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# *Arcaniaelongata*Yokoya, 1933 (Crustacea, Decapoda, Brachyura): a New Alien Leucosiid Crab in the Mediterranean Sea.

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## □ ABSTRACT □

A new alien crab *A.elongata* collected from the Syrian waters in the coast of Jableh at depth of 45 to 60 m. A single female ovigerous specimen of this specieswas recorded in the Eastern coast of the Mediterranean. The specimens were identified following Galil (2001a). The description of Naruse (2014) was also consulted.

The Leucosiid crab is the first alien species from the genus *Arcania* arrived in the Mediterranean Sea and the fourth species from the Leucosiidae family established in the coast of Syria with *Ixa*Leach, 1816; *Coleusia*Galil, 2006; *Myra* Leach, 1817 (Hasan, 2008c).

**Keywords:** alien crab; Mediterranean Sea; Lessepsian crab; Leucosiidae; Syrian waters.

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# السرطان *Arcaniaelongata* Yokoya, 1933 نوع جديد من القشريات عشاريات الأرجل المهاجرة من فصيلة Leucosiidae إلى البحر المتوسط

**الدكتور حسان حسن[2]**

**(تاريخ الإيداع 19 / 7 / 2017. قبل للنشر في 28 / 8 / 2017)**

## □ ملخّص □

نوع جديد من السرطانات الغريبة *A.elongata* جمع من المياه البحرية السورية في شاطئ جبلة على عمق 45-60 م. تم جمع عينة واحدة (أنثى تحمل بيوض) من هذا النوع على الساحل الشرقي للبحر الأبيض المتوسط، و قد صنفت هذه العينة باتباع المفاتيح التصنيفية المعتمدة من قبل Galil (2001a) ، كما تم الاعتماد على الوصف المقدم لهذا النوع من قبل Naruse (2014). إن هذا النوع من السرطانات هو أول نوع مهاجر من جنس *Arcania* يصل إلى البحر الأبيض المتوسطو الرابع من فصيلة Leucosiidae التي أنشأت مجتمعات على الشاطئ السوري و هي الأنواع التالية: *Ixa* Leach, 1816; *Coleusia*Galil, 2006; *Myra* Leach, 1817 حسب الدراسات السابقة (Hasan, 2008c).

**الكلمات المفتاحية:** عشاريات الأرجل، القشريات، البحر المتوسط،

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## Introduction:

The Levantine upper shelf biota has an ever increasing component of Erythraean aliens (Galil, 2012). The coast of Syria, like the other coasts of the Levantine Basin, has favorable habitats and conditions for Decapoda species from the Red Sea (Hasan, 2008c). In 2005, Boudouresque estimated a total number of species introduced into the Mediterranean from the northern Red Sea to 300 species. Of the 350 known species of Decapoda in the Mediterranean, 59 are exotic species, 37 of which have successfully established populations in the Mediterranean (Galil et al., 2002). The number of Decapoda species introduced into the Mediterranean increased in 2008 to 66 species, of which 23 are present on the coast of Syria. The Lessepsian migration is thus continuous, because each year there is at least one new species introduced into the Mediterranean Sea (Hasan, 2008a).With the exception of the species *CallinectesSapidus*, introduced by Ballasts, all other introduced species are Lessepsian and have penetrated the Mediterranean Sea from the Red Sea via the Suez Canal. The Leucosiidae family occupies the second place in Syria after the Portunidae family by the number of introduced species with 3 lessepsian belonging to three genus: *Ixa* Leach, 1816; *Coleusia*Galil, 2006; *Myra* Leach, 1817(Hasan, 2008c).

The aim of the present work is to report the arrival of new decapod Lessepsian *A.elongata*Yokoya, 1933; in the marine water of Syria (coast of Jableh). The specimen represents the first time record of these species in the whole Mediterranean Sea and to discuss its possible introduction of vector in the Syrian coast.

