

ABOUT NEW RECORDS OF THE MOLE CRAB (*ALBUNEA CARABUS* L. 1758, DECAPODA, ANOMURA, HIPPOIDEA) IN TUNISIAN WATERS (CENTRAL MEDITERRANEAN SEA)

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ملخص

تمت مشاهدة "السلطعون الرملي" أو "سلطعون الخلد" *Albunea carabus* أربع مرات خلال 2019، 2020 و 2021: تم تصوير عينة أولى وهي تحفر الرمال في 5 أكتوبر 2019 من طرف مواطن في شاطئ غار الملح الرملي (شمال تونس) كما تم العثور على عينة ثانية في شاطئ الرمال ببزرت في نوفمبر 2019 وصيد عينة ثالثة بواسطة الشباك الخيشومية على عمق 3 أمتار في منطقة رأس قبودية (شرق تونس) في 1 أكتوبر 2020 وكائن رابع تم صيده بواسطة صنارة في منزل حر في 18 أبريل 2021. كانت العينة الثالثة عبارة عن أنثى يبلغ طولها الإجمالي (TL) 42.1 مم، طول درعها (CL) 19.4 مم، عرض درعها (CW) 22.6 مم وطول الجسيدات البطنية والتلسون (STL) 21.7 مم ولم يتمكن من قياس العينات الأخرى. تؤكد هذه المشاهدات تواجد هذا النوع في المياه التونسية حيث تم العثور على درعين ومخلّب واحد من *A. carabus* في أكتوبر 1972 في خليج تونس.

الكلمات المفتاحية: مشاهدات، *Albunea carabus*، المياه التونسية، وسط البحر المتوسط

RESUME

À propos des nouveaux records du crabe taupe (*Albunea carabus* L. 1758, Decapoda, Anomura, Hippoidea) dans les eaux tunisiennes (Méditerranée centrale) : Quatre observations du crabe taupe *Albunea carabus* ont été enregistrées de 2019 à 2021 :

Un spécimen a été filmé en train de creuser le sable le 5 octobre 2019 par un citoyen scientifique sur la plage sableuse de Ghar el Melh (Nord de la Tunisie) ; Un deuxième spécimen a été observé sur la plage de Rimel à Bizerte en novembre 2019 ; Le troisième spécimen a été capturé au filet maillant à 3 m de profondeur à Ras Kapoudia (Est de la Tunisie) le 1er octobre 2020 et le quatrième spécimen a été capturé à la ligne le 18 avril 2021 à Menzel Horr (Est de la Tunisie). Le troisième spécimen de Ras Kapoudia était une femelle mesurant 42,1 mm de longueur totale (TL), 19,4 mm de longueur de carapace (CL), 21,6 mm de largeur de carapace (CW) et 22,7 mm de la longueur des somites abdominaux et telson (STL). Aucune mensuration n'a été effectuée pour les autres spécimens observés. Ces occurrences confirment bien la présence de l'espèce en Tunisie, puisque deux carapaces et un chélopède de ce crabe *A. carabus* ont été observés en octobre 1972 dans la baie de Tunis.

Mots clés : signalement, *Albunea carabus*, eaux tunisiennes, Méditerranée centrale.

ABSTRACT

Four observations of the mole crab *albunea carabus* were registered from 2019 to 2021: one specimen was filmed digging the sand in 5 october 2019 by a scientific citizen in the sandy beach of ghar el melh (northern tunisia); a second specimen was observed in november 2019 on rimel beach (bizerta); the third one was caught by gillnet at 3 m depth in ras kapoudia (east of tunisia) in 1 october 2020 and the fourth one was captured by a fishing rod in 18 april 2021 in menzel horr (east of tunisia). the third specimen (from ras kapoudia) was a female measuring 42.1 mm total length (tl), 19.4 mm carapace length (cl), 21.6 mm carapace width (cw) and 22.7 mm abdominal somites and telson length (stl). no measurements were made for the other specimens. these occurrences confirm well the presence of the species in tunisia, since two carapaces and one cheliped of *a. carabus* were observed in october 1972 in the bay of tunis.

Key words: records, *Albuneacarabus*, Tunisian water, Central Mediterranean

INTRODUCTION

The mole crab *Albunea carabus* (Linnaeus, 1758) is widespread along the Eastern Atlantic coasts and in Western Africa regions. In the Mediterranean Sea, it is known to be very rare and the only representative species of the Albuneidae family. However, Giacobbe & Spano (1996) believe that there may be several populations in coarse granulometric sea beds with

remarkable hydrodynamism and with a high level of turbidity. Whereas, literature data cited that the mole crab is an infaunal species living in sandy substratum (Scuderi *et al.*, 2017). Preira *et al.*, (2008) collected this species by dredge during the bivalves sampling on the Portuguese coasts.

