

Observations on the occurrence of decapod larvae in Tunisian coastal waters

Observations sur la présence des larves de décapodes sur les côtes tunisiennes

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ABSTRACT

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Some plankton samples obtained from Tunisian waters contain 42 larval forms, representing 26 families within the decapod larvae. Three of them were larvae from species with economic importance: *Melicertus kerathurus*, *Metapenaeus monoceros* and *Palinurus elephas*. The occurrence of larvae of *Brachycarpus biunguiculatus* is an indicator that the species occurs along the Tunisian coasts and represents the first reference for that Mediterranean region. *Caridea* larvae was in 1998 samples from the Gulf of Tunis the most important group.

RÉSUMÉ

dos Santos A., B. Chaouachi - [Observations sur la présence des larves de décapodes sur les côtes tunisiennes]. Mar. Life, 12 (1-2) : 59-62.

L'examen de prélèvements de larves de décapodes en divers points des côtes tunisiennes a permis d'identifier 42 espèces appartenant à 26 familles différentes. Parmi ces espèces, trois ont une importance commerciale : *Melicertus kerathurus*, *Metapenaeus monoceros* et *Palinurus elephas*. La larve de *Brachycarpus biunguiculatus* est signalée pour la première fois dans cette région de la Méditerranée. Les larves de décapodes *Caridea* dominant en nombre d'espèces les échantillons prélevés en 1998 dans le golfe de Tunis.

INTRODUCTION

Decapod larvae from Tunisian waters are almost unknown. The only work carried out in the late 1930's by Heldt (1938) was dedicated only to the penaeid shrimp larvae. In the Western Mediterranean Sea, decapod larvae have been studied by Fusté (1982, 1983, 1987) in the Catalan Sea, Bourdillon-Casanova (1960) and Barnich (1996) in the Gulf of Marseilles, Seridji (1971) in the Bay of Algiers and by Pessani (1993) in the Ligurian Sea.

The present work represents a contribution regarding the occurrence of planktonic decapod families and genera. The study also gives insights into the breeding periods and spawning seasons of decapods, of which at least one family (Penaeidae) is an important fishery resource in the area.

MATERIAL AND METHODS

The present work is based on the plankton samples caught from 15 to 25 September 1997 in Northern (Gulf of Tunis: Ghar el Melh area and Kalaat el Andlous Beach) and southern (Gulf of Gabès: Zarrat and El Akarit areas and Gabès Port) Tunisian waters and from 5 to 13 November 1998 in the Gulf of Tunis alone (Ghar el Melh area and Bizerte Bridge). In 1997, sampling was done with a Hydro-bios net (300 µm mesh size) in horizontal hauls near the surface and in 1998 with a FAO net (335 µm mesh size) in oblique plankton hauls from near bottom to surface. In 1998 a transect perpendicular to the coast was made, in front to Ghar el Melh (figure 1).

All the decapod larvae were identified to the lowest possible taxonomic level and counted

under a stereoscopic microscope. The population density of decapod larvae was expressed in number per 100 m³.

RESULTS

During the two sampling periods 42 genus taxa were found, representing 26 families, the majority of them being captured in 1998, in Gulf of Tunis. In terms of crustacean species of interest to fisheries, in the Gulf of Gabès (Zaarat area), one post-larvae of *Metapenaeus monoceros* (J.C. Fabricius, 1798) was found, and in the Gulf of Tunis (Ghar el Melh area), one Zoea I of *Melicertus kerathurus* (Forskål, 1775) and two larvae of *Palinurus elephas* (J.C. Fabricius, 1787) (table I) were obtained.

In the sampling transect made in 1998 in Gulf of Tunis, the largest number of decapod larvae were observed at the most offshore station (table II). In terms of large groups the Caridea was, in general, the most abundant, followed by the Brachyura, and the Anomura larvae. The Dendrobranchiata larvae appeared only at the two nearest inshore stations and the only *Palinurus* larvae (*P. elephas*) was observed in the middle station.