### Materials and Methods:

A single female specimen of *A.elongata* was recorded from the Eastern coast of the Mediterranean (Fig.1). The adult specimen (♀) ovigerous was collected by fishing nets from the coast of Jableh in Syria at 45 to 60 m deep on a rock bottom. Specimen was fixed and preserved in 70% ethyl alcohol. Moreover,the collected specimen was identified following Galil (2001a) and fit the description given by Galil (2001a) and Naruse (2o14), and were deposited in the collections of TISHREEN University in Lattakia, Syria.

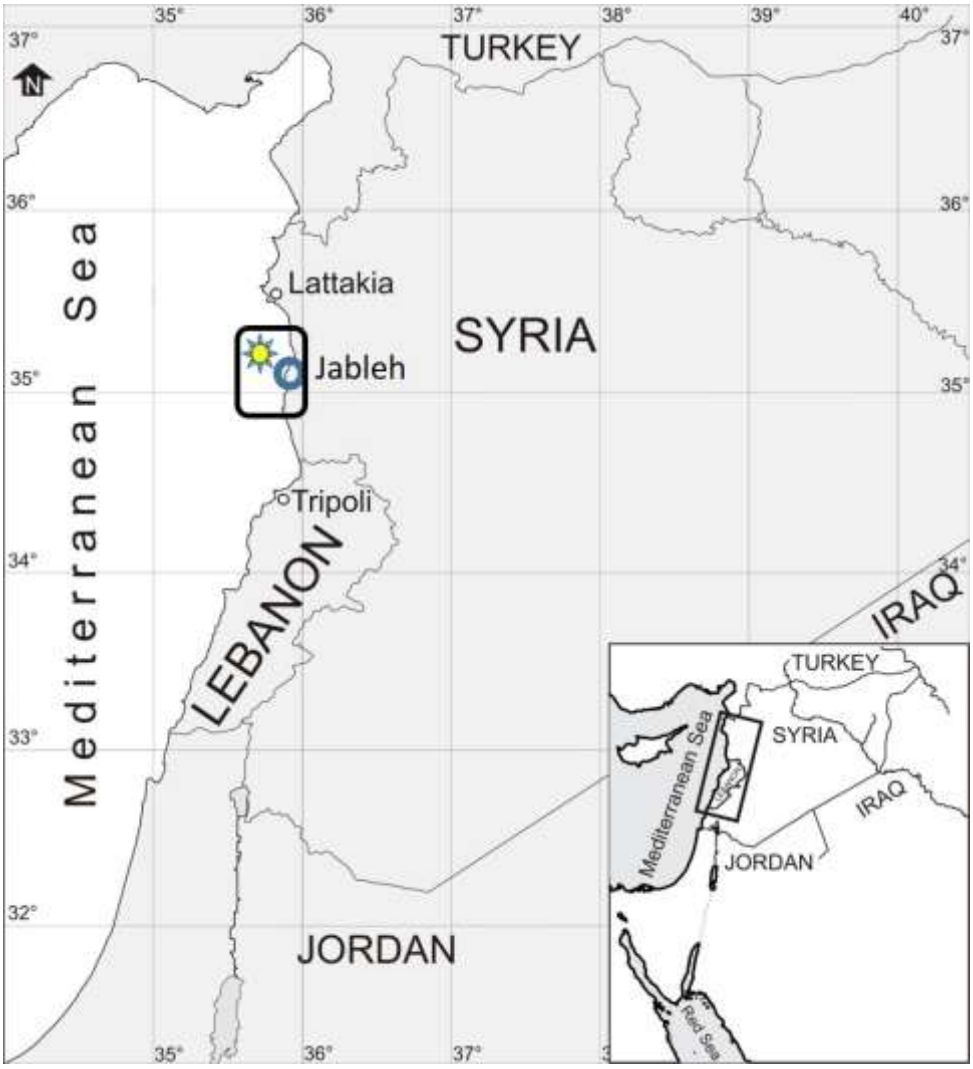


**Fig. 1. Map of the eastern Mediterranean coast, Jableh, Syria, showing location where specimen of *A.elongata*Yokoya, 1933 was collected, (Jableh: 35.2212◦N 35.5409◦E)**

**Results:**

Family LeucosiidaeSamouelle, 1819

*Arcaniaelongata* (Yokoya, 1933) (Malacostraca: Decapoda: Leucosiidae) (Fig. 2)

Material examined:

Jableh(35.2212◦N 35.5409◦E), Syria, 20 august 2016, rocks bottom, 45 to 60 m depth, one specimen (♀) ovigerous, (CL × CW = 22 x 21 mm) collected by Fishermen.

