dorsal fin. The length of lower jaw was 29-37% of head [14]. [15] recorded the average total weight 184.5 gm and 21.3 cm for average total length in the same type of fish in Nile River, also founded 17 spine and 12 soft rays in dorsal fin, 3 spine and 10 soft rays in anal fin, the index of body depth to standard length is 40% , these result agreements with our study, but it isn't agreements with length of pectoral fin when recorded 39% of total length , that mean length of pectoral fin of *O. niloticus* in Nile River longer than pectoral fin of same fish catch from the Euphrates River. The results not agreement with [16] who found the body depth 84% from standard length, that means this fish in Mexico have high body depth. [17] Recorded the size of *O. niloticus* in Uganda ranged between 4.9 to 29.5 cm, smaller than fish size in this study. It's not agreements also with [10] who found 35- 40 scales in lateral line, 28-31 gill racker on the first arch and 17 -18 spine in dorsal fin. The *O. niloticus* may be differing in some specifications from location or site to other.

**Table 2: Percentage of Morphometric Measurements Relative to standard length in *O. niloticus* from Euhprates River\ Al-Musayab**

Morphometric measurement	Mean %	± S.E.
Dorsal fin length	53.47	0.87
Distance front dorsal fin	31.84	0.82
Body depth	42.78	0.80
Snout length	12.05	0.22
Pectoral fin length	31.47	0.26
Mouth width	9.36	0.23
Mouth depth	8.63	0.16
Upper jaw length	6.94	0.26
Lower jaw length	7.63	0.19
Eye diameter	5.42	0.14

## References

- 1- Picker, M.D. and C.L. Griffiths (2011). Alien and Invasive Animals – A South African Perspective. Random House/ Struik, Cape Town, South Africa: 240 pp.
- 2- Stiassny, M. L. J., (1991). Phylogenetic interrelationships of the family Cichlidae: an overview, pp. 1–35 in *Cichlid Fishes: Behavior, Ecology and evolution*, edited by M. H. A. Keenleyside. Chapman & Hall, London.
- 3-Jiménez-Badillo L. (2006). Age-growth models for tilapia *Oreochromis aureus* (Perciformes, Cichlidae) of the Infiernillo Reservoir, Mexico and reproductive behavior. *Rev. Biol. Trop.*, 54 (2): 577-588.
- 4- Pompa T. and M. Masser (1999). Tilapia, Life History and Biology. Southern Regional Aquaculture Center, Publication No. 283: 4 p.
- 5- Njiru M., J. E. Ojuok and J. B. Okeyo-Owuor (2006). Some biological aspects and life history strategies of tilapia *Oreochromis niloticus* in Lake Victoria, Kenya. *African Journal Ecology*, 44: 30-37 .
- 6- Altun T., N. Tekelioglu and D. Danabas (2006). Tilapia culture and its problems in turkey. *J. Fish. and Aquat. Sci.*, 23 (3-4): 473-478.
- 7- Al-Sa'adi B.A., Mhaisen F.T. and Al-Rubae A.L. (2012). The first parasitological report on the red belly Tilapia *Tilapia zillii* (Gervais, 1848) in Iraq. *Proceedings of the Scientific Symposium of Natural History Research Center and Museum, Univ. Baghdad, Baghdad: 20 June 2012: 1-6.*
- 8- AL-Zaidy K .J .(2013). First record of *Tilapia zilli* (Gewais,1848) in AL-Delmj Marsh West AL-Diwania city middle of Iraq. *Diyala Agricultural Sciences Journal*, 5(1): 9 – 16.
- 9- Mutlak, F.M. and Al-Faisal, A.J. (2009). A new record of two exotic cichlids fish *Oreochromis aureus* (Steindacher, 1864) and *Tilapia zilli* (Gervais, 1848) from south of the main outfall drain in Basrah city. *Mesop. J. Mar. Sci.*, 24(2): 160-170, (In Arabic)
- 10- Al-Faisal A. J. and F.M. Mutlak (2015). First record of the Nile tilapia *Oreochromis niloticus* (Linnaeus, 1758), from the Shatt Al-Arab River, Southern Iraq. *International Journal of Marine Science*, Vol. 5, No. 38: 1-3.
- 11- Abulheni A. K. J., L. M. Abbas, Y. J. Neamah and A. M. Ruhajj (2015). Comparative Morphological Study of two Tilapia species, *Oreochromis aureus* and *Tilapia zillii* In Euphrates River \ Al-Musayab. (In Arabic).
- 12- Food and Agriculture Organization of the United Nations (2012). Cultured aquatic species information program *Oreochromis niloticus* (Linnaeus, 1758), Fisheries and Aquaculture Department: 14 pp.
- 13- Foerse R. and D. Pauly (2015). *Oreochromis niloticus* (Linnaeus, 1758). FishBase. Available: [http://www.fishbase.org/summary/2.\(July](http://www.fishbase.org/summary/2.(July) 2015).
- 14- Trewavas E. (1983). Tilapiine fishes of the genera *Sarotherodon*, *Oreochromis* and *Danakilia*, British Museum of Natural History, London. Publ. Num. 878. Comstock Publishing Associates. Ithaca, New York: 583 pp.
- 15- El-Zaeem S. Y., M. M. A. Mohamed, S. M. El-Sayed and W. N. Abd El-Kader (2012). Phylogenetic differentiation of wild and cultured Nile tilapia (*Oreochromis niloticus*) populations based on phenotype and genotype analysis. *African Journal of Agricultural Research*, 7(19): 2946-2954.
- 16- Espinosa- Lemus V., J. L. Arredondo-Figueroa and I. A. Barriga-Sosa (2009). Morphometric and genetic characterization of tilapia (Cichlidae: Tilapiini) stocks for effective fisheries management in two Mexican Reservoirs. *Hidrobiológica*, 19 (2): 95-107.
- 17- Bwanika G.N., B. Makange, Y. Kizito, L.J. Chapman and J. Balirwa (2004). Observation on the biology of Nile tilapia, *Oreochromis niloticus* L., in two Ugandan crater lakes. *African J. of Ecology*, 42 (Suppl. 1): 93-101.