

## A New Sparid Fish of Genus *Sparidentex* (Perciformes: Sparidae) From Coastal Waters of Pakistan (North Western Indian Ocean)

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**Abstract.-** A new species of seabream, *Sparidentex jamalensis* sp. nov., mainly inhabiting the mangrove swamps, is described from eleven specimens, 148-224 mm SL, collected from coastal areas of Sindh, Pakistan. It has been invariably confused with *Sparidentex hasta*, also occurring in the North Western Indian Ocean. *Sparidentex jamalensis* sp. nov. differs from *Sparidentex hasta* and from nominal species placed within the genus *Sparidentex*, by the following combination of characters: body depth 37-41% , head length 33-38% caudal peduncle length 18-20% in standard length; 3 ½ scale rows between the 5<sup>th</sup> dorsal-fin spine base and lateral-line , 3 ½ scale rows between the 9<sup>th</sup> dorsal-fin spine base and lateral-line, second anal-fin spine distinctly stouter and longer than third spine ratio of 2<sup>nd</sup> anal-fin spine and 3<sup>rd</sup> anal-fin spine is 1.3-1.7 steep profile of snout , presence of black vivid spot at the beginning of pectoral-fin and diffused black blotch at the beginning of pored lateral-line scales, six canine teeth in both jaws, 45-47 lateral line scales, dorsal-fin rays XI, 11, white pelvic-fins and grayish black anal-fin.

**Key words:** *Sparidentex jamalensis* sp. nov., *Sparidentex hasta*, North-western Indian Ocean.

### INTRODUCTION

The genus *Sparidentex* Munro 1948 is currently a monotypic genus that contains a single valid species, namely *Sparidentex hasta*. Two nominal species, *Petrus belayewi* Hora and Misra, 1943 (reported from Iraq) and *Coius datnia* Hamilton, 1822 (reported from Ganges River mouth, India), present similar morphological characteristics to the genus *Sparidentex* (i.e. canine teeth in front of their jaws and no molariform teeth). This has induced different authors to place them in the genus *Sparidentex* (Bauchot and Smith, 1983; Iwatsuki and Carpenter, 2006, 2009; Iwatsuki *et al.*, 2013). Nevertheless, the formal recognition and validity of these two species is still questionable and needs to be resolved (Iwatsuki and Heemstra, 2010).

The type specimens of *C. datnia*, described by Hamilton, 1822 are not known (Iwatsuki and Carpenter, 2006). Dor (1984) and Aatur Rahman (2003) considered *C. datnia* as a synonym of *Acanthopagrus latus*. Interestingly, in an earlier study Aatur Rahman (1989) considered *C. datnia* as a valid species of *Acanthopagrus*. Also, Bleeker

(1877) and Munro (1948, 1949) considered *C. datnia* to be a species of *Acanthopagrus* and Kottelat (1986, 2000) placed it in synonymy with *A. latus* because of its yellow pelvic and anal fins resembling the latter species. However, the absence of molar teeth noted in the original description and a fine plate strongly support the placement of *C. datnia* in the genus *Sparidentex* (Bauchot and Smith, 1983; Iwatsuki and Carpenter, 2006; Kume and Yoshino, 2008; Iwatsuki and Heemstra, 2010; Iwatsuki, 2013).

Nearly the same problematic situation exists for *P. belayewi* Hora and Misra 1943 (type locality: Rivers and Hors, Iraq; type specimen no.; F13628/1, Zoological Survey of India). Das (2003) considered this species as a synonym of *Acanthopagrus berda* while Iwatsuki and Carpenter (2006) and Kume and Yoshino (2008) mentioned it as a valid species of *Sparidentex* because of lack of molariform teeth, but the validity of *P. belayewi* is not yet certain (Iwatsuki and Heemstra, 2010).

In various earlier studies (Bianchi, 1985; Hoda, 1988; Amir *et al.*, 2013), two distinct *Sparidentex* species have been erroneously confused under a single scientific name *S. hasta*. Here we describe a new species of *Sparidentex* from the coastal waters of Pakistan, mainly inhabiting the mangrove swamps.

