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First record of Javelin grunter *Pomadasys kaakan* (Cuvier, 1830) (Pisces: Haemulidae) from Shatt Al-Arab River, Southern Iraq

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Abstract: Three specimens of Javelin grunter *Pomadasys kaakan* (Cuvier, 1830) were collected from Shatt Al-Arab River, Abul-Khaseeb city, southern Iraq on 13th September 2014. Meristic and morphometric characters of the species were provided and compared with *Pomadasys* species so far reported from Iraq. This record represents the first report of *P. kaakan* from inland waters of Iraq.

Key words: Marine fish, *Pomadasys kaakan*, Haemulidae, Shatt Al-Arab River, Iraq.

Introduction

Iraq is located in the innermost part of the Arabian Gulf, where more than 510 species of fishes have been reported (Krupp *et al*., 2015).

Members of the family Heamulidae are small to medium-sized oblong, and compressed, perch-like fishes. Head profile strongly convex; scales present on entire head (except front of snout, lips and chin). Mouth small or moderate, lips thick, tip of upper jaw hidden when mouth closed; chin with 2 pores anteriorly and a median pit, or 6 pores and no pit in *Plectorhinchus*; hind margin of suborbital not exposed. Preopercle with a slightly concave and serrated posterior margin; opercle with single indistinct spine. Dorsal fin single, with 9 to 15 strong spines and 12 to 26 soft rays; pectoral fins long, 1st ray sometimes forming a short filament; pelvic fins below base of pectoral fins, with 1 spine and 5 soft rays; anal fin with 3 spines, the second often very strong, and 7 to 9 soft rays; caudal fin truncate or emarginate (rounded in juveniles); scales ctenoid (McKay, 1983).

Javelin grunter *Pomadasys kaakan* is known from Indo-West Pacific, Red Sea and east coasts of Africa to Southeast Asia, north to Taiwan, south to Queensland, Australia, and from most countries of Arabian Gulf (Carpenter *et al*., 1997; Froese and Pauly, 2016). The population structure, growth, mortality, and weight-length relationship on this species have been frequently studied in the Arabian Gulf during the two last decades (Al-Husaini *et al*., 2002; Valinassab *et al*., 2006; Fakhri *et al*., 2011; Raeisi *et al*., 2011; Rastgoo *et al*., 2014). It enters estuaries, may tolerate low salinity and often associated with inshore wrecks (Van der Elst and Adkin, 1991). It feeds mainly on crabs, shrimps, fishes, bivalves, gastropods, cuttlefish, stomatopods, brittle stars, *Lingula* sp. and sea weeds (Valinassab *et al*., 2011). During

spawning time, it forms shoals near river mouths during the winter (Smith and McKay, 1986).

Materials and Methods

During survey of marine fishes that entered the Shatt Al-Arab River during 2014, three specimens of unidentified haemulid fish were caught among 22 specimens of *Sparidentix hasta* near Abu Al-Khaseeb city (30°27′N, 47°58′E), by drift gill net. The specimens were fixed and preserved in 10% formalin and deposited temporarily in the author's collection in the Department of Fisheries and Marine Resources, College of Agriculture, University of Basrah. All measurements here are presented in millimeters (mm). Common and scientific names of this fish followed Froese and Pauly (2016).

Fig. 1: *Pomadasys kaakan*, 111 mm S.L. from Shatt Al-Arab River, Iraq.

Results

Description

Small slender, silver body with pale bronze in the front and dorsal side. The fins are dusky with black margins except pectoral fins which look pale bronzy and lower lob of caudal fin that looks yellowish. The profile of the head is slightly convex. Caudal fin is finely emarginated. Dorsal and anal fins have strong spines. The fin membrane between spiny and softy dorsal fin was highly incised (Fig. 1).

Table (1): Meristic characters of *P. kaakan* collected from Shatt Al-Arab River.

Character	N=3
Dorsal fin	XII, 14
Pectoral fin rays	16
Pelvic fin	I, 5
Anal fin	III, 7
Pored lateral line scales	46-47 (7±1)
Transverse scales rows between lateral line and first spine of dorsal fin	7

Table (2): Morphometric and biometric (expressed as percentage of SL) characteristics of three specimens of *P. kaakan* collected from Shat Al-Arab River (min= minimum, max= maximum, Sd= standard deviation). All measurements are in mm, SL = standard length.