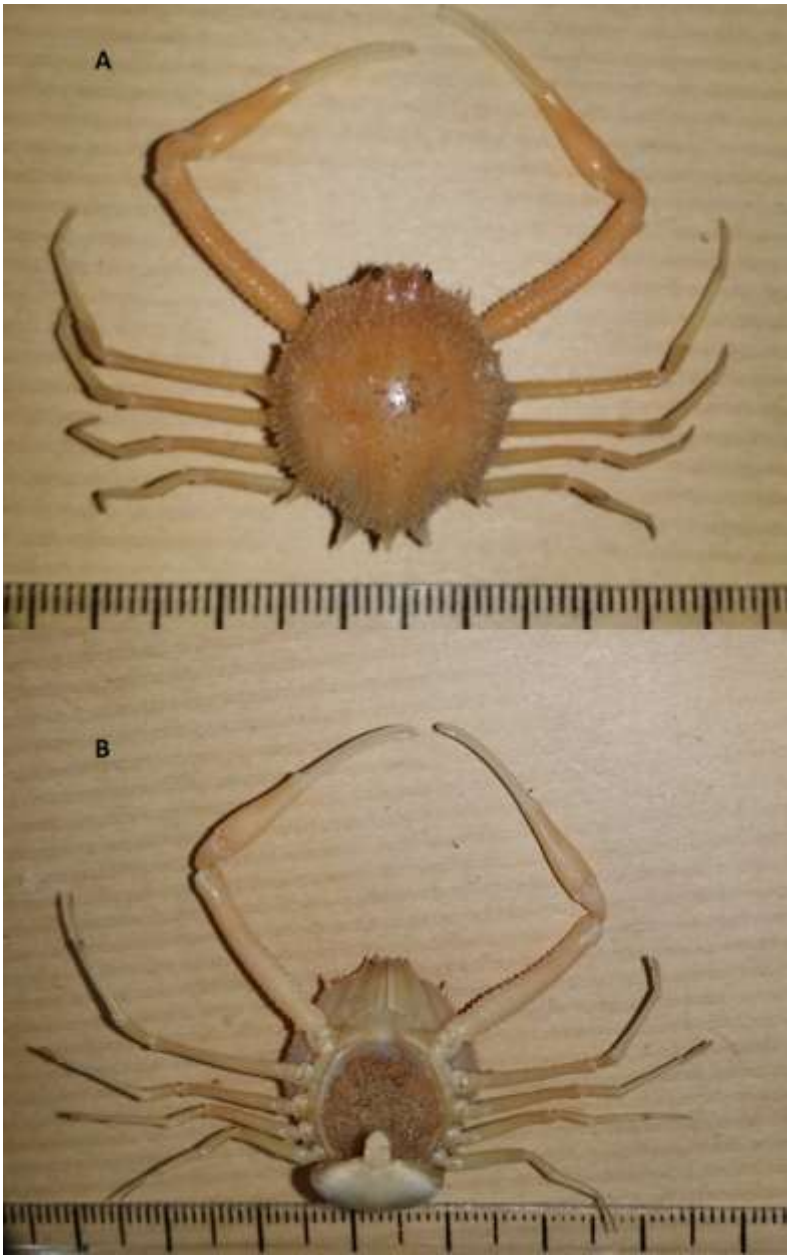


**Fig. 2. *A.elongata* (one specimen ovig. female, color in life, carapace length × carapace width = 22 x 21 mm) collected in Jableh, Syria (A: dorsal view, B: ventral view. Rounded or rhomboidal carapace; dorsal surface is granulate, spinulate, or tuberculate. The front is bi-lobed and up tilted. The adult female abdomen is greatly swollen, segments fourth to sixth fused, the telsonlaciniate.**

