

First Record of the Squid *Sepioteuthis lessoniana* Férussac, 1831 in the Syrian Coastal Water

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Abstract

During the study of Molluscs/Cephalopods and their diversity and distribution in the Syrian marine waters; the presence of the squid *Sepioteuthis lessoniana* has been recorded for the first time locally. Two members of it were collected during November 2016. One of them was found at the Al Bohooth coast, and the another was found at Jableh coast. The two squid members were collected at depth ranging from 10-100 m. The required morphometric parameters were done. The mantle length has ranged from 15.5 to 17.9 cm and 5.6 -6.1cm width. The fin is in the size of 15.2 -16.2cm as long, and 3.3 -4.9cm as wide. The long of tentacle ranged from 24.1 to 26.2 cm. Weight of each one of them varied between 195.97- 263.03g. Anatomy of samples was performed also. The gonad varied between 1.22 - 2.28g. The digestive gland weight ranged between 2.38- 4.50 g. It was notable that the two collected squid were males.

Key words - *Sepioteuthis lessoniana*, morphometric parameters, Syrian coast.

I. INTRODUCTION

In this study, the big fin reef squid (*Sepioteuthis lessoniana*), known as the oval squid, has been recorded in the Syrian marine waters for the first time. This species is an alien one in the Mediterranean. Its origin goes back to the Pacific Ocean. This squid has economic value in some countries such as New Zealand. It is one of the three species belonging to the sebioteuthi species and is the most common one among them. This species lives in warm water at a temperature of about 27 °C, at depth ranging from 0-100 m [1]. It tends to stay close to the shore near rocks and coral reefs [2], [3]. The more active of it was during the night and goes deep in the day time. This species feeds on shrimps and other crustaceans and fish, while tuna, marlin and swordfish feed on it ([4], [5]).

The main hatching season begins in May, but females lay the eggs throughout the year. The breeding season varies according to the location ([6], [7], [8], [9]). One female can lay from 20 to 1180 eggs, and it dies shortly thereafter ([10], [9]). It is

located in the tropical and moderate temperate regions of the Indian Ocean and the Western Pacific ([11], [9]).

Its original range extends to Hawaii east and to the Mediterranean Sea west, to Japan north and to Australia and New Zealand south. It has also expanded to include parts of the Mediterranean Sea through the Red Sea after the opening of the Suez canal [12]. It has been previously recorded at the Turkish coasts on the Mediterranean for the first time in 2002 [12].

II. METHODS AND MATERIALS

Samples of Cephalopods were collected during the catch in the marine research institute areas (Al Bohooth coast) (in the north of Lattakia), using cages and trawls from the inter tidal zone and from the coast of Jableh. Samples collecting were performed during November 2016, at depths ranging from 10-100 m. The species were classified on the basis of International databases and approved taxonomic references [13], and adopted to the designation of the World Register of Marine Species website [14].

Histopathology and imaging. Weight measures were also taken for total weight gonad's and digestive gland's weights.

III. RESULTS AND DISCUSSION

Two members of the squid *Sepioteuthis lessoniana* were found during the present study. One of them was found at Al Bohooth coast, and the another was found at Jableh coast. The two collected members were males. It was notable that this presence of this species at the Syrian water is the first time of it.

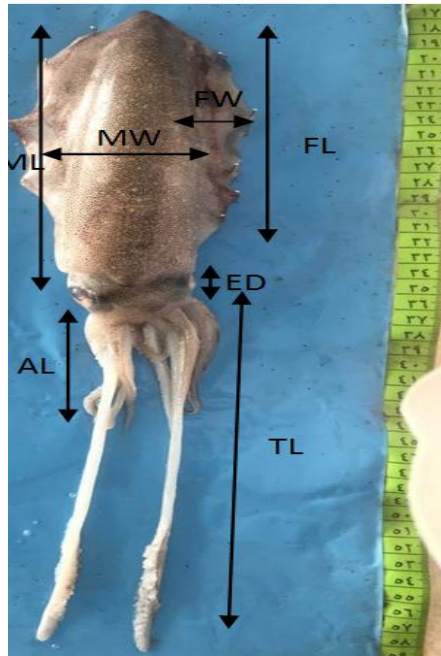
A. Taxonomic Status

Kingdom: Animalia
Phylum: Mollusca
Class: Cephalopoda
Subclass: Coleoidea
Superorder: Decapodiformes
Order: Myopsida
Family: Loliginidae
Genus: *Sepioteuthis*
Species: *Sepioteuthis lessoniana* Férussac, 1831