Character	min-max (Mean ±SD)	Proportional measurements as expressed as percentage of SL
Total length	123-135 (127.3±7)	-
Forked length	111-128.5(117.1±10.08)	-
Standard length	101.5-111(104.8±5.35)	-
Body depth	33.4-39.1(35.4±3.21)	32.75-35.23 (33.72±1.32)
Head depth	30.2-37.6(33.1±3.95)	29.75-33.87(31.50±2.13)
Body depth at 1st anal fin spine base	27.5-31.7(29.37±2.14)	27.09-28.56 (28.00±0.79)
Head length	36.5-41.2(38.63±2.38)	35.96-37.45(36.84±0.78)
Body width	15.8-17.8(16.63±1.04)	15.49-16.06 (15.86±0.32)
Snout length	11.5-12.4(11.83±0.49)	11.17-11.43 (11.29±0.13)
Eye diameter	9.3-10.4(10±0.61)	9.16-10.20 (9.55±0.57)
Distance between nostrils	4-4.7 (4.3±0.36)	3.92-4.23 (4.10±0.16)
Bony interorbital width	7.11-8.44(7.63±0.71)	6.97-7.6 (7.27±0.36)
Upper jaw length	11.3-13 (11.93±0.93)	11.08-11.71 (11.37±0.32)
Lower jaw	10.3-11.4(10.83±0.55)	10.10-10.64 (10.34±0.28)
Mouth width	7.4-11.2(9±1.97)	7.25-10.09 (8.54±1.44)
Caudal peduncle depth	14.5-16(15.1±0.79)	14.29-14.51 (14.40±0.11)
Caudal peduncle length	21.3-23.3(22.17±1.03)	20.88-21.58 (21.15±0.37)
Predorsal length	40.3-46(42.93±2.87)	39.51-41.87 (40.94±1.26)
Preanal length	65.8-72.2(69.3±3.24)	64.83-68.53 (66.13±2.08)
Prepectoral length	35.1-39.3(36.6±2.34)	34.58-35.41(34.90±0.44)
Prepelevic length	37.6-37.9(37.8±0.17)	34.14-37.16 (36.12±1.71)
Dorsal fin base	48.2-57.2(52.23±4.57)	47.49-51.53 (49.77±2.07)
Anal fin base	13.4-15.4(14.5±0.61)	13.20-14.41 (13.83±0.61)
Caudal fin length	13.3-15.2(14.47±1.02)	13.10-14.60 (13.80±0.76)
Pelvic fin spine	14.6-18.5(16±2.17)	14.31-16.67 (15.22±1.27)
pelvic fin ray	21.5-24(23.07±1.37)	21.08-23.85 (22.02±1.19)
Longest pectoral fin ray	24.5-34.3(29.57±4.91)	24.02-30.90 (28.13±3.63)
1st dorsal fin spine	5.4-5.5(5.47±0.06)	4.86-5.42 (5.23±0.31)
2nd dorsal fin spine	11.2-12.7(11.73±0.84)	10.98-11.44 (11.18±0.23)
3rd dorsal fin spine	14.8-20.9(18.53±3.27)	14.51-19.61 (17.65±2.75)
4th dorsal fin spine	17.9-20.3(19.4±1.31)	17.55-20.00 (18.52±1.30)
5th dorsal fin spine	15.7-19.1(17.63±1.75)	15.39-17.83 (16.81±1.27)
6th dorsal fin spine	16.7-17.6(17.07±0.47)	15.23-17.34 (16.31±1.06)
7th dorsal fin spine	13.8-14.6(14.17±0.40)	12.43-14.38 (13.55±1.00)
8th dorsal fin spine	12.1-12.9(12.6±0.44)	10.90-12.65 (12.06±1.00)
9th dorsal fin spine	10-10.2(10.1±0.10)	9.01-10.05 (19.56±0.10)
10th dorsal fin spine	8-8.9(8.5±0.46)	7.75-8.73 (8.12±0.53)
11th dorsal fin spine	7.2-8.1(7.77±0.49)	6.49-7.94 (7.44±0.82)
12th dorsal fin spine	10.3-11.2(10.7±0.46)	9.55-10.98 (10.23±0.72)
1st dorsal fin ray	13.9-16.1(14.77±1.17)	13.69-14.50(14.07±0.41)
1st anal fin spine	5-6.8(5.93±0.90)	4.93-6.13 (5.64±0.63)
2nd anal fin spine	17-22.5(19±3.04)	16.67-20.27(18.06±1.94)
3rd anal fin spine	11-15.8(13.5±2.10)	11.53-14.23 (12.84±1.36)
1st anal fin ray	15.6-17.5(16.23±1.10)	15.37-15.76(15.48±0.25)

