

Rapid Communication

First Mediterranean record of *Actaea savignii* (H. Milne Edwards, 1834) (Crustacea: Decapoda: Brachyura: Xanthidae), an additional Erythraean alien crab

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Abstract

To date, the only alien xanthid crab recorded from the Mediterranean is *Atergatis roseus* (Rüppell, 1830). This species was first collected off Israel in 1961 and is now common along the Levantine coast. Recently a second alien xanthid species, *Actaea savignii* (H. Milne Edwards, 1834), was found off Israel and Turkey. A single adult specimen was collected in Haifa Bay in 2010, and two specimens were captured off Mersin, Turkey in 2011. Repeatedly reported from the Suez Canal since 1924, the record of the Levantine populations of *A. savignii* is a testament to the ongoing Erythraean invasion of the Mediterranean Sea.

Key words: *Actaea savignii*; coastal zone; Red Sea origin; Suez Canal; Israel; Turkey

Introduction

Approximately 60% of the known alien brachyuran species worldwide have been reported from the Mediterranean, which makes it the richest sea in terms of invasive crabs (Brockerhoff and McLay 2011). The speciose family Xanthidae was so far represented by a single species; *Atergatis roseus* (Rüppell, 1830) (Galil 2011). *Atergatis roseus* is considered to be widely distributed throughout the Indo Pacific Ocean, from the Red Sea to Fiji, and is a common inhabitant of tropical coral reefs, rocky and rubble bottoms (<http://www.ciesm.org/atlas/Atergatisroseus.php>). Half a century ago, specimens of *A. roseus* were collected off Israel (Lewinsohn and Holthuis 1964) followed by records from Lebanon (1975; Shiber 1981), southern Turkey (1987; Enzenross et al. 1990), Syria (1994; Saker and Farah 1994 cited by Hasan et al. 2008), Rhodes, Greece (2009; Corsini-Foka and Pancucci-Papadopoulou 2010)

and Cyprus (2012; P. Noël, Muséum national d'Histoire naturelle, Paris, France, personal communication). Recent surveys in 2010 and 2011 along the Levantine coasts of Israel and Turkey revealed the presence of a second alien xanthid crab, *Actaea savignii* (H. Milne Edwards, 1834), in the Mediterranean. This study represents the first record of the genus *Actaea* de Haan, 1833 from the Mediterranean Sea.

Material and methods

Three specimens of *Actaea savignii* were recently collected, one from Israel and two from Turkey. The particulars are listed for both locations.

Israel: Shikmona, on the southern margin of Haifa Bay, 32°49'55.20"N 34°58'1.20"E, 1 December 2010, depth 6–10 m, 1 female, carapace width (cw, measured across the widest point) 21.2 mm, carapace length (cl, measured from the median point of the frontal margin to

