أول تسجيل للنوع *Sillago suezensis* (Forsskål, 1775) في المياه البحرية السورية

First Record of *Sillago Suezensis* (Forsskål, 1775) from Syrian Marine Waters

وعد صابور [1] مي مصري [2]

Dr. Waad SABOUR[1] Dr. Mai MASRI[2]

(1) قسم علم الحياة الحيوانية، كلية العلوم، جامعة اللاذقية، اللاذقية، سورية.

(1) Zoology Department, Faculty of Sciences, Latakia University, Lattakia, Syria.

(2) مخبر علوم البحار، كلية الزراعة، جامعة اللاذقية، اللاذقية، سورية.

(2) Marine Sciences Laboratory, Faculty of Agriculture, Latakia University, Lattakia, Syria. .

الملخص

يقدم هذا البحث أول تسجيل للنوع السمكي *Sillago suezensis* (Forsskål, 1775) من فصيلة Sillaginidae الاستوائية في المياه البحرية السورية. جرى اصطياد ثلاثة أفراد بالشباك المبطنة على عمق 120 متراً في منطقة رأس البسيط (35° 50′N, 35° 50′E) شمال اللاذقية. في 28 أبريل 2021. يمثل هذا التسجيل أول مشاهدة لهذا النوع المهاجر *S. suezensis* من المحيطين الهندي والهادي إلى المياه البحرية السورية. حيث عثر على هذه الأفراد متواجدة في المصيد مع أنواع اخرى من فصيلة السلطانيات Mullidae: *Parupeneus forsskali* و *Upeneus moluccensis*.

الكلمات المفتاحية: مهاجر جديد، Sillaginidae، *Sillago suezensis* ، المياه البحرية السورية.

Abstract

This research presents the first record of *Sillago suezensis* (Forsskål, 1775) belonging to tropical Sillaginidae family from Syrian marine waters. Three individuals were caught by trammel nets at about 120m depth in Rass Albassit, (35° 50′N, 35° 50′E) north of Lattakia, on 28th April 2021. This record represents the first sighting of this immigrant *S. suezensis* Indo-Pacific species introduced in the Syrian marine waters. These individuals were found mixing in the same net haul with populations other Mullidae species such as: *Parupeneus forsskali* and *Upeneus moluccensis*.

Key words: New migrant, Sillaginidae, *Sillago suezensis*; Syrian marine waters.

 ISSN:2305 - 5243 ; (p:212 - 218)

Introduction

The biological invasion of Indo-Pacific species into the Mediterranean was unknown before the opening of the Suez Canal in 1869. The Levantine Basin of the Mediterranean Sea is the first recipient of the Lessepsian invaders of Eritrean and Indo-Pacific species.

The family Sillaginidae belonging to the order Perciformes' contains 36 species and 3 genera: *Sillago*, *Sillaginopsis* and *Sillaginodes*. Three subgenera *Sillago* (*Sillagionopodys*, *Parasillago* and *Sillago*) (Fricke *et al*., 2019; Xiao *et al*., 2021), among them, six new *Sillago* species were determined and published successively after the overview of the FAO species catalogue (McKay, 1992), including *S. caudicula* (Kaga, Imamura & Nakaya, 2010), *S. sinica* (Gao & Xue, 2011), *S. suezensis* (Forsskål, 1775), *S. shaoi* (Gao & Xiao, 2016), *S. panhwari* (Panhwar, 2018); and *Sillago nigrofasciata* (Xiao, Yu, Song & Gao 2020). (Kaga *et al*., 2010; Gao *et al.,* 2011; Golani *et al*., 2013; Xiao *et al*., 2016; Panhwar *et al.*, 2018; Xiao *et al*., 2021).

Sillago suezensis is a lessepsian immigrant that recorded in Lebanon, Egypt, Palestine, Turkey, Cyprus and Greece (Katsanevakis *et al.,* 2009, Golani *et al.,* 2013, Akel and Rizkalla, 2015, Innal *et al*., 2015; Çelik *et al*., 2019; Kousteni *et al*., 2019). The species was first recorded by Mouneimne (1977), as *S. sihama* (non Forsskål, 1775), and immediately afterwards became very common throughout the southeastern Mediterranean.