Although *Albunea carabus* has been recorded several times in the Mediterranean Sea, knowledge of its distribution is still incomplete. The species is

documented in Eastern basin (Boyko, 2002; Katagan & Çevik (2003); Abdelsalam & Ramadan, 2017; Gökoğlu *et al.*, 2019), in Western basin (Garcia Socias & Gracia, 1988) and also in central Mediterranean Sea (Spanò *et al.*, 1999; Giacobbe & Spanò 1996; Corsini-Foka & Kalogirou, 2013; Mura & Corda, 2011; Zava *et al.*, 2019).

The mole crab has been reported as isolated specimens, and two spectacular beaching were reported in the Mediterranean Sea. Hundreds of specimens were beached along the sandy coast of Catania (East of Sicily) in February 2017 (Scuderi *et al.*, 2019). Previously, Piguët (1955) has already reported the same phenomena in Algerian coasts.

In Tunisia, the species has been recorded on October 10, 1972 in Raouad sandy beach in the bay of Tunis (Rubió & Holthuis, 1972). The authors found two carapaces and one cheliped of *A. carabus* among shells and other objects washed ashore.

The new records reported in the current paper confirm the occurrence of this species on Tunisian coasts and contribute to characterize it in the Mediterranean Sea.

MATERIAL AND METHOD

Four samples were collected and brought to Marine Biodiversity Laboratory of the “Institut National des Sciences et Technologies de la Mer (INSTM)” for identification:

The first one has been filmed alive digging the sand on October 5 2019 in Ghar el Melh beach (North of Tunisia), the second was reported on Rimel Beach at Bizerta (North of Tunisia) on November 2019, the third specimen was caught in gillnet in Ras Kapoudia (Chebba - East of Tunisia) on October 1, 2020, and the last one was captured in Menzel Horr (East of Tunisia) at 150 m from the coast on April 18 2021 by a fishing rod using a small hook baited by an annelid at 1 A.M. during a big storm. All specimens were unknown by fishermen and citizen scientists.

The crab was identified according to Boyko (2002). Total length (TL), carapace length (CL), carapace width (CW) and abdominal somites and telson lengths (STL) were measured by a calliper to the nearest 0.01 mm according to Katagan & Çevik (2003) (Fig. 1). Sex was determined according to Boyko (2002) (Fig.2).



Figure 1: *Albunea carabus*. measurements considered (Katagan & Çevik, 2003).

TL: total length, CL: carapace length, CW: carapace width and STL: abdominal somites and telson length

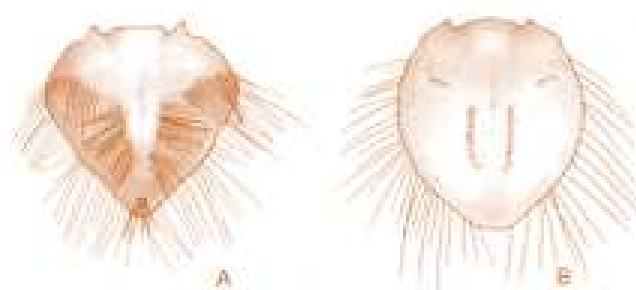


Figure 2: *Albunea carabus*: A. Telson of male, dorsal view.
Telson of female, dorsal view (Boyko, 2002).

RESULTS

The specimen caught by gillnet in Ras kapoudia (35°14'171"N; 11°9'767" E) at 3 m depth and the three other specimens observed on the sandy beach at Ghar ElMelh, in Rimel Beach and in Menzel Horr were identified as a mole crab *Albunea carabus* (Fig.3 and 4). The first species collected in Ras kapoudia has a quadrangular carapace and a flattened leg used for digging. Its pleon is shorter than its

carapace. It is a female characterized by a larger and more rounded in shape of the last segment of the telson, and by the presence of four pairs of pleopodes in the pleon (Fig.3. C2). The specimen measured 42.1 mm TL, 19.4 mm CL, 21.6 mm CW and 22.7 mm LST (Fig. 2). No measurements were made for the other specimens.

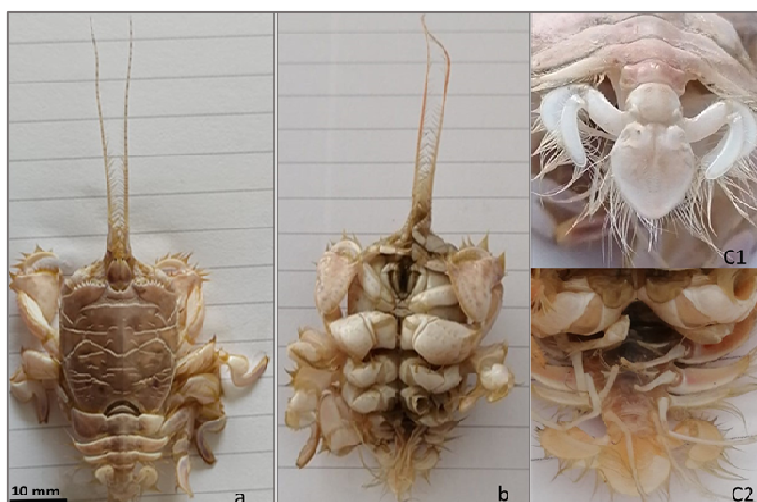


Figure 3: *Albunea carabus* from Ras Kapoudia : a. dorsal view; b. ventral view ; C1: detail of the telson ; C2: detail of pleopodes in the pleon.



