INT. J. BIOL. BIOTECH., 19 (3): 355-361, 2022.

RECORD OF *SAURIDA LESSEPSIANUS*, RUSSELL, GOLANI AND TIKOCHINSKI, 2015, (ORDER AULOPIFORMES; FAMILY SYNODONTIDAE) FROM PAKISTAN (NORTHERN ARABIAN SEA)

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ABSTRACT

Lessepsianus lizard fish (*Saurida lessepsianus* Russell, Golani and Tikochinski, 2015) is reported for the first time from Pakistan. This species is distinguished from other congeners in having dorsal fin 11 - 12 rays, pectoral fin 13 - 15 rays, lateral row of scale 47 to 51, transverse scale rows upper lateral line 4 and half, lower 5 and half, two line of outer palatine in vomer teeth, tongue 3 to 6 line of lateral teeth, pectoral fin reaching the origin between dorsal and pelvic fin, upper margin of caudal fin with black dots 3 to 8. In addition, whole stomach except it last part is black and white intestine.

Key word: *Saurida lessepsianus*, lizard fish, first record, Pakistan,

INTRODUCTION

Genus *Saurida* Valaenciennes of family Synodontidae are known to be widespread in Indo-West Pacific. Presently, 24 species of genus Saurida has been discovered globally (Fricke *et al.*, 2020),two of them found in Pakistani water, *Saurida longimanus* Norman, 1939 and *S. tumbil* Bloch, 1795 (Psomadakis *et al*., 2015). Due to resemblance with other species of morphological character, taxonomy of this genus is always controversial.

Inoue and Nakabo (2006) studied that *S. undosquamis* from Indian Ocean is combination of four species which commonly called as "*Saurida undosquamis* group" comprising *S. longimmanus*, *S. macrolepis*, *S. umeyoshii* and *S. undosquam* which have identical morphological characters. Russell *et al.* (2015) reported *S. undosqaumi* from Mediterranean and Red Sea which was later re-described as *S. macrolepis* by Inoue and Nakabo (2006). However, further studies showed that it is an undescribed species *Saurida lessepsianus* Russell, Golani and Ticochinski, 2015. With the help of morphological examination it was confirmed that species having black dotes in upper caudal fin is actually is *S. lessepsianus.* Our studies indicated that this species is widespread in the Pakistani water and found up to a depth of 120 m, caught mostly as bycatch of trawl net but also caught in bottom set gillnet.

The name of lessepsianus was awarded on the name of French ambassador Ferdinand de Lesseps who supervised the construction of Suez Canal due to which species migrated from Red Sea to Mediterranean Sea which called as lessepsian migration (Russell *et al*., 2015).

MATERIALS AND METHODS

Specimens collected from the Karachi Fish Harbor during August and September 2021.Morphometric measurements as described by Russell *et al.* (2015) were taken in the Biological Laboratory of Marine Fisheries Department. Its body was dissected to observe the color of stomach. Vertebral column was studies and vertebral counted after removing flesh from body. Photographs of the selected specimen and important body parts were taken. Morphometric measurements were compared with those reported by Russell *et al.* (2015) and Silpa *et al*. (2021).

RESULTS

Fish has long cylinder body looks like cigar shape somewhat compressed, long pectoral fin reaching between origin of dorsal and pelvic fin, pointed pectoral and pelvic axillary scale extended, base of dorsal fin longer than base of anal fin, forked tail, large cycloid scales, scale found on cheek and opercle, snout found between tip of the snout to edge of eye, large (Fig.1) dermal flap found on front nostril, a small bony ridge found in middle of eyes (Fig.10), rounded eye having fleshy adipose eyelid, color with yellow to greenish appearance on lower side in fresh specimen (Fig.6) but older specimen is black on top, side brownish and white to silvery below, a row of 9 fading spots along the lateral line in larger specimen, prominent in small specimen (Fig.5), black spots on first two dorsal

rays with range of 6 to 10 (Fig.13), upper caudal fin margin has 6 to 8 spots (Fig.4) adipose fin has a black spot (Fig.4) anal and pelvic fin white upper area of pectoral fin and lower caudal lobe is black (Fig.1), most part of stomach is black except the last area (Fig.2).