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## MATERIALS AND METHODS

The eleven specimens of the new species were collected from various localities of Pakistani coast (see Type series below). The new species was compared with six specimens of *Sparidentex hasta* collected from West Wharf Fish Harbour and from Korangi Creek in Karachi (Table I). All fishes were preserved in crushed ice and transported to the laboratory of Center of Excellence in Marine Biology (CEMB), University of Karachi. Morphometric and meristic data of these specimens was carried out at CEMB. For overall comparison with the specimens of *S. hasta* and *S. jamalensis* sp. nov., data of *Petrus belayewi* and *Coius datnia* were used from their original description papers. Counts and measurements follow Hubbs and Lagler (1964) and Amir *et al.* (2013). Lateral-line scales were not included in counting the number of scales between dorsal fin and lateral-line. Rudimentary gill-rakers were included in the total count of gill-rakers. Standard length is abbreviated as SL, total length as TL. A value was used for the 'second anal-fin spine/third anal-fin spine length (abbreviated as 2AS/3AS)' (Iwatsuki, 2013). All the acronyms used are as follow: CEMB, Pisces, Centre of Excellence in Marine Biology, University of Karachi, Pakistan; PMHH, Pakistan Museum of Natural History, Islamabad, Pakistan.

### *Sparidentex jamalensis*, new species

New English Name: Fanged Seabream (Table I, Figs. 1, 2).



Fig. 1. *Sparidentex jamalensis* sp. nov., holotype, PMNH no. 52062, 186 mm SL.

### Type series

#### Holotype

PMNH no. 52062, 206 mm SL, West Wharf Fish Harbour, Karachi (24°50'57.08" N; 66°58'38.27" E), gillnet, 09<sup>th</sup> October, 2013.

#### Paratypes

Ten specimens (148-224 mm SL); PMNH no. 52063, West Wharf Fish Harbour, Karachi, gillnet, 09<sup>th</sup> October, 2013; CEMB-P2012-0555 to CEMB-P2012-0563 (nine specimens), Keti Bunder, Sindh (24°09'29.28" N; 67°25'12.72" E), gillnet, 21<sup>th</sup> June, 2010.

### Diagnosis

The following combination of characters of *Sparidentex jamalensis* distinguishes this species from its congeners: dorsal-fin rays XI, 11; anal-fin rays III, 8; scale rows between the fifth dorsal-fin spine base and lateral-line 3 ½; scale rows between the ninth dorsal-fin spine base to lateral-line 3 ½; scale rows below first dorsal spine to the lateral-line 4 ½; scale rows below the lateral-line 12 ½, pored lateral-line scales 45-47; body depth 37-41% SL, head length 33-38% SL, snout 10-12% SL, caudal peduncle length 18-20% SL; six enlarged fang-like slightly curved conical teeth at anterior portion of both jaws, two or three villiform teeth rows in lower jaw and three to four villiform teeth rows on upper jaw, outermost teeth in posterior portion after the caniniform teeth distinctly conical and largest from parallel rows of small villiform teeth; second anal-fin spine distinctly stouter and longer than third anal-fin spine, the ratio of 2<sup>nd</sup> anal-fin spine / 3<sup>rd</sup> anal-fin spine is 1.4; total gill-rakers 15-18 (lower limb+mid+upper limb 8-10+1+6-7); head and body silvery-black; presence of black vivid spot at the beginning of pectoral-fin and diffused black blotch at the beginning of pored lateral-line scales; pelvic, anal and caudal fins dusky greyish black (Fig. 1).

### Description

Counts and measurements of the holotype and 10 paratypes are given as percentage of SL in Table I. Characteristics stated in the diagnosis are not repeated.

