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First record of the Nile tilapia *Oreochromis niloticus* (Linnaeus, 1758), from the Shatt Al-Arab River, Southern Iraq

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Abstract The exotic cichlid *Oreochromis niloticus* (Linnaeus, 1758) was first recorded from the Shatt Al-Arab River, at Basrah (Abu-al-Khasib), Iraq. This species was the third cichlid recorded in Iraq. *O. aureus* and *Tilapia zillii* have also been recorded for the region. Samples were collected by gill nets during November 2013 and April 2014. Specimens ranged from 192 to 292 mm total length and from 136.5 to 500.06 g. in weight. The Nile tilapia is characterized by having regular dark vertical stripes on the caudal fin, dorsal fin with 17-18 spines, 35-40 lateral line scales and 28-31gill rakers.
Keywords First record; Nile tilapia; Shatt Al-Arab River

Introduction

The family Cichlidae (order Perciformes) consists of 1524 species (Eli, 2005) distributed from South Africa to northern Syria. Tilapia was introduced into many countries for aquaculture. These fishes are at present widespread in water bodies of several tropical and subtropical countries, where they have been cultured (Altun et al., 2006). The tilapiines have been divided into three major genera, primarily on the basis of breeding habits: *Oreochromis*, the maternal mouthbrooders, *Sarotherodon*, the biparental and paternal mouthbrooders and *Tilapia*, the substrate spawners (Nagl et al., 2001). The Nile tilapia, *O. niloticus* (Linnaeus, 1758) is endemic to Africa, but has been introduced in many parts of the world for aquaculture (Vreven et al., 1998). According to Herzog (1969), the Nile tilapia was introduced to fish ponds on Tigris River near Baghdad but did not survive during winter (Coad, 1996). Al-Sa'adi et al. (2012) reported on the occurrence of cichlid fish *Tilapia zillii* (Gervais, 1848) in the Euphrates River at Al-Musaib City, Babylon province, since 2006. Mutlak and Al-Faisal (2009) recorded two cichlids *O. aureus* (Steindacher, 1864) and *T. zillii* from the south of the main outfall drain in Basrah City. The present study reports on the first record of *O. niloticus* in southern Iraq.

1 Materials and Methods

Three specimens of *O. niloticus* were collected by gill net, from Shatt Al-Arab River in Abu Al-Khasib town at Basrah City, South Iraq (Figure 1) during November 2013 and April 2014. Ten meristic and seventeen morphometric characters were measured, following Boulenger (1915) and Hubbs and Lagler (1958). The specimens were preserved at the Department of Aquaculture and Marine Fisheries, Marine Science Center, University of Basrah.

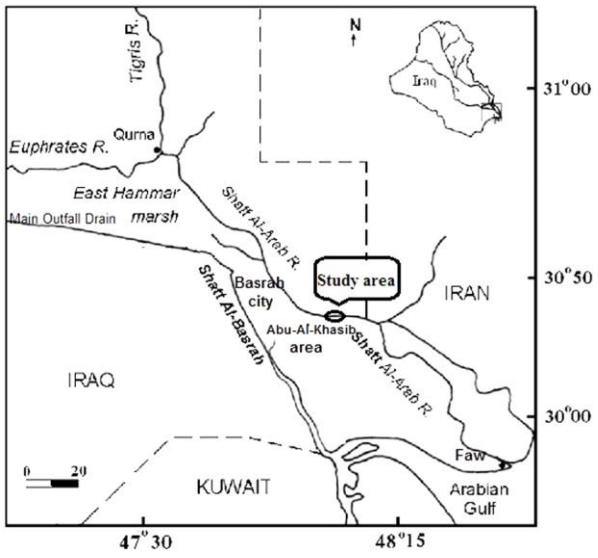

Figure 1 Sampling station in the Shatt Al-Arab River, South Iraq

2 Results

Exotic cichlids fish *Oreochromis niloticus* (Linnaeus, 1758) was recorded for the first time in the south Iraq. Classification of this fish is:

Class: Actinopterygii

Order: Perciformes

Family: Cichlidae

Subfamily: Pseudocrenilabrinae

Genus: *Oreochromis*

Species: *O. niloticus* (Linnaeus, 1758)

Nile tilapia (Figure 2) is distinguished by compressed body. Caudal fin truncate with numerous dark vertical stripes. It has cycloid scales. First gill arch contains 28 to 31 gill rakers. The lateral line is interrupted, the upper lateral line contains 21-23 scales, the lower has 14-18 scales. The spinous and soft ray parts of the dorsal fin is continuous. The dorsal fin contains 17-18 spines and 12-13 soft rays. The anal fin contains 3 spines and 9 rays (Table 1). The colour of pectoral, dorsal and caudal fins is reddish. Total length ranged from 192-292 mm. Body depth ranged from 43.03-45.96 % of standard length, head length 32.51-34.23, snout length 11.47-12.78. The caudal peduncle depth was close to the caudal peduncle length (Table 2).