Dorsal fin rays 11-12, pectoral fin rays 14-15,pelvic fin rays 9, anal fin rays 11-12, lateral line scale 48-50, scale row upper lateral line 4 and half 5 and half lower, 14-16 pre dorsal scales 14-16 pre adipose scale, vertebrate 44-46 (Fig.3), palatine teeth in 2 line (Fig.8), 4-6 line of tooth on tongue (Fig.6).Large mouth, maxilla reaching behind eye margin and numerous needle like teeth in both jaws able to be seen in close mouth (Fig.11), gill rakers absent (Fig.12). Axillary scale found with pectoral and pelvic fins.Peritoneum white (Fig.7).

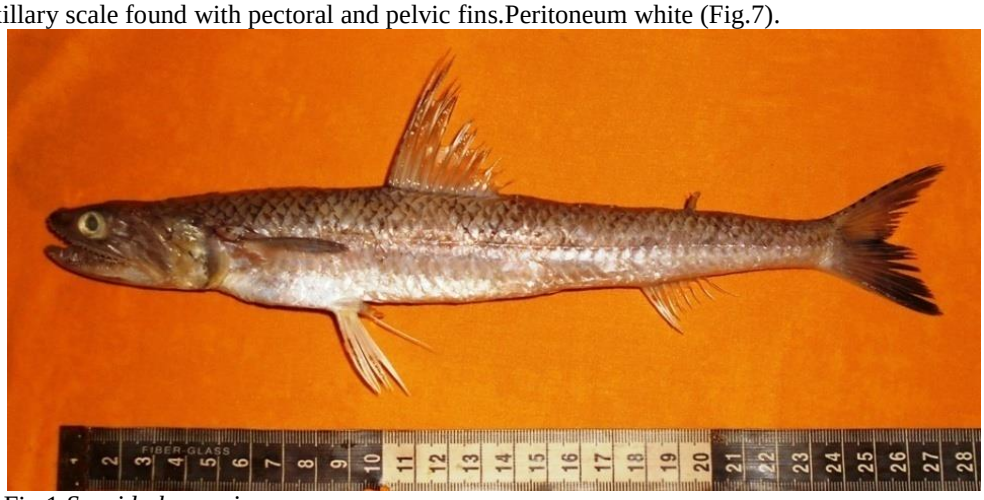

Fig.1.*Saurida lessepsianus.*

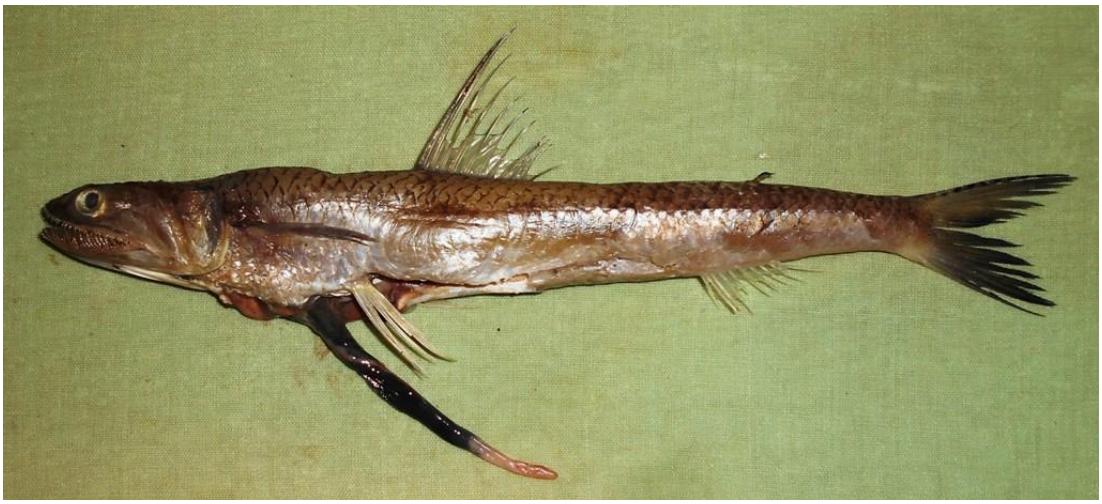

Fig.2. *S. lessepsianus* with black stomach.

Fig.3. *S. lessepsianus* showing vertebrate.

Fig.4. Upper caudal lobe has dot.

Fig.5. Nine spot on lateral line.

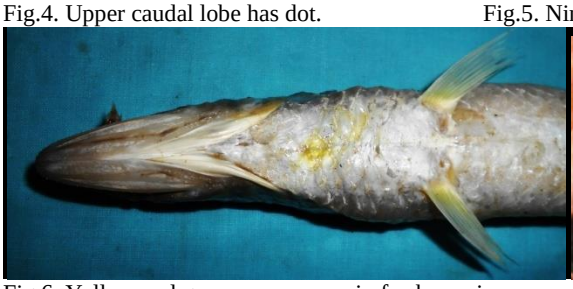

Fig.6. Yellow and green appearance in fresh specimen.

Fig.7. Peritoneum white.

Fig.8. Palatine teeth of upper jaws.

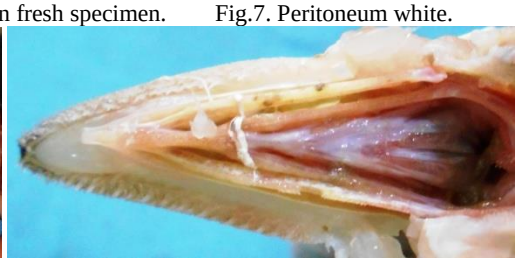

Fig.9. 4-6 line of tooth on tongue.

