THE FIRST RECORD OF THE BARNACLE *CHELONIBIA PATULA* (RANZANI, 1818), HOSTED BY THE SWIMMING CRAB *PORTUNUS SEGNIS* (FORSKÅL, 1775), IN THE GULF OF GABÈS

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ABSTRACT

During July 2017, eight specimens of the crab *Portunus segnis* (Forskål, 1775), infested by *Chelonibia patula* (Ranzani, 1818) were collected in the Gulf of Gabès (South-East of Tunisia). The barnacles were attached to the carapace and clamps of their hosts. This cosmopolitan barnacle species is reported for the first time, hosted by *P. segnis* in the Gulf of Gabès. The large sized crabs host more barnacles than small crabs. Males are more infested by barnacles than females.

RESUME

En juillet 2017, huit spécimens du crabe *Portunus segnis* (Forskål, 1775) infestés par le cirripède *Chelonibia patula* (Ranzani, 1818) ont été échantillonnés dans le golfe de Gabès (Sud-Est de la Tunisie). Les balanes étaient attachées à la carapace et aux pinces de leurs hôtes. Ce cirripède, à distribution cosmopolite, est signalé pour la première fois, fixé sur *P. segnis* dans le golfe de Gabès. Les crabes de grande taille hébergent plus de balanes que de petits crabes. Les mâles sont plus infestés par les balanes que les femelles.

Keywords: *Chelonibia patula***,** *Portunus segnis***,** barnacle**,** Gulf of Gabès**,** Mediterranean Sea.

INTRODUCTION

The blue swimming crab, *Portunus segnis* (Forskål,1775) is one of the early lessepsian invaders which was recorded in Egypt (Mediterranean Sea) as early as in 1898, few years after the opening of the Suez Channel (Fox, 2005). The presence of the lessepsian blue swimming crab in Tunisian waters is reported until now exclusively in the Gulf of Gabès (Figure 1) since its declaration in Tunisian waters in 2014 (RABAOUI *et al.*, 2015). In the Gulf of Gabès, *P. segnis* continues to proliferate very rapidly; it is reported in the governorate of Gabes, Medenine and Sfax. Barnacles are sessile, filter-feeding crustaceans that attach to a variety of marine substrata, including live animals and inanimate objects (PASTERNAK et ACHITUV, 2007). *Chelonibia patula* (Ranzani 1820) is a cosmopolitan species that was reported host-epizoon for the species. It is reported for the first time, hosted by *P. segnis* in the Gulf of Gabes (Fig. 1).

MATERIAL AND METHODS

During July 2017, eight specimens of the swimming crab *P. segnis* infested by *Chelonibia patula* were collected in the Gulf of Gabès (South-East of Tunisia, Fig. 1).