Body relatively deep and compressed; mouth somewhat oblique; lips thick; snout pointed, two

**Table I.- Comparison of counts and morphometric data of *Sparidentex jamalensis* sp. nov., *S. hasta* and *S. belayewi*. Measurements are expressed as percentages of standard length.**

	<i>Sparidentex jamalensis</i> sp. nov.		<i>Sparidentex hasta</i>	<i>Sparidentex belayewi</i>
	Holotype PMNH no. 52062 n= 1	Paratypes PMNH no. 52063, CEMB-P2012-0555- 63, n= 10	PMNH. 50412-50414 CEMB-P2012-0565- 67, n= 6	Hora and Misra (1943) n= 1
<b>Counts:</b>				
Dorsal-fin rays	XI, 11	XI, 11	XI, 11-12	XII, 11
Anal-fin rays	III, 8	III, 8	III, 8	III, 8 ½
Pectoral-fin rays	15	15	15	15
Pelvic-fin rays	I,5	I, 5	I,5	I,5
Pored lateral-line scales	45	45-47	47-48	46+6
Scale rows between fifth dorsal-fin spine base and lateral-line	3 ½	3 ½	5 ½	5 ½
Scale rows between ninth dorsal-fin spine base and lateral-line	3 ½	3 ½-4	5-5 ½	-
Scale rows above/below lateral-line	4 ½/12	3 ½-4/12 ½	5 ½/12 ½	5 ½/13 ½
Scale rows on cheek	6	6-7	6-7	6
Scale rows on opercle	6	6	5	-
Gill-rakers (upper +angle+lower)	7+1+10	6-7+1+8-10	7+1+8-9	9 in lower limb, rest not provided
Standard length (mm)	186	148-224	209-300	201
<b>Proportions (% SL):</b>				
Body depth (highest)	37.6	37-41(40)	34-37 (35)	42
Body depth at first anal-fin spine origin	35	32-38 (36)	31-33 (32)	-
Head length	33.3	33-38 (35)	32-33 (32.5)	29
Body width at pectoral-fin base	16	15-19 (17)	15-18 (16)	-
Snout length	10	9-12 (11)	9.6-10 (10)	9
Orbit diameter	8	8-10 (9)	6.5-7.8 (7)	7
Dermal eye opening	7	7-8 (7.5)	5-6.4 (5.9)	-
Bony interorbital width	8.0	8-9 (8.5)	7.2-8.5 (8)	8
Interorbital width with membrane	9.2	8-10 (9)	7.6-9.7 (9)	-
Upper jaw length	13.1	9-14 (13)	11-12 (12)	-
Caudal peduncle depth	12.6	12-14 (13)	11-13 (12)	-
Caudal peduncle length	20.0	18-20 (19)	21-23 (22)	-
Predorsal length	40.3	40-44(42)	37-40 (39)	-
Preanal length	71.5	64-72 (66)	58-71 (65)	-
Prepelvic length	38.7	39-43 (41)	36-37 (36.5)	-
Dorsal-fin base length	51.5	51-56 (53)	49-53 (51)	-
Anal-fin base length	17.0	15-18 (16)	14-16 (15)	-
Caudal-fin length	27	22-27 (26)	24-26 (24)	26
Pelvic spine length	15.6	14-18 (15)	12-14 (13)	-
First pelvic ray length	24.7	22-26 (24)	22-24 (23)	-
Pectoral-fin length	35.0	30-37 (35)	31-34 (32)	-
First dorsal-fin spine length	6.5	5-7 (6)	4.5-5.9 (5.2)	5
Second dorsal-fin spine length	9.7	9-12 (10)	8-10 (9.5)	8
Third dorsal-fin spine length	13.4	12-14 (13)	12-13 (12.8)	11
Fourth dorsal-fin spine length	15.6	13-16 (15)	13-19 (15)	13
Fifth dorsal-fin spine length	16	13-16 (15)	12-15 (14)	-
Sixth dorsal-fin spine length	15	13-15 (14)	12-14 (13.5)	-
Last dorsal-fin spine length	12.4	10-12 (11)	10-12 (11)	-
First dorsal-fin ray length	14.0	11-14(11)	11-13 (12)	11
First anal-fin spine length	5.8	3-6 (6)	4-12 (6)	-
Second anal-fin spine length	19.4	17-26 (20)	12-14 (13)	13
Third anal-fin spine length	13.4	13-15 (14)	11-13 (13)	11.4
First anal-fin ray length	15.0	11-18 (15)	12-16 (14)	-
Suborbital width (least)	4.3	4-5 (4)	4.9-6 (5.5)	-
Posteriormost jaw	10.8	10-14 (12)	9-11 (10)	-
2AS/3AS	1.44	1.3-1.7 (1.4)	1-1.2 (1.1)	1.2