Fig.10. Bonyridges between eye.

Fig.11. Maxilla reaching beyond eye margin.

Fig.12. No gillrakers

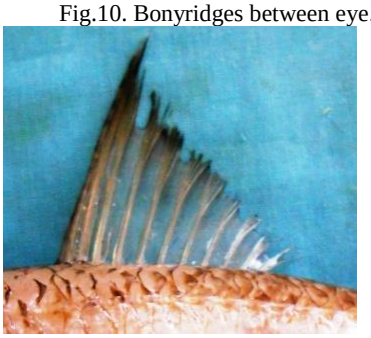

Fig.13. Black spot on first two dorsal ray.

Fig.14. *S.lessepsianus*.Pectoral fin reaching between dorsal and pelvic fin origin.

Fig.15.S.*longimanus*.Pectoral fin crossing. Dorsal fin.

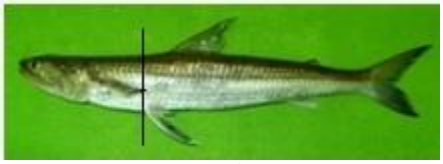

Fig.16. *S.tumbil.* Pectoral fin very short

Distribution

This species is reported from Mediterranean and Black Sea (Russsull *et al.,* 2015) to Bay of Bengal (Psomadakis *et al.*, 2019) through Western Indian Ocean (Silpa *et al.,* 2021). It was reported to be very common in Pakistani water. First specimen of this species was reported from Israel in December 1952 as *S. grandisquamis* (Ben-Tuvia, 1952). It is reported to be widespread in east Mediterranean Sea from Libya to south Aegean Sea. (Bilecenoğlu *et al.,* 2002; Bilecenoğlu, 2010) Few records of *S. undosquamis* in the Western Indian Ocean may be referred to *S. lessepsianus* (Cressey, 1986; Randall, 1995).