In this paper, we report this species for the first time in Syrian waters of Lattakia.

Material and Methods

Three individuals of fish species *Sillago suezensis* were caught during commercial fishing operation by the trammel nets on 28th April 2021 and the surface seawater temperature and salinity were 19°C 39.20%, respectively, at a depth of 120 m, over sandy bottom, off the shore of Rass Al-Bassit, 60 km north of Lattakia (35°50′ N, 35°50′E) (Fig. 1).

The individuals were measured to the nearest length (mm) and weighed (g). Morphometric measurements, including the standard length per cent (%SL) and meristic, and meristic counts were performed according to Golani *et al.,* (2013); all data are given in Table I.

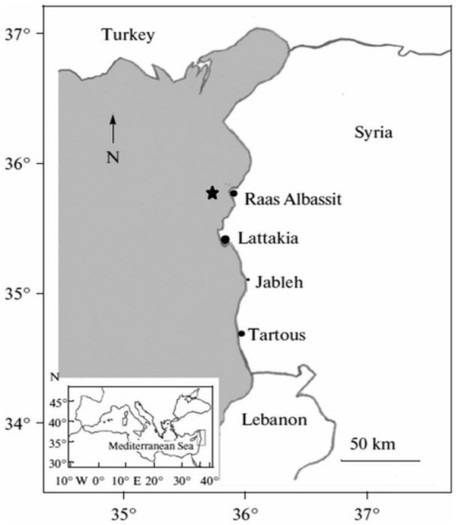

Fig.1. Specimens collecting locality .

Results and Discussion

The captured specimens were identified as *Sillago suezensis* using the main morphological characters (Fig. 2): Body elongate, slightly compressed, head tapering, with a terminal mouth; lower part of the cheek separated by a deep channel and bent inward to almost meet that of the other side, preopercle smooth, completely scaleless; opercle covered with a few scales, mainly in the upper part. First dorsal-fin rays XI; second dorsal-fin rays I, 21. Anal-fin rays II, 20. Pectoral-fin rays (16–17), pelvic fin rays (I, 5) and caudal fin forked. Lateral-line scales (72–74). Gill rakers relatively large, 4 + 10 (3–4 + 8–10), uppermost raker on upper arch rudimentary.

Fig. 2. Sillago suezensis caught from Syrian marine waters (Rass Al-Bassit).

Body dorsally silvery yellow, silvery-white below; a mid-lateral, silvery, longitudinal stripe usually present; upper part of the eye with a reddish-brown blotch; dorsal fins dusky terminally; caudal fin with a faint dark brown blotch each of the dorsal and ventral lobes, fin often terminally dusky; no dark blotch at the base of the pectoral fin; other fins hyaline, pelvic and anal fins whitish. All Morphometric and meristic data of the individuals were given in Table 1.

The results of the analysis of morphometric measurements of the three fish individuals in this study of *S. suezensis* are in agreement with the results obtained by Golani *et al*., (2013) in Palestine seawaters. The caudal fin appeared detached into two parts. We also noticed the presence of the few scales on the gill cover, that distinguish it from the type *S. sihama*, which is characterized by a fan-tail, and a dense presence of scales on the cover of the gills (Table 2). The number of soft rays on the second dorsal fin reached 20, whereas the species *S. caudicula* has 23- 24 soft rays. Our specimens are also distinguished by the absence of spots along the midline of the body, while the type *S. caudicula* contains 11 dark spots (Kaga *et al*., 2010).

S. suezensis is also distinguished from the type *S. indica* by the absence of dark markings on the side of the body, while the *S. indica* is distinguished by the presence of a dark stripe on the side that sometimes splits into spots. It is distinguished from the type *S. parvisquamis* by the presence of 20 soft rays on the anal fin and 69- 71 scales on the lateral line, while the number of soft scales on the anal-fin in *S. parvisquamis* (22- 24) and 7080- scales on the lateral line (Xiao *et al*., 2021).

Table 1: Morphometric and meristic of the three captured individuals of Sillago suezensis.