DISCUSSION

One of the most interesting facts is the occurrence of *Metapenaeus monoceros* larvae in the Gulf of Gabès. This species has been identified in the Tunisian waters very recently (Missaoui, Zaouali, 1995; Chaouachi *et al.*, 1998), and is considered a lessepsian immigrant. The occurrence of post-larvae in the same area is a good indication that the population is settled in Tunisian waters.

The occurrence in the samples of larvae of *Brachycarpus biunguiculatus* (Lucas, 1846) is also noticeable. This species has not yet been reported in Tunisian waters (D'Udekem D'Acoz, 1999), and our work on larvae shows that the adults occur in Tunisian waters.

Concerning the larvae of species with commercial value and apart from the *Metapenaeus monoceros* post-larvae in the Gulf of Gabès, one larvae of *Melicertus kerathurus* and two larvae of *Palinurus elephas* were found in the Gulf of Tunis. No record of *Palinurus elephas* larvae in Tunisian waters was known but, for *Melicertus kerathurus*, Heldt (1938) studied the reproduction and described the larval stages. This occurrence is consistent with the data known from Tunisian waters (Heldt, 1938), because it is possible to find fertilised females all year round.

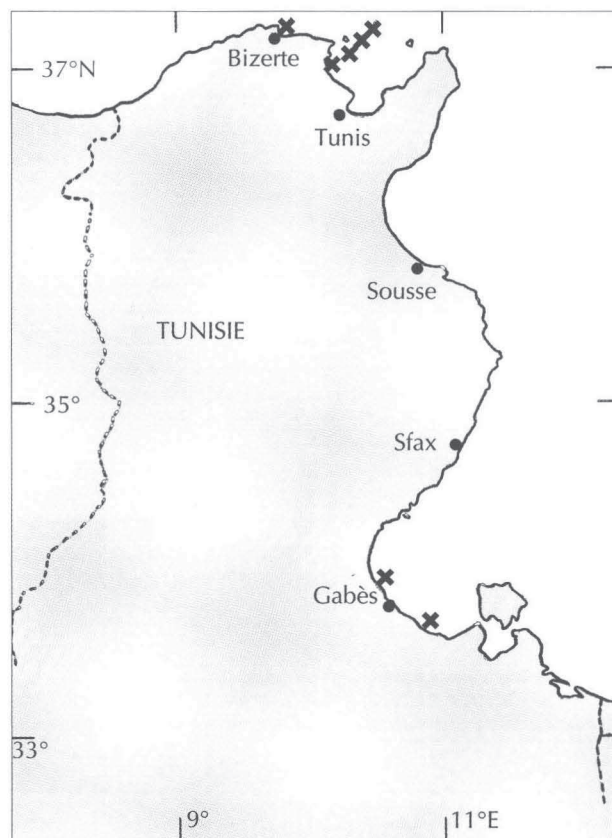


Figure 1 - Location of sampling stations (X) and transect in the Gulf of Tunis. / Localisation des stations de prélèvement (X) et radiale dans le golfe de Tunis.

TUNISIAN DECAPOD LARVAE / LARVES DE DÉCAPODES EN TUNISIE

Table I - Faunistical inventory of Decapod larvae sampled. / Inventaire faunistique des larves de décapodes prélevées.