Fig. 2. *Sparidentex jamalensis*, new species; a, dorsal view of head region showing relatively wider interorbital region compared with relatively narrower interorbital region of *S. hasta*; (b); c, head region showing blunt snout, compared to steep snout of *S. hasta* (d), (e) six enlarged caniniform teeth in upper and lower jaws and fine rows of villiform teeth as against 4 enlarged caniniform teeth in upper and lower jaws and fine rows of villiform of *S. hasta* (f).

nostrils just in front of eyes, anterior nostril small and rounded and posterior one long oval; upper jaw protruding slightly in front of lower jaw; maxilla reaching to below mideye level (pupil or center of orbit); at front of each jaw, 6 enlarged, fang-like, conical teeth, outer series of lateral teeth conical and compressed with parallel rows of villiform teeth; least suborbital depth much shorter than eye diameter, six or seven transverse rows of scales on cheek and six (5-7) on opercle; anterodorsal profile

ascending somewhat sharply from mouth to eyes then gently just above eye; dorsal profile of fish body somewhat arched; anteriormost margin of mouth somewhat pointed (Fig. 2c); no scales on preopercular flange, its posterior margin weakly serrated; low scaly sheath on soft dorsal and anal-fin ray bases; dorsal-fin spines strong, fourth and fifth longest; first anal-fin spine visibly shorter than orbit diameter; second anal-fin spine clearly longer than longest (fourth) dorsal-fin spine; third anal-fin spine

shorter than second anal-fin spine; pectoral-fin long, its length subequal or slightly greater than head length, tip nearly reaching to anal opening (in some paratypes up to anal-fin spine base); pelvic-fin spine longer than snout length; first ray of pelvic-fin intruded and clearly longer than second anal-fin spine; caudal-fin forked, the upper lobe is slightly longer and relatively more pointed.

#### Color (from fresh specimens)

Head and dorsal part of body dull olive silvery, becoming silvery-white up to belly; scales with dark margins forming faint lines dorsally on body; dorsal-fin and anal rays grey, soft rays hyaline, membranes of the dorsal and anal fins are dusky grey; pectoral fins light yellow to whitish and pelvic fins light greyish to whitish; a black spot at pectoral axil and a diffuse spot at beginning of lateral-line; caudal-fin dusky and posterior margin darker. Color of holotype and paratypes is similar.

#### Distribution

This species is currently known only from coastal waters of Pakistan. It is highly probable that this species may occur in the coastal waters of northern Arabian Sea, India and Persian Gulf.

#### Etymology

The specific epithet “*jamalensis*” refers to Prof. Dr. Pirzada Jamal Ahmed Siddiqui, whose support and contributions to the work on marine fauna of Pakistan is immense and noteworthy.

#### Comparison

The comparison of *Sparidentex jamalensis* sp. nov. with *Sparidentex hasta* (Cuvier and Valenciennes, 1830) and two other less studied sparid species, *Sparidentex datnia* (Hamilton, 1822) and *S. belayewi* (Hora and Misra, 1943) confirm that *Sparidentex jamalensis* is a new species. *S. jamalensis* differs from *Sparidentex hasta* (Fig. 3) in the following combination of characters: higher body depth (37-41% vs 34-37% SL) and head length (33-38% vs 32-33% SL), lower suborbital depth (4-5% vs 5-6% SL), lower caudal peduncle length (18-20% vs 21-23% SL); scale rows between the 5<sup>th</sup> dorsal-fin spine base and lateral-line 3 ½ (vs 5 ½), scale rows between the 9<sup>th</sup> dorsal-fin spine base and lateral-line 3 ½ (vs 5 ½), second anal-fin spine



Fig. 3. *Sparidentex hasta*, PMNH no. 52062, 209 mm SL.

distinctly stouter and longer than third spine, the average of ratio of 2<sup>nd</sup> anal-fin spine / 3<sup>rd</sup> anal-fin spine is 1.3 - 1.7 (vs 1-1.2 ) (Figs. 1-3; Table I). *Sparidentex jamalensis* sp. nov. is separable from *Sparidentex datnia* in dorsal and pelvic fin counts. *S. jamalensis* has XI, 11 and I, 5 dorsal and pelvic fin counts, respectively, whereas *S. datnia* has XII, 10, and I, 6; somewhat white pelvic-fins (versus yellow pelvic-fins) and greyish black anal-fin (versus yellow anal-fin).

