

SHORT COMMUNICATION

New record of *Ocypode cursor* (Linnaeus, 1758) (Crustacea: Decapoda: Ocypodidae) from the Tunisian coasts, the central Mediterranean Sea

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Abstract

The tufted ghost crab *Ocypode cursor* (Linnaeus, 1758) is the only *Ocypode* species present in the Mediterranean Sea. It is widely distributed in the eastern Mediterranean, but its presence in the central Mediterranean Sea is confirmed mainly in the south coasts of Sicily and Malta. The present study reports the first record of the species in the central and the southern coasts of Tunisia.

Keywords: Mediterranean, Tunisia, ghost crab, characteristics

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Ghost crabs, belonging to the genera *Ocypode* and *Hollocypode* are conspicuous inhabitants of sandy beaches worldwide, from tropical to temperate zones (Sakai and Türkay 2013; Lucrezi 2015). *Ocypode* is now recognized to contain 21 valid species of which only the tufted ghost crab *O. cursor* is present in the Mediterranean (Deidun *et al.* 2017).

The species is predator of small animals, including early juveniles of turtles, and generalist scavengers, whose cleaning activity makes them important components of sandy beach food webs (Deidun *et al.* 2017 and references therein). Functionally they are the main bioturbators of beaches and form a key ecological link in the food webs of these ecosystems (Lucrezi and Schlacher 2014). Also, the species is known to produce semi-permanent burrows in juvenile to adult stages (Brown and Maclachlan 1990). The crabs construct deep and complex burrows from the low intertidal zone of open sandy shores

which provide shelter against climatic extremes and predators, and serve as refuges during molting and maternity (Brown and MacLachlan 1990; Lucrezi *et al.* 2009; Sakai and Türkay 2013; Lucrezi 2015).

Due to its peculiar and limited habitat, *O. cursor* is listed among the Endangered or Threatened Species (Annex II) of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention 1995), and among the Strictly Protected Fauna Species (Annex II) of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1996-98) (Deidun *et al.* 2017).

In this report we are dealing with the first record of the tufted ghost crabs *O. cursor* in the Tunisian coasts; this new information contribute to understand the species expansion in the Mediterranean Sea.

The first observation of the ghost crab in the Tunisian coasts was made by a hazardous observation of specimens emerging from their burrows on June 2018 near a nest of loggerhead turtle in the Kuriat Islands which is the most important nesting site in Tunisia (Jribi and Bradai 2014) (Figure1). After that, and as part of loggerhead turtle nesting program, the monitoring of other beaches in southern Tunisian coasts, allowed to find other signs of the presence of the ghost crab in the area.

On July 10, 2018 tracks and burrows of ghost crabs were discovered in the Gabes region; the next day two specimens corresponding to *O. cursor* were collected alive by hand capture in the region of Jerba island (Figures 1, 2). The first individual was juvenile caught on the beach distant 50 cm from the leave sea at 7am. The second individual was an adult caught by excavation of burrow at 11am. Burrow is a few centimetres wide (in relation to the body size of the specimen) and about 1 m deep; they were found just a few meters from the water's edge, where the sand is always wet.

These crabs were immediately frozen, photographed and identified according to the criteria of Branch *et al.* (2008) and El-Sayed *et al.* (2016). The carapace length (CL) and carapace width (CW) of the specimens were measured to nearest millimetre; the specimens were weighed with digital balance to the nearest gram.

The two captured crabs have the main characteristics of the genus *Ocypode* (Narrow front, long eyestalks and smooth (or ridged); Carapace squarish-shaped pale to light yellow, presence of a cavity between bases of 3rd and 4th legs and sub quadrangular carapace); the characteristics of the eye-stalk of these crabs (prolonged in a short conical process bearing a brush of hairs) identifies them as *O. cursor* (Figure 2) and differentiates it from the close species of the same genus *O. saratan* (Branch *et al.* 2008; El-Sayed *et al.* 2016). The main characteristics of the captured specimens are recorded in the Table 1.