Dorsal fin consists of 12 spines and 14 soft fin rays; 16 fin rays in pectoral fins, one spine and five soft fin rays in pelvic fin and three spines and seven soft fin rays in anal fins; number of pored scales of lateral line between 46-47 and seven transverse scale rows between lateral line and first dorsal fin (table 1). First spine of dorsal fin slightly shorter than the first spine of anal fin, the length of spines of dorsal fin gradually increases in length until it reaches to the maximum value in the 4th dorsal spine (18.52% of S.L.), then decreases in the rest spines until it reaches to 7.44% of S.L. in the 11th spine, backwardly, the length increases in the last spine (10.23% of S.L.). The second spine of anal fin is larger than the rest and its length consists of 3.2 of the 1st anal spine length and 1.42 of the 3rd anal spine length (table 2).

Discussion

The present *P. kaakan* specimens have two chin pores followed with median pit with two pores on each side, and have strong spine fin and the second spine of the anal fin is enlarged, hence the characters of the specimen fall in the *Pomadasys* instead of *Plectorhinchus* (see McKay, 1983; Carpenter *et al*., 1997). The following six grunter species have been recorded from Iraq; *Pomadasys argenteus* (Forsskål, 1775) (see Khalaf, 1961 reported as *P. hasta*); *P. argyreus* (Valenciennes, 1833) (see Misra, 1947); *P. maculatum* (Bloch, 1797) (see Hussain *et al*., 1988); *P. olivaceus* (Day 1875); *P. punctulatus* (Rüppell, 1838) (see Jawad *et al*., 2014) and *P. stridens* (Forsskål, 1775) (see Khalaf, 1961). However, the recording of *P. argureus* from Iraq may represent a misidentification due to its distribution out of Arabian Gulf, and the real distribution around Indian Peninsula and northern Australia (Froese and Pauly, 2016).

Morphologically, *P. kaakan* can be distinguished from five *Pomadasys* species reported from Iraq by its body with uniform silvery or golden dorsal without distinct longitudinal stripes, lines or dark bands (spotted body while adults or wavy lines while juveniles) that found in *P. argenteus* or black bands in *P. maculatum*, longitudinal stripes in *P. punctulatus* and *P. stridens*, and hence *P. kaakan* is similar to *P. olivaceus* in having silvery dorsal body. However, the former differs from the latter in absence of dark blotch at upper corner edge of gill cover, which clearly exists in *P. olivaceus* (see McKay, 1983; Jawad *et al*., 2014). Misra (1947) recorded *P. argyreus* based on a single specimen without description from Arabian Gulf. Khalaf (1961) gave a brief description of *P. argyreus* and the meristic of dorsal fin was really agreed with *P. kaakan* instead of *P. argyreus*. Therefore, Misra (1947) and Khalaf (1961) might misidentified *P. argyreus* with *P. kaakan*, especially the latter study that showed that the species found in both sea and Shatt Al-Arab river, are similar with the present finding. Therefore, all the three specimens of the present study seem with small length and recorded from the river.

The species can be meristically distinguished by combination of some characters; by having relatively lower numerical values in comparison with the other five species in the region such as number of soft rays in dorsal fin, number of pored scales of lateral line, number of anal fin rays and higher number of transverse rows of scales between lateral line and first dorsal spine, as follow: dorsal fin with 14 soft rays (as in *P. maculatum*), in comparison with 13-14 rays in

P. argenteus, 15-17 in *P. olivaceus*, 15 in *P. punctulatus* and 13-14 in *P. stridens*), 7 anal fin rays (as in 7 in *P. maculatum*) in comparison with 8 in *P. argenteus*, 11-13 in *P. olivaceus*, 8 in *P. punctulatus* and 8.5-10.5 in *P. stridens*), and 7 transverse scales between lateral line and first dorsal fin spine (5 in *P. argenteus* and 10 in *P. stridens*); 45 pored scales of lateral line (47-50 in *P. argenteus*, 50-52 in *P. maculatum*, 51-54 in *P. olivaceus*, 51 in *P. punctulatus* and 70 in *P. stridens*).

Conclusions

The present record of *P. kaaakan* from Shatt Al-Arab river, brings the total number of *Pomadasys* species in Iraq to six.

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