

# The spiny spider crab *Maja goitziana* (Crustacea: Majidae) in south Lebanese waters

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A total of 52 specimens (45–115 mm CL) of *Maja goitziana* d'Oliveira 1888, was collected along the Lebanese coasts (south-eastern Mediterranean Sea) in 2006–2007. This species, till now considered rare in the Mediterranean Sea, is common and abundant along the deep shelf-upper Lebanese coast where a local population is present.

The spiny spider crab *Maja goitziana* d'Oliveira 1888, is a species of subtropical Atlantic origin (d'Udekem d'Acoz, 1999). It can be found in the eastern Atlantic Ocean from Portugal to the Gulf of Guinea, as well as in the Canary Islands (González Pérez, 1995). Maurin (1968) reported *M. goitziana* as a common component of the demersal assemblages over detritic–muddy bottoms along the Morocco and Western Sahara coasts. In the Mediterranean Sea it has been occasionally recorded from the Levantine Basin to the Tyrrhenian Sea and it is considered by far the rarest species of the Majidae family (Zariquiey Alvarez, 1968).

Due to its rarity, information on its distribution and ecology in the Mediterranean are scarce. *Maja goitziana* is a eurybathic species, living on a variety of substrata on the continental shelf and upper slope (Soppelsa et al., 2005). Until now, the few specimens found in the Mediterranean were caught at depths between 20 m and 300 m, on soft bottoms with a muddy component of variable quantity (Pallaoro & Dulcic, 2004).

So far no more than 20 specimens have been recorded in the Mediterranean. The first specimen was recorded off the Israel coast in the late 1950s (Holthuis & Gottlieb, 1958). From the 1950s the species was recorded in different sectors of the Mediterranean generally with no more than two specimens (Ramadan & Dowidar, 1972; Koukouras, 1979; Kocatas, 1981; Pastore, 1983; Pipitone & Tumbiolo, 1993; Pallaoro & Dulcic, 2004; Vignoli et al., 2004; Soppelsa et al., 2005; Artüz, 2006).

We confirmed the presence of *M. goitziana* in the eastern Mediterranean Sea, documenting the occurrence of a mature ovigerous female and reporting relatively high abundances for this species in the southern Lebanese waters.

A total of 52 specimens of *M. goitziana* (Figure 1) was collected in the south of Lebanon (Tyre) from June 2006 to May 2007, by means of commercial landing (trammel nets and bottom longlines) and experimental fishing surveys. The gear utilized during the fishing surveys was a nylon monofilament gillnet, 2000 m in length and 4 m in height with a stretched mesh size of 26 mm, designed to target the European hake *Merluccius merluccius*. All specimens have been caught on a sandy–muddy bottom over a wide bathymetric range, between 80 and 275 m depth.

For each specimen we measured carapace length (CL; from the median point between the bases of the rostral spines, to the posterior end of the carapace between the intestinal spines) and carapace width (CW; between the bases of third and fourth main lateral spines of both sides) to the nearest 1 mm. The sex was also recorded.



Figure 1. *Maja goitziana* specimens caught in Lebanese waters.

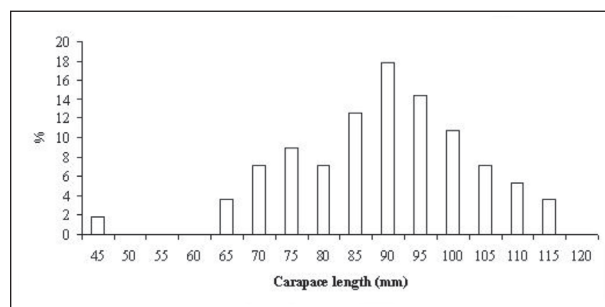


Figure 2. Carapace length distribution of *Maja goitziana* specimens.

The 46 males collected ranged from 70–115 mm CL (mean 93 mm  $\pm$ 12.8 mm) and from 60 to 100 mm CW (mean 78.9  $\pm$ 11.9); 6 females ranged from 45 to 90 mm CL (70.3  $\pm$ 57.7 mm) and from 40 to 70 mm CW (mean 20.6  $\pm$ 16.0 mm) (Figures 2&3). The sex ratio showed a large predominance of male individuals (females/females + males = 0.11). One ovigerous female (CL $\times$ CW=72 $\times$ 59 mm) was found in May at 250 m depth.

Body characters of the individuals collected are in agreement with those reported by Zariquiey Alvarez (1968) and Pastore (1983). The only difference was related to the carapace colour probably due to the freshness of our collected specimens. In our specimens the carapace was coloured from orange to dark red plain. The upper surface of the ambulatory legs was pink-violet, while the lower surface switched from yellowish to orange.

All the reported records of *M. goltziana* from the different Mediterranean sectors referred to isolated individuals, occurring occasionally in the catch of local fisheries. In the present study we reported for the first time in the Mediterranean, the occurrence of a well established population of the spiny spider crab, placed off the south Lebanon coasts. In the area, this crab is very common and abundant along the deeper shelf–upper slope soft bottoms, where it is regularly caught by artisanal vessels using fixed nets. Local fishermen consider this crab as by-catch and even the larger individuals are discarded; some individuals are dried for ornamental purposes in restaurants and private houses. Our findings seem to indicate in the Levantine basin the core of the area of distribution of this crab in the Mediterranean, adding new information on the occurrence and geographical distribution of this species. The Levantine basin has higher surface temperature and salinity values than the rest of the Mediterranean (Bethoux & Gentili, 1999), thus showing more similar environmental conditions to the original sub-tropical Atlantic distribution area. The successful establishment of *M. goltziana* in this area could be also explained by the absence of the European spider crab *Maja squinado*. This latter species is distributed on muddy bottom, between the edge of the continental shelf and the upper slope, occupying the same habitat as *M. goltziana*. Catch of the European spider crab, widely distributed throughout the Mediterranean (De Kergariou, 1984), has not been reported from Lebanon either by commercial landing, survey or by interview with the local fishermen. Consequently, *M. goltziana* in the southern Lebanon waters probably does not suffer the competitive pressure from the related congeneric species *M. squinado*.

Present-day Mediterranean marine biodiversity is undergoing a rapid change and the flux of both lessepsian and Atlantic invader species is still continuous (Streftaris et al., 2005). In the case of the spiny spider crab it is not possible to exclude either a recent colonization from the sub-tropical Atlantic, favoured by the warming trend of the Mediterranean (Bethoux & Gentili, 1999), or that an old immigration during one of the warm interglacial periods occurred across the Quaternary (Bianchi & Morri, 2000). The timing of such an ‘invasion’ is not known, and because it could have been prehistoric, its establishment has never been documented. Research on its further distribution in Lebanese waters is now underway.

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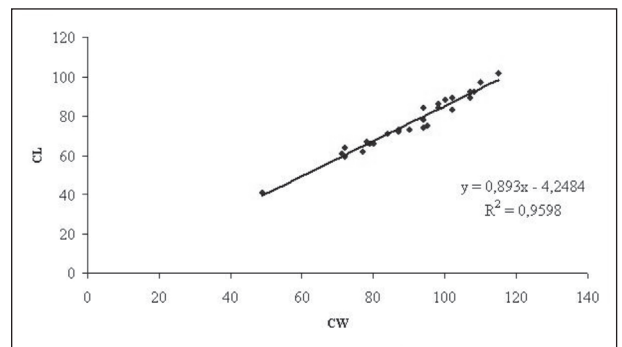


Figure 3. Relationship between carapace length (CL) and carapace width (CW).

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