ORDER DECAPODA	September 1997		November 1998	ORDER DECAPODA	September 1997		November 1998
	Tunis Gulf	Gabes Gulf	Tunis Gulf		Tunis Gulf	Gabes Gulf	Tunis Gulf
F: Penaeidae				F: Diogenidae			
<i>Melicertus kerathurus</i>			ZI	<i>Diogenes pugilator</i>		ZI-ZIII	ZI-ZV
<i>Metapenaeus monoceros</i>		PL		<i>Clibanarius</i> sp.		ZI	
F: Sicyoniidae				F: Paguridae			
<i>Sicyonia carinata</i>		PZI- PZIII, PL		<i>Pagurus</i> sp.		ZI	ZI-M
F: Sergestidae				<i>Anapagurus</i> sp.			ZI-M
<i>Sergestes henseni</i>			M	F: Galatheididae			
<i>Sergestes</i> sp.			M	<i>Galathea</i> sp.			ZI
F: Luciferidae				F: Porcellanidae			
<i>Lucifer</i> sp.			Z-M	<i>Pisidia longicornis</i>		ZI	ZI
F: Palaemonidae				<i>Porcellana platycheles</i>			ZI-ZII
<i>Palaemon</i> sp.		ZI-ZIII, PL	ZI-ZII	F: Dorippidae			
<i>Periclimenes</i> sp.			ZII-ZIII, ZVI-ZVII	<i>Medorippe lanata</i>			ZI-ZIII
<i>Pontonia</i> sp.			ZII-ZVII	F: Leucosiidae			
<i>Brachycarpus biunguiculatus</i>			ZVIII	<i>Ebalia</i> sp.			ZII-ZIV
F: Alpheidae				F: Majidae			
<i>Alpheus glaber</i>			ZII-ZIX	<i>Eurynome</i> sp.		ZI	
<i>Alpheus</i> sp.	ZII	ZI-ZIX	ZII-ZIX	<i>Majinae</i> n.id.			ZI
<i>Athanas nitescens</i>		ZIV	ZII-ZIX	<i>Achaeus</i> sp.			
F: Hippolytidae				<i>Inachus dorsettensis</i>		ZI-ZII	ZI
<i>Hippolyte</i> sp.			ZI-ZV	<i>Inachus</i> sp.		ZI- M	
<i>Eualus</i> sp.			ZII-ZIV	<i>Macropodia</i> sp.		ZI	ZI
<i>Thoralus</i> sp.			ZII-ZIII	F: Corystidae			
<i>Lysmata</i> sp.			ZIV	<i>Corystes cassivelaunus</i>		ZI- ZII	
F: Processidae				F: Pirimelidae			
<i>Processa edulis</i>		ZI-ZIII	ZI-ZV	<i>Pirimela denticulata</i>		ZI- ZII	
<i>Processa</i> sp.		ZI-ZIII, ZVII	ZI-ZVII	F: Thiidae			
F: Pandalidae				<i>Thia scutellata</i>		ZI- ZIII	
<i>Pandalina brevirostris</i>			ZI	F: Portunidae			
F: Crangonidae				<i>Liocarcinus</i> sp.			ZI-ZV
<i>Philocheas</i> sp.		ZI-ZII, ZIV, PL	ZI-M	Polybiinae	ZI, M	ZI- ZIII	ZI-ZV
F: Callinassidae				F: Xanthidae			
<i>Callianassa</i> sp.		ZI-ZII	M	<i>Pilumnus</i> sp.	ZI		ZI-ZIV
F: Upogebiidae				F: Grapsidae			
<i>Upogebia</i> sp.		ZI	ZIII-ZIV	<i>Pachygrapsus</i> sp.			ZV
F: Palinuridae				<i>Brachynotus</i> sp.			ZI
<i>Palinurus elephas</i>			ZII	Megalopas de Brachyura			M

Table II - Total abundance (ind.100 m⁻³) of important groups of Decapod larvae recorded on the Gulf of Tunis transect. / Abondance totale (ind.100 m⁻³) des groupes les plus importants de larves de décapodes prélevées sur la radiale du golfe de Tunis.

Sampling points	Abundance (ind.100 m ⁻³)					
	Dendrobranchiata	Caridea	Thalassinidea	Palinura	Anomura	Brachyura
Bizerte Bridge		69.2			9.0	21.8
37°08'N 10°15'E		41.6	2.9		12.4	43.1
37°08'N 10°18'E	0.5	29.3	0.3	0.3	3.3	66.3
37°09'N 10°20'E	1.3	51.3	0.8		5.5	41.1
37°09'N 10°22'E		71.1			13.2	14.7

In terms of major groups abundance, the Caridea group was the most abundant in the Gulf of Tunis, and Brachyuran larvae the second group. This pattern has not been observed in other parts of the world, where the Brachyura group is always the most abundant (e.g. Al-Aidaros, 1993; dos Santos, 1999; González-Gordillo, 1999).

Studies on decapod larvae from Tunisian waters are scarce, mainly due to the lack of resources for planktonic studies in the area. The work now presented is intended to contribute to a better understanding of the planktonic decapoda of this area and could be a starting point for a more in-depth work in the near future.

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