## Description:

Carapaceoval or globose, distinct in length than in width, longitudinally ovate in male, nearly rounded in female, dorsal surface with high tubercular granules and thickly set with anteriorly curved spineless, regions nearly indistinct. Frontal lobes triangular. Margins of carapace bearing nine spines: one spine each on sub-hepatic, midlateral, posterolateral and posterior margins, with single spine on intestinal region. Two spinular tubercles on the antero-lateral margin very small, indistinct in adults. Sub-hepatic, midlateral, posterolateral, intestinal spines short, upcurved, granulate; posterior spines dorso-ventrally flattened. Intestinal regions somewhat inflated, demarked by shallow grooves. Chelipedmerus nearly as long as carapace, thickly set with conical granules; small

tubercle proximally on lower margin. Carpus, propodus minutely granulate, propodusdorso-ventrally flattened, thicker basally, fingers slender, longer than palm. Pereiopodalmeri granulate, prominently so on fifth pereiopod; carpi, propodi minutely granulate, subcylindrical. Male, abdomen granulate, basio-lateral regions of fused segments inflated, lateral margins of sixth abdominal segment slightly convex. Male first pleopod sigmoid, tip bilobed, almost straight over proximal four-fifths (Naruse, 2014)(Fig. 3). *A. elongate* differs from *Arcaniaundecimspnosa* in having an indistinct, tuberculi form, anterolateral spine (Galil, 2001a).

Colour: carapace orange brown or in spirit grey, mottled. Chelipeds orange or cream. Walking legs meri distally orange.

**Distribution:**

Japan - Pacific coast, Suruga Bay and Mimase(Yokoya, 1933; Galil, 2001a; Naruse, 2014), Tosa Bay and Sagami Bay (Sakai, 1937a; 1965b), Sagami Bay, Suruga Bay, Mikawa Bay, Tosa Bay, and near Ashizuri-zaki(Sakai, 1976a; Muraoka, 1998); China and South China Sea; Guangdong including Hainan Island (Dai & Yang, 1991; Galil, 2001a); Philippines (Galil, 2001a); New Caledonia (Galil, 2001a); Australia - (Galil, 2001a); southern Queensland (Campbell, 1971); taiwan(Galil, 2001a; Naruse, 2014).