Table 1. Morphometric measurement of *S. lessepsianus* in percentage with standard length (SL).

Measurement (mm)	(Present study 2022) Range 220 -302	(Silpa *et al*., 2021) Range 112- 236	(Russell *et al.,* 2015) Range 108-282
Morphometric (% SL)	Mean	Mean	Mean
Pre dorsal distance	43.43	44.22	42.6
Pre adipose distance	82.26	79.5	80.9
Pre anal distance	73.89	71.74	71.9
Pre anal fin distance	77.86	77.22	74.8
Pre pectoral distance	26.80	26.68	25.7
Pre pelvic distance	38.81	39.49	38.8
Head length	24.48	24.4	24.4
Body depth	14.72	17.19	13.3
Body breadth	13.47	13.72	13
Inter pelvic width	8.47	7.58	8.4
Pectoral fin distance	15.11	15.04	14.2
Pelvic fin distance	16.14	16.77	16.6
Distance of second dorsal ray	20.39	20.14	19.8
Distance of last dorsal ray	5.64	5.4	5.8
Distance of dorsal fin base	14.71	14.03	14.4
Distance of second anal ray	10.55	9.64	9.5
Distance of last anal ray	6.23	5.18	5.8
Distance of anal fin base	10.46	9.58	10
Distance of caudal peduncle	14.92		14.9
Depth of caudal peduncle	6.61	6.51	6.4
Breadth of caudal peduncle	4.96		5

Table 2. Morphometric measurement of *S. lessepsianus* in percentage with head length (HL).

Distance (mm)	(Present study 2022) Range 220 -302	(Silpa *et al.*, 2021) Range 112- 236	(Russell *et al.*, 2015) Range 108-282
Morphometric (% HL)	Mean	Mean	Mean
Snout distance	22.70		33.2
Eye width	22.70	18.58	21.4
Snout width	24.84	19.54	25.4
Interorbital width	20.06	20.12	18.2
Post orbital distance	59.99	62.49	59.4
Upper Jaw distance	71.31	67.67	69.1

Table 3. Meristics count of *S. lessepsianus.*

Meristics	(Present study 2022) Range 220 -302	(Silpa *et al.*, 2021) Range 112- 236	(Russell *et al.*, 2015) Range 108-282
Dorsal fin	11-12	11-12	11-12
Pectoral fin	14-15	14-15	13-15
Pelvic fin	9	9	9
Anal fin	11-12	11-12	10-12
Pored lateral line scale	48-50	48-51	47-51
Transverse scale above lateral line	4 and half	4 and half	4 and half
Transverse scale below lateral line	5 and half	5 and half	5 and half
Pre dorsal scales	15-19	15-19	14-19
Pre adipose scales	14-16	14-16	13-16
Post adipose scales	8-10		8-10
Number of vertebrate	44-46	44-47	44-47
No.of rows of palatine teeth anteriorly	2	2	2
No of teeth across tongue	4-6	4-6	3-6

Fig.8. Distribution map of *S. lessepsianus* with present record.

DISCUSSION

Saurida lessepsianus is previously known as *S. undosquamis* because of misidentification in the Mediterranean Sea and Red Sea. Russull (2015) defined this species on the basis of prolong rounded body with compressed head, somewhat depressed caudal peduncle, large mouth with two line of teeth on external palatines, 2 line of teeth on vomer, large pectoral fin reaching to base of pelvic and dorsal fin, 47-51 vertebrate, 44-47 scale row, grey to black anteriorly part of the stomach and remaining white.

S. lessepsianus was observed to be very common in Pakistani water but it was considered as *S. undosquamis* in the past. Bianchi (1985). Psomadakis *et al.* (2015) reported this species as sub species from Pakistan which was misidentification of *S. lessepsianus.* Psomadakis *et al.* (2019) reported this species from Myanmar, Bay of Bengal. Silpa *et al.* (2021) further reported this species from the west coast of India.