Figure 4: *Albunea carabus*; a: from Ghar el Melh (photo posted on facebook by the environment and Sustainable Development Association of Ras El-Jabal); b: from Menzel Horr (photo of Nader ElMessi).

DISCUSSION

The mole crab was recorded only one time in Tunisian coasts. It was identified from two carapaces and one cheliped found on the sandy beach of Raoued (Tunis Gulf, North of Tunisia) (Rubió & Holthuis (1972) (Fig. 5). The new records of the four living specimens confirm the presence of the species in Tunisia and contribute to better understand its geographical distribution in the Southern coast of the central Mediterranean Sea. The mole crab was known to be more reported in the Northern part of the area (Zava *et al.*, 2019) (Fig. 6).

Record of specimens of *Albunea carabus* in Tunisian coasts were observed in autumn (October-November) and in spring. Elsewhere in Mediterranean Sea, the species was recorded mainly during winter and spring.

The mole crabs collected from Ras Kapoudia was a female found at similar depth as those observed in Sicily (Zava *et al.*, 2019; Spanò *et al.*, 1999), in Tyrrhenian Sea (Giacobbe & Spanò, 1996; Moncharmont, 1969) and in Majorca (Garcia Socias & Gracia, 1988). However, many others signalisations mentioned the capture of *A. carabus* at more important depths, up to 66 m (Abdelsalam & Ramadan, 2017). This confirms that this species occupied areas ranging from costal to continental

shelf. The specimen photographed in Ghar el Melh digging sand represents a proof of substrate preference of the species. Spanò *et al.* (1999) mentioned that *A. carabus* lives on sandy environments where the water is prevalently turbid, often with high hydrodynamism, including estuaries. All signalisations of *A. carabus* in the Mediterranean Sea were composed of few specimens (did not exceed 5 crabs). Nevertheless, a beaching phenomenon of more than one thousand was signalled in Catania (Eastern Sicily) after a storm (Scuderi *et al.*, 2017 & 2019) representing an evidence that the species is well established in the area. The species is not very rare, but its presence obeys particular ecological

habits. Giacobbe & Spanò (1996) mentioned that the mole crab is localized in a limited environment due to its particular edaphic needs.

The size of the Tunisian mole crab examined during this study is in agreement with previous record. Carapace lengths (CL) reported in the Mediterranean Sea were comprised between 12.1 and 25mm (Zava *et al.*, 2019) with an average of 18.16 mm and a mode of 18.6 mm.

Among mole crabs whose sex was identified in the Mediterranean Sea, males outnumbered females by 1.65, which was a significant departure from the hypothetical 1:1. The rate of masculinity is 62.35%.

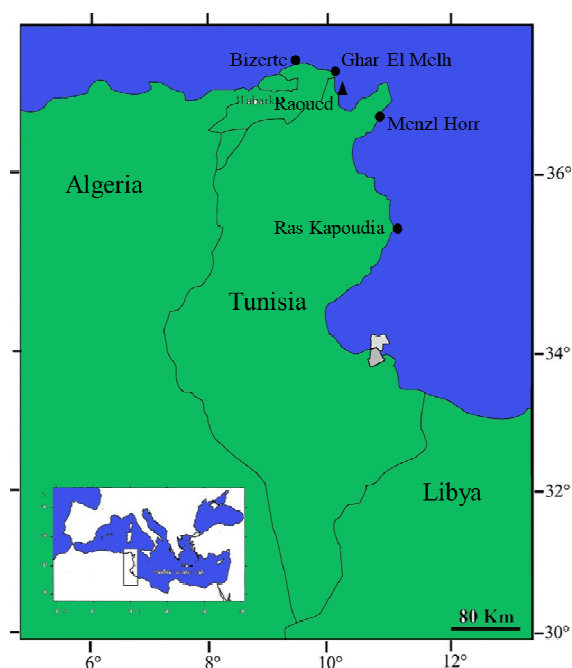


Figure 5: Map showing sampling sites of the mole crab *A. carabus* in Tunisian coasts (Central Mediterranean Sea). ●: Present study; ▲: Rubió & Holthuis (1972).



Figure 6. Location of records of *Albunea carabus* in the Mediterranean Sea. ●, previous study, ▲: present study.

CONCLUSION

The current records of *A. Carabus* increase our knowledge on the geographical distribution of the species in the Southern part of the central Mediterranean Sea and improve some biological data. The abundance, geographic distribution and the habitat of the mole crabs need more investigations. The outcomes described in this study attest that information and observations provided by fishery operators and scientific citizens, represent an incontestably highly valuable support in monitoring marine biodiversity.

Acknowledgments

The authors wish to thank Dr. Moez Shaiek from Association Mediterranean Action Nature (Bizerta) and Mr. Nader Elmessei from Beb Jdid, practicing the surfcasting for providing information and photos for the mole crabs of Ghar El Melh and Menzel Horr.

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