The comparison of *Sparidentex jamalensis* sp. nov. with the original description of *S. belayewi* highlighted differences in many diagnostic characters, as shown in Table I. In *S. jamalensis*, the scales between fifth dorsal-fin spine base to lateral-line counts 3½ vs 5½ in *S. belayewi*. The head length is relatively lower in *S. jamalensis*, ranging from 2.7-3.0 times and 3-4 times in SL and TL, respectively whereas 3.4 times and 4.3 times in SL and TL, respectively in *S. belayewi*. Diameter of eye contained 4.1-4.3 times in head length in *S. jamalensis* versus 3.8 times in head length in *S. belayewi*. Six enlarged canine teeth exist in both jaws in *S. jamalensis* whereas 6 in upper jaw and 4 in the lower jaw in *S. belayewi*.

#### Remarks

In Pakistan, all sparid fishes are commercially important, including *Sparidentex* species, and fetch high prices in the local fish markets at Karachi. The local fishermen identify two different forms of *Sparidentex hasta*. One form is locally called “Dathi” (i.e., *Sparidentex hasta*) and is relatively higher in price among all other sparid fishes. The

other form is locally known as “Kukri” which we here refer to *Sparidentex jamalensis* sp. nov. that is sold in fish markets with normal prices as other sparid fishes but quite cheaper than *S. hasta*. The distinctly stouter second anal-fin spine, clearly visible in the illustration of *Sparidentex hasta* (see Fischer and Bianchi (1984) and Bianchi (1985)) support the hypothesis that these two species have been confused since long time.

Iwatsuki *et al.* (2013) reports the second record after the original description of *S. belayewi* from Omani waters. Surprisingly, the specific name of *S. belayewi* is erroneously reported as *S. belayewesi*. They also did not provide detailed description and photographs of this important specimen. Standard length of the holotype of *P. belayewi* presented by Hora and Misra (1943) in the original description is 201 mm whereas Iwatsuki and Heemstra (2010) reported that the holotype of *Petrus belayewi* (ZSI-F 3628/1) measured 193mm SL, which might be due to the shrinkage of specimen in preservative solution for a long time.

#### KEY TO THE SPECIES OF SPARIDENTEX

(Information on *C. datnia* and *P. belayewi* was extracted from their original descriptions).

1. Dorsal-fin spines XI, rays 11; anal-fin membrane black ..2  
- Dorsal-fin spines XII, rays 10; anal-fin membrane yellow  
..... *S. datnia*
2. Scale rows between fifth dorsal-fin spine base and lateral-line 3½; second anal-fin is longer than third anal-fin spine.....*S. jamalensis*  
- Scale rows between fifth dorsal-fin spine base and lateral-line 5½; second anal-fin is subequal to third anal-fin spine.....3
3. Highest body depth 34-37 % in SL; 47-48 pored lateral-line scales.....*S. hasta*  
- Highest body depth 42 % in SL; 52 pored lateral-line scales..... *S. belayewi*

#### Comparative material examined

*Sparidentex jamalensis*: PMNH. 52062 (holotype), 186 mm SL, sex not determined, West Wharf Fish Harbour, Karachi, gillnet, 09th October, 2013; PMNH. 52063, 206mm SL, locality data same as holotype; CEMB-P2012-0555 to CEMB-P2012-0563 (ten paratypes), 148-224 mm SL, Keti Bunder, Sindh, gillnet, 21th June, 2010.

*Sparidentex hasta*: PMNH. 50412-50414 (3 specimens), 209-300 mm SL, West Wharf Fish Harbour, Karachi, gillnet, 09<sup>th</sup> October, 2013; CEMB-P2012-0565 to CEMB-P2012-0567 (3 specimens), 224-300 mm SL, Korangi Creek, Karachi, gillnet, 21th June, 2010.

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