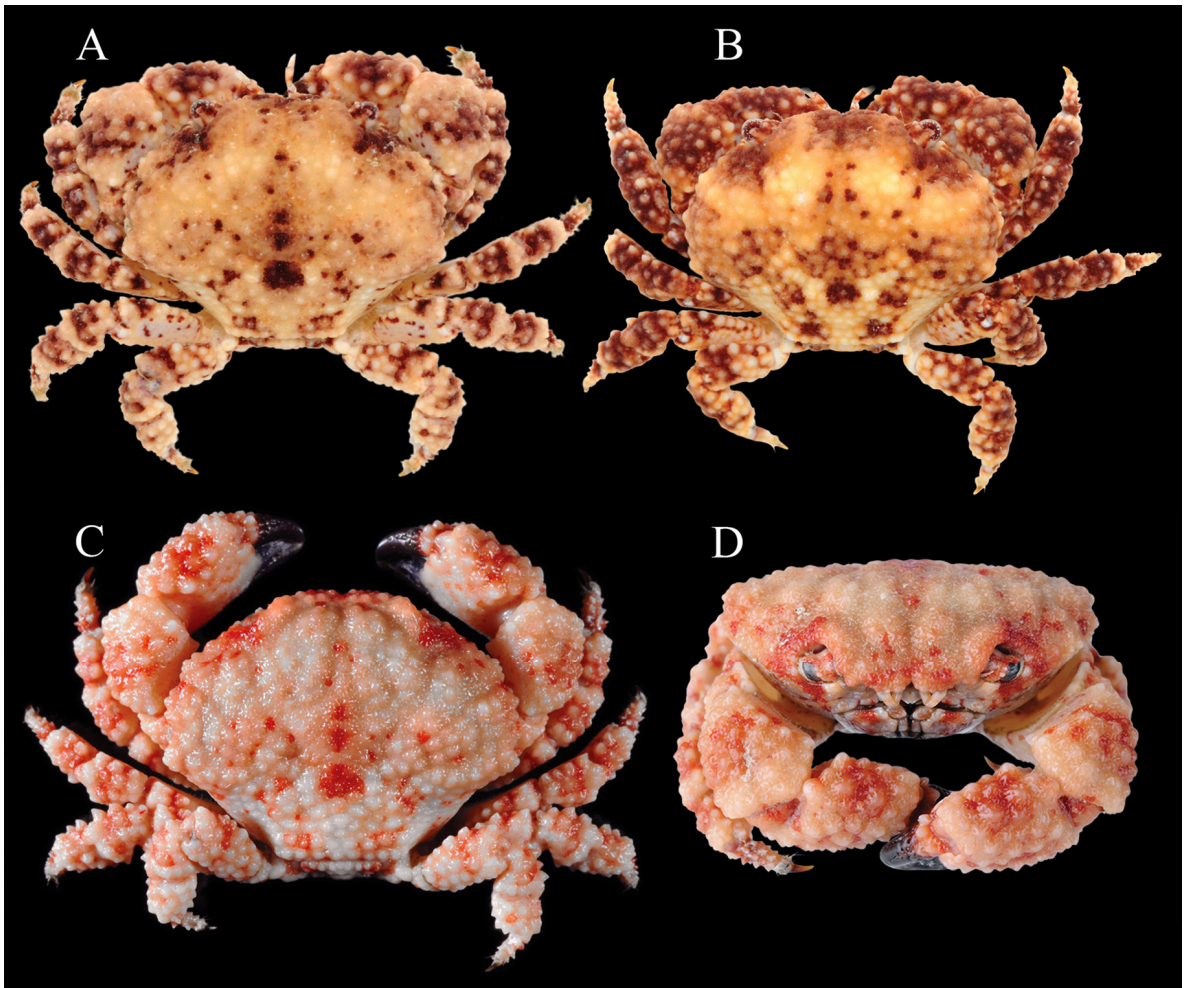


Figure 1. *Actaea savignii* (H. Milne Edwards, 1834) (IUSHM-20121223-15). **A, C, D**, male, cw 18.3 mm, cl 14 mm; **B**, female, cw 12.8 mm, cl 9.6 mm; **A, B**, live specimens; **C, D**, male specimen as above, freshly preserved; **A – C**, dorsal view; **D**, frontal view. Photographs by S.Ü. Karhan.

the median point of the posterior margin) 14.9 mm; collected by A. Dotan. The specimen is preserved in ethanol and deposited in the Steinhardt National Collections of Natural History, Tel Aviv University, Israel (TAU AR 29015).

Turkey: Dana Island, off Mersin, south-eastern coast of Turkey, 36°11'36.81"N 33°45'55.37"E, 29 May 2011, depth 4 m, under a boulder (ca. 50 cm in diameter) on rocky bottom covered with a thin layer of foraminiferous sand, 1 male, cw 18.3 mm, cl 14 mm, 1 female, cw 12.8 mm, cl 9.6 mm; collected by S.Ü. Karhan. The specimens are preserved in 75% ethanol and deposited in the Istanbul University Science Faculty Hydrobiology Museum, Turkey (IUSHM-20121223-15).

Comparative material from the Red Sea and the Suez Canal, identified by D. Guinot, in the Muséum national d'Histoire naturelle, Paris was examined.

Results and discussion

Systematic account

Family Xanthidae MacLeay, 1838

Subfamily Actaeinae Alcock, 1898

Actaea savignii (H. Milne Edwards, 1834)
(Figure 1)

Cancer Savignii H. Milne Edwards 1834: 378.

Actaea savignyi, Monod 1937: 18.

Diagnosis: Carapace ovoid, slightly convex dorsally, median region flat, width about 1.3 times length; dorsal regions of carapace covered with large, smooth, rounded, petaloid, closely confluent tubercles. Regions of carapace demarcated by narrow furrows; median frontal furrow, regions 1–4 M (sensu Serène 1984) distinct. Anterolateral margin slightly arcuate; divided into four ill defined, tuberculate, rounded lobes; anteriormost barely marked. Posterolateral margin shorter, slightly concave. Posterior margin straight bearing prominent row of tubercles. Front strongly deflexed, about 0.35 times carapace width, bilobed; frontal margin sinuous; lobes separated by wide V-shaped median cleft. Almost entire surface of thoracic sternum, pterygostomian region, and maxillipeds densely tuberculate; tubercles flattened, closely confluent, varying in size, partly simple and partly petaloid in shape. Maxilliped 3 ischium almost without tubercles; sternite 4 smooth with some shallow pits. Chelipeds subequal, robust, closely tuberculate. Fingers distinctly shorter than palm; proximal part of the movable finger densely covered with flattened tubercles, and bearing two to three larger tubercles forming teeth. Ambulatory legs closely tuberculate, larger conical tubercles dorsally on carpus and propodus.

Coloration in life: Dorsal surface of the carapace (Figure 1A, B) yellowish, bearing prominent purplish brown blotches on orbital, cardiac regions. Chelipeds and ambulatory legs similarly patterned. Cheliped fingers in male dark brown to black, paler in female, color of fixed finger does not extend onto palm.

Distribution

Actaea savignii has been reported numerous times from throughout the Indo-West Pacific, however, Guinot (1976) considered all records outside the Red Sea as doubtful. Fox (1927; as *A. savignyi*) first recorded the crab from the Suez Canal in 1924, and thereafter this species was repeatedly reported from the Canal and its lakes (Calman 1927; Monod 1937; Holthuis 1956). To date, *A. savignii* has not been previously recorded in the Mediterranean.

Considering this species has now been found at two localities at the southeast and northeast Levant, it may have already established populations along the entire coast, though being small and cryptic it had eluded notice until now.

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