Morphometric measurements (mm)	Individual 1	SL%	Individual 2	SL%	individual 3	SL%
Fork length (FL)	168	113.51	155	116.54	157	115.44
Total length (TL)	180	121.62	165	124.06	167	122.79
standard length (SL)	148		133		136	
Head length (HL)	45	30.41	40	30.08	38	27.94
Body depth (BD)	30.5	20.61	25	18.80	27	19.85
Snout length (sL)	14	9.46	12	9.02	11	8.09
Eye diameter (ED)	10	6.76	9	6.77	8.8	6.47
Interorbital width (IW)	11.5	7.77	10.6	7.97	10.7	7.87
Postorbital length (PL)	17.5	11.82	15.8	11.88	16	11.76
Predorasal-1 length (Pdl)	54	36.49	50	37.59	49.5	36.40
Predorasal-2 length (Pdl)	88	59.46	78	58.65	79	58.09
Length of base of Dorsal fin (dbl)	87.5	59.12	83	62.41	83	61.03
Base of the 1st dorsal fin	32	21.62	30.5	22.93	31	22.79
Base of the 2nd dorsal fin	52.5	35.47	50	37.59	49.5	36.40
Prepectoral length (Ppl)	46	31.08	41	30.83	41	30.15
Preanal length (Pal)	86	58.11	80.5	60.53	80	58.82
Length of base of anal fin	51.5	34.80	47	35.34	49	36.03
Pelvic fin length	23.5	15.88	20.5	15.41	19	13.97
Counts						
Scales on lateral line	71		69		70	
Dorsal fin rays	XI, I+20		XI, I+20		XI, I+20	
Anal fin rays	II+20		II+21		II+20	
Pelvic fin rays	I + 5		I + 5		I + 5	
pectoral fin rays	16		16		16	
Total weight (g)	47.9		36.4		35.9	

Table 2: Comparison of species of Sillago. According to (Golani *et al*., 2013; McKay, 1985; 1992).

	Sillago suezensis	*Sillago caudicula*	*Sillago indica*	*Sillago parvisquamis*	*Sillago sihama*
Dorsal fins	XI, I+20	XI-I, 22–23	X-XI, I,21–22	XII - XIII, I, 21-23	XI, I, 20–23
Anal fins	II, 20–21	II, 23–24	II, 22–23	II, 22–24	II, 21–23
Lateral line scales	69–71	71	68–70	70–80	66–72
Scales on preoperculum	Absent	Few	Few	Present	Present
Scales on operculum	Few	Few	Few	Many	Many
Lateral extensions of swimbladder	Smooth	Smooth	Covered with numerous small bulbs	Covered with numerous blind tubules	Smooth
Colour pattern midline of body	,Pale, not spots silvery line	With a row of dusky spots 11	With a brown or blackish midlateral line	With a dark midlateral line	Pale, no spots
Colour pattern back	Pale, no spots or saddles	With irregular dusky spots	Pale, no spots or saddles	Pale, no spots or saddles	Pale, no dark pigment

*S. suezens*is was previously recorded in the whole Levantine Basin: Lebanon, Turkey, Palestine and Egypt (Mouneimne, 1977; Mavruk *et al*., 2017; Çelik *et a*l., 2019; Golani *et al*., 2013, Akel and Rizkalla, 2015). It was also recently recorded in Cyprus and Greece (Katsanevakis *et al*., 2009; Kousteni *et al*., 2019).

Conclusions

This study reveals that the species *S. suezensis* is also present in the Syrian marine waters, where it was found accompanied with the Mullidae fish family catch.

We have observed in this study, the recurrence of this species in the catch, By following up with the fishermen in (Lattakia, Banias, Tartous). (fig.3).

Fig .3. Specimens Sillago suezensis were located in populations of the commercial fishing (Tartous).

which gives a preliminary indication of the environmental changes that facilitate the entry and migration of tropical species to the Syrian coast and provides evidence adding to the ongoing invasion of alien species in this area. This fish species is the only one belonging to the Sillaginidae family in the Syrian marine waters.

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N° Ref: 1086