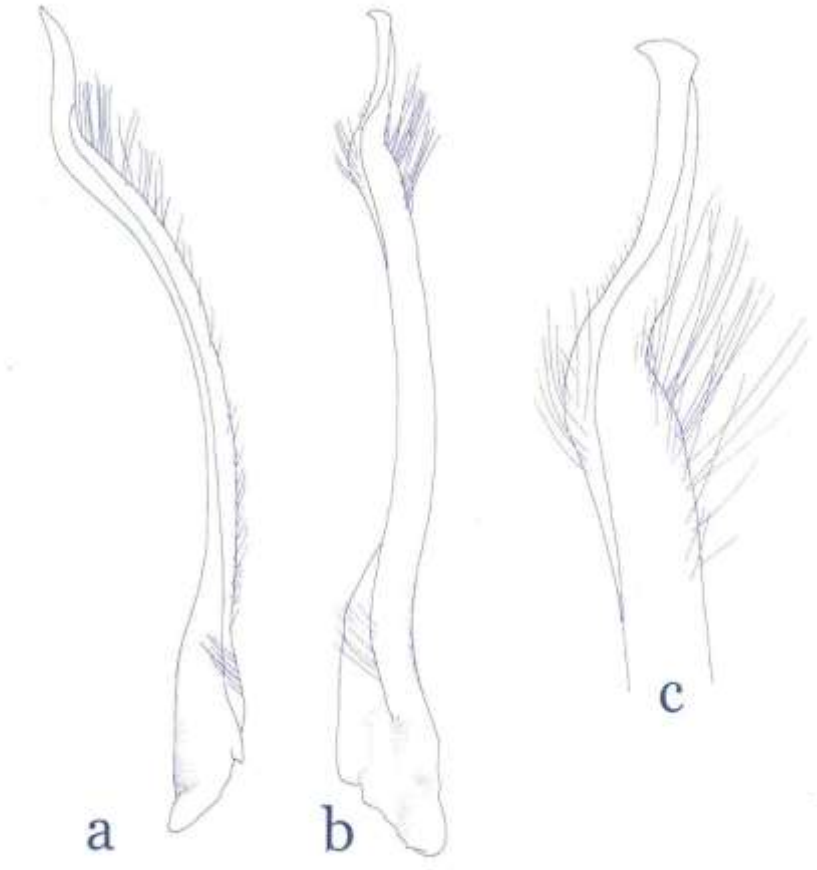


**Fig.3. First male pleopod of *Arcaniaelongata*Yokoya, 1933. a, left pleopod: mesial view; b, left pleopod:ventral view; c, distal part of left pleopod (ventral view) (according to Naruse, 2014).**

**Discussion:**

A survey on exotic decapod crustaceans in the Mediterranean has recently reported 65 species as Lessepsian migrants (CIESM, 2007). Some species have become important in the composition of the Eastern Mediterranean fauna of decapod communities and are highly prized and considered a benefit to the Levantine fisheries (Galil, 2007; Hasan 2008c; Galil and Mendelson, 2013). Thirty eight species have established local populations, and thirty of these are of Indo-Pacific or Erythrean origin, and hence must have entered the Mediterranean through the Suez Canal. 39 alien Brachyura species of Red Sea/ Indo-Pacific origin, belonging to 19 families, have been recorded in the Mediterranean Sea (Galil, 2011; Zenetos et al., 2012; Karhan et al., 2013; Zaouali et al., 2013). The family Leucosiidae show a high number of Red Sea/ Indo-Pacific lessipsian crab, with 3 species: *Ixamonodi*Holthuis and Gottlieb, 1956; *Coleusiasignata* (Paulson, 1875); *Myra subgranulata*Kossmann, 1877.

The occurrence of exotic species *A. elongata* in the Mediterranean water indicates that this phenomenon of migration is continuing up to this moment.This alien crabis the forth species of the Leucosiidae family in the Mediterranean. This new Lessepsian migrant, like the majority of exotic species in the Levantine basin, arrived into the Mediterranean through the Suez Canal. The success of its presence in the Mediterranean can be explained by the pre-adaptation of this tropical Indo-Pacific crab.

*A. elongata* is reported here for the first time from the coast of Jableh in Syria and from the whole Mediterranean water. The presence of A. Elongate on the coast of Syria does not necessarily show evidence of recent immigration. The species may have arrived in this area recently and have been able to establish its own population due to favorable conditions; or they may have been there for a long time but it did not find suitable conditions producing and for establishing populations.

According to recent studies, the area of the distribution of *A. elongata* is in Japan, New Caledonia, Australia, the Philippines, and South China Sea.To date there is no study indicating that this species exists in the Red Sea or in the Arabian Sea and the Gulf of Aden. Therefore, the arrival of this species to the Mediterranean may have happened via ships and ballast water or through the Suez Canal, but has not been proved by scientific studies so far. However, it is difficult to determine the arrival time of this species or other migratory species. The subsequent studies, the rapid spread of the species and the density of its presence in the Mediterranean or the Red Sea determine the mode of access and the extent to which it adapts to the new environment.

There is insufficient knowledge about the migrant species in Syria. Until now most studies were inventories. There is no effective control to detect new migrant species in the Syrian waters. In Syria, the information is scarce about alien species along the Syrian coasts and more investigations are needed for a better understanding of their distribution in time and space.

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