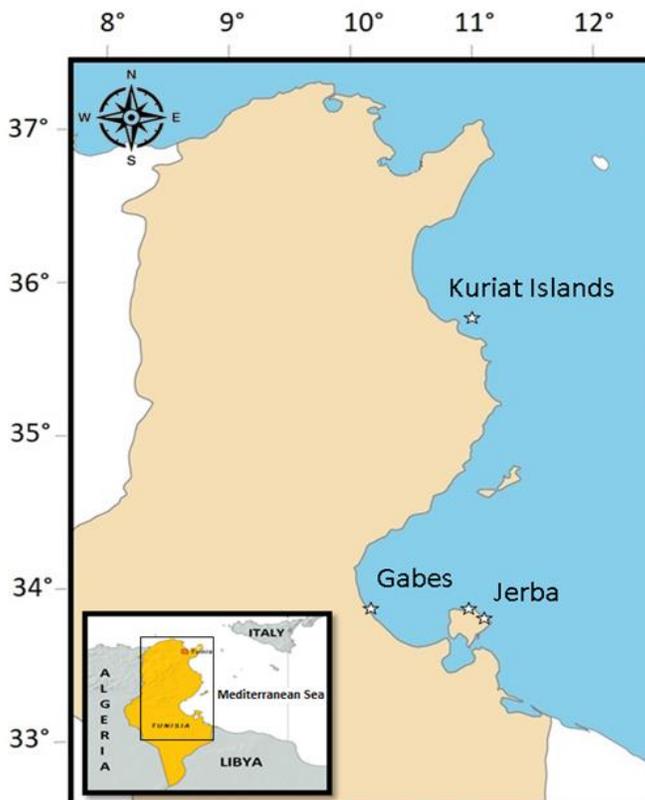


Figure 1. Map of Tunisia showing the locations of ghost crab observations

Table 1. Main characteristics of sampled *Ocypode cursor*

Characteristics	Individual 1	Individual 2
Carapace length (CL) (mm)	84.93	11.14
Carapace width (CW) (mm)	41.46	10.7
Weight (g)	69.98	0.25
Sex	Male	Male

This study presents the first signalling of *O. cursor* in Tunisia. This species is easily distinguished from its congeneric taxa by the presence of a tuft of bristles at the end of its eyestalks (Davie and Türkay 2009; Sakai and Türkay 2013).

In Mediterranean Sea, amateurs and researchers recorded the species mainly in the eastern part (Strachan *et al.* 1999) and sporadically in its central part where several specimens were collected from the south coast of Sicily and from Malta (Relini 2009; Mytilineou *et al.* 2016; Deidun *et al.* 2017). In Italian seas, it was

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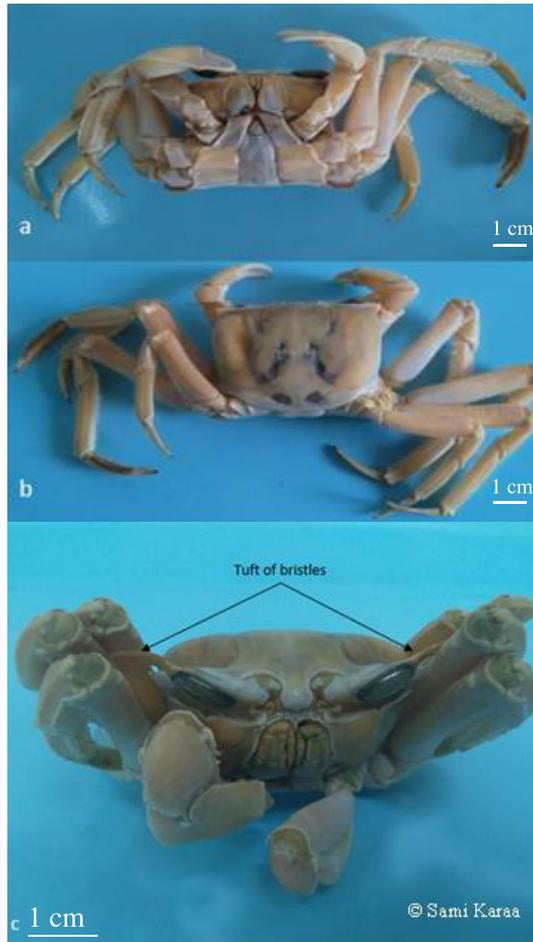


Figure 2. *O. cursor* from Jerba (South Tunisia) (11/07/2018). **a:** ventral view of the specimen showing the male abdomen, **b:** dorsal view of the specimen, **c:** front region showing tuft of setae at the tips of the eyes

Recent reports of *O. cursor* in the Central Mediterranean, including Tunisia, can be explained by two factors: the first one would be related to the environmental constraints mainly dependent to the adaptation of their environmental condition (temperature and salinity) (Türeli *et al.* 2014) and the second one would be related to the ecology of this crab; in fact this terrestrial crab is nocturnal; it is active from dusk to dawn (Strachan *et al.* 1999) and because of that it's less noticed by the users of the sea.

The reporting of *O. cursor* in this work concern several beaches of the center and the south of Tunisia. It would seem, therefore, that this crab is currently well adapted to the new environment. Knowing that *O. cursor* has been found predated turtle nests on the western African coast and the Mediterranean (Smith *et al.* 1996; Strachan *et al.* 1999; Barton and Roth 2008; Aheto *et al.* 2011; Simms *et al.* 1997), it is urgent to continue studies on the population of this crab in Tunisia and specially to focus on the predation on the nests of loggerhead sea turtles in Tunisian nesting sites.

Acknowledgments

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