Morphological and meristics examination of the specimens obtained during present study from Pakistani water were observed to be similar to *S. lessepsianus* reported from the Mediterranean Sea and Red sea by Russull *et al.*

(2015) and further from Indian Ocean by Silpa *et al.* (2021) which are provided in Table.1.2 & 3.Character of dots on dorsal fin and caudal fin are similar in *S. lessepsianus* and *S. undosqaumis* and main reason of misidentification. Cold nutrient rich turbid water of South Red sea of Gulf of Aden is the reason of population in this area (Roberts *et al*., 1992; DiBattista *et al.*, 2013)

Two species *S. longimanus* and *S. tumbil* has also been reported in Pakistani water (Psomadakis *et al.*, 2015), both species lacking any marking on body or stomach. *S. lessepsianus* has long pectoral fin reaching between origin of dorsal and pelvic fin (Fig.14); *S. longimanus* has long pectoral fin crossing the origin of dorsal fin (Fig.15) whereas *S. tumbil* has very short pectoral fin not reaching the origin of pelvic and dorsal fin (Fig.16).

This species is reported to be inhabitant on soft bottom up to depth of 100 m but generally found in shallow water up to depth of 20-30 meter (Bogorodsky *et al.*, 2014). In Suez canal this species which previously reported as *S. undosqaumis* and is significant part ostrawl fishery (El-Halfawy and Ramadan, 2007). This species suffered serious over exploitation in Egypt (Mahmoud *et al*., 2014). Species was not reported to be common in Mediterranean Sea until 1955 but after that it is caught in bulk quantities in bottom trawl (Ben-Yami and Glaser 1974, Bilecenoglu 2010), except some fluctuation catch rate was high in the area (Golani 1993).In Iskenderun and Mersin, Gulf of Turkey fish has economic importance (Torcuand Mater, 2000; Bilecenoglu, 2010) In North Levant it is most common species and found almost 33 % of the trawl catch (Cinar *et al*., 2005). In Suez Gulf spawning season observed throughout the year with May and December with peck season (El-Halfawy and Ramadan, 2007). In Israel spawning takes place March to December (Golani, 1993) whereas spawning season in Iskenderun of Turkey reported May to July and September to November (Ismen, 2003). This species mostly feeds on fishes (Golani, 1993; Bilecenoglu, 2010)

In 1928 -1929 specimens collected by Dollfus through his "Mission en Egypt" from Suez Canal (Dollfus, 1931) are also able to described as S. *lessepsianus.* Chabanaud (1932) reported it as *S. tumbil* and Chabanaud (1934a; 1934b) as *S. gracilis* but Gruvel (1936) on the basis of manuscript of Dollfus. (1931) listed the name of *S. sinaitica* for this species.

In the present study species found up to depth of 120m, common around 50 m but also found on lower water about 25 m. In higher depth species feeds on *Bregmaceros macclellandi and Chamsodon*, in middle water species prey on *Stolephorus* sp. whereas in shallow water feeds on *Rastrelliger kanagurta*; *Decapterus russelli; Leiognathidae* sp. and *Sciaenidae* sp., apart with fish Cephalopode (squid, octopus) and shrimp was also a miner part of diet. Ripe sexual specimen found from January to March.

This species was reported to be an associates of *Nempterus randalli, N. japonicus, Parascolopsis aspinosa, Uranoscopus dollfusi, Grammoplites suppositus, Epinephalus diacanthus, Selar crumenophthalmus, Saurida tumbil*, Hound shark, and small cuttlefish. In addition, crab *Callapa* sp. was also observed along with these species.

Acknowledgments

The authors are thankful to Ashok Kumar Jaiswar, Principal Scientific Fisheries, Central Institute of Fisheries Education, Mumbai (CIFE), Maharashtra, India for providing help for identification of this species and Mohammad Moazzam Khan, Technical Adviser WWF Pakistan for his continued support.

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(*Accepted for publication June 2022*)