Figure 2 General body shape of *O. niloticus* from Shatt Al-Arab River

Table 1 Meristic characters of *O. niloticus* from Shatt Al-Arab river

Meristic characters		Range	Mean	SD
Lateral Line		35−40	38.33	2.89
Scales above the lateral line		5−5	5	0
Scales below the lateral line		8−9	8.33	0.58
Dorsal fin	spines	17−18	17.33	0.58
	Soft rays	12−13	12.33	0.58
Anal fin	spines	3−3	3	0
	Soft rays	9−9	9	0
Pectoral fin rays		13−15	14	1.00
Pelvic fin rays		6−6	6	0
Gill rakers		28−31	29.67	1.53

Table 2 Morphometric characters of *O. niloticus* from Shatt Al-Arab river

Morphometric characters	Range	Mean	SD
Total length (mm)	192 - 292	238	50.48
Standard length (mm)	150 - 232	188	41.33
Body depth % in SL	43.03 – 45.96	44.93	1.64
Body width % in SL	16.94 – 20.18	18.39	1.65
Head length % in SL	32.51 – 34.23	33.12	0.96
Head depth % in SL	23.55 – 24.53	24.01	0.49
Snout length % in SL	11.47 – 12.78	11.98	0.70
Eye diameter % in SL	5.49 – 6.32	5.98	0.43
Interorbital distance % in SL	10.45 – 12.94	11.81	1.26
Predorsal length % in SL	30.48 – 34.86	32.20	2.34
Postdorsal length % in SL	11.62 – 12.97	12.35	0.68
Dorsal fin length % in SL	61.88 – 62.63	62.27	0.37
Anal fin length % in SL	18.54 – 22.19	20.17	1.86
Pectoral fin length % in SL	34.66 – 35.62	35.30	0.55
Pelvic fin length % in SL	27.25 – 30.30	29.25	1.73
Caudal peduncle length % in SL	14.14 – 16.00	14.95	0.95
Caudal peduncle depth % in SL	14.36 – 15.13	14.67	0.41

3 Discussion

The Nile tilapia has historically been confused with the blue tilapia *O. aureus*. Trewevas (1983) pointed out the differences between them. The caudal fin is with regular dark vertical stripes in *O. niloticus*, while stripes are less obvious or variable in *O. aureus*. Typically the numbers of dorsal spines in *O. niloticus* (17-18) are slightly more than those in *O. aureus* (15-16) and the first gill arch has 27-33 gill rakers in *O. niloticus*, where as in *O. aureus* 18-26 were found (Figure 3).

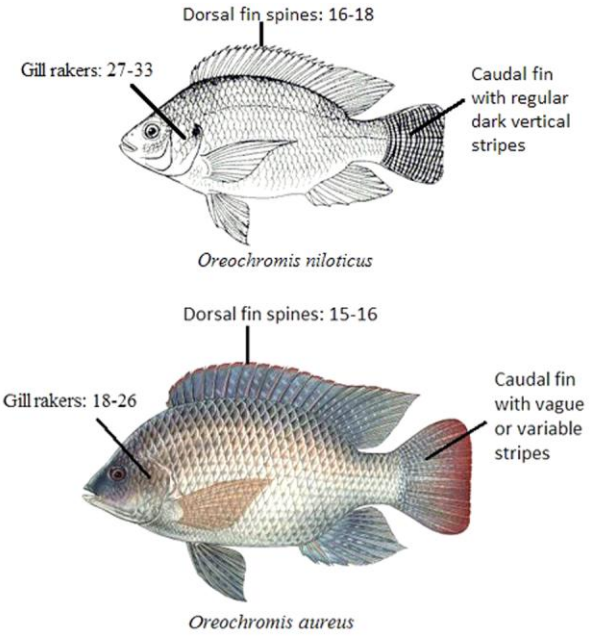

Figure 3 Morphological comparison between *Oreochromis niloticus* and *O. aureus*, according to Trewevas (1983)

The Nile tilapia is the third exotic cichlid fish introduced to the inland waters of Iraq, after introduction of two other species, the *T. zillii* and *O. aureus* (Mutlak and Al-Faisal, 2009; Al-Sa'adi et al., 2012). Attempts to introduce the Nile tilapia into the Tigris River basin in Iraq have been made, but were unsuccessful (Herzog, 1969; Coad, 1996).

Mutlak and Al-Faisal (2009) reported the characteristics of *O. aureus* collected from the south of the main outfall drain in Basrah City, southern Iraq, as having light stripes in the caudal fin, 15 dorsal fin spines, 30-31 lateral line scales and the 22 gill rakers. This study showed that our *O. niloticus* samples had regular dark vertical stripes in the caudal fin, 17-18 dorsal fin spines, 35-40 lateral line scales, and 28-31 gill rakers. Introduction of exotic fishes may be detrimental to native fishes. Tilapias are among the most tolerant fishes to adverse environmental conditions, which contribute to their spread.

They have a wide salinity tolerance, fast growth rate, are highly prolific, and have a good market acceptance. (Altun et al, 2006). Exotic species of fishes were introduced into Iraq for aquaculture programs, for controlling undesirable organisms, or done so accidentally, like (*Ctenopharyngodon idella*, *Cyprinus carpio*, *Hypophthalmichthys molitrix* and *Hypophthalmichthys nobilis*), (*Gambusia holbrooki* and *Heteropneustes fossilis*) and (*Carassius gibelio*, *Hemiculter leucisculus*, *Poecilia latipinna*, *Oreochromis aureus* and *Tilapia zillii*). Exotic fish in neighboring countries may also find their way into Iraq, contributing to increases in the population of exotic species.

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