B. General characteristics of the species

The *S. lessoniana* is one of the *Sepioteuthis* species. It is easily distinguishable from other squid species. They have thick oval fins that extend along the mantle. The mantle has a tapered cylindrical shape to the cone in the back. The mantle has a length of 4 to 33 cm in males (Figure 1), Eyes are large and

completely covered. The eight arms are thick and uneven in length. Chromatophores are large, abundant and cover the head, mantel and arms, and spread less on the ventral side (Figure 2). Fins do not possess chromatophores on the ventral side. The two members have cream- brown, pink or purple color. Figure (3) shows internal structure of (*Sepioteuthis lessoniana*).



- Mantle length (ML)
- Fin length (FL)
- Mantle width (MW)
- fin width (FW)
- Eye diameter (ED)
- Tentacle length (TL)
- Fourth arm (AL)
- width Head (HW)

Figure (1): The morphometric measurements of the species *Sepioteuthis lessoniana*.

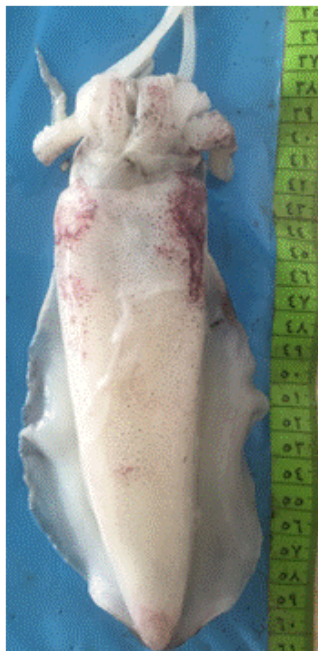


Figure (2) : The ventral side of the squid (*Sepioteuthis lessoniana*)



Figure (3): Internal structure of (*Sepioteuthis lessoniana*)

As shown in table 1, the mantle was 17.9 cm long and 6.1cm wide in the big one, while it was 15.5 cm long and 5.6 cm wide in the small one. Tentacle was

26.2 cm and the fourth arm was 11cm long in the big member, while they were 24.1 , 10.1 cm in the small one respectively.

Table (1): The morphometric measurements of the two *Sepioteuthis lessoniana* specimens

Morphometric measurements cm	Small individual Cm	Big individual Cm
(ML)	15.5	17.9
(MW)	5.6	6.1
(FL)	15.2	16.2
(FW)	3.3	4.9
(ED)	3.4	3.8
(TL)	26.2	24.1
(AL)	10.1	11
(FA)	1.8	2,4

The total weight was 263.029 g, the digestive glade in the big sample. They were 195.97, 4.5 and 1.22 g in weight was 2.38 g and the gonad's weight was 2.28 g the small sample, respectively.

Table (2): Weights of the squids (*Sepioteuthis lessoniana*)

Weights	Minimum	Maximum
Total weight (W)	195.97 g	263.029g
Digestive gland's weight	4.50g	2.38g
Gonad's weight	1.22g	2.28g

IV. DISCUSSION

The marine ecosystem in Syria has become a stable and suitable environment for the spread and settlement of many alien and invasive species. Previous studies have indicated that there are many benthic species ([15], [16]). Cephalopods are being studied recently, and results have indicated the existence of 14 species most of which are often Mediterranean. The species *Ommastrephaes bartramii* was recorded locally for the first time [17], and it is only the second species to be locally recorded in Syrian waters.

In Turkey, the specie *S.lessoniana* was also recorded for the first time with two samples in 2002 [12], big one was 24.4 cm long, 18.5 cm wide, while the small one was 19.6cm long and 15.5 cm wide. The fourth arm was 11.6 cm long in the big sample and was 9.5 cm long in the small one. While the tentacle arm was 28.8 and 27 cm long in the big and small samples respectively. The weight was 5.25 g of the big sample and 3.56 g of the small one.

In this study, no female were detected, so no identification of the sexual maturity and ovulation periods were noticed. This leads us to continue the study and to survey its existence.

The recording of a new species in the Syrian marine waters and the increase in the number of these species over time is explained by the changes in the physical and chemical characteristics of the water in the Eastern Mediterranean basin and the continued flow of alien species through the Red Sea and the Suez Canal as well as the lack of local competitors for these species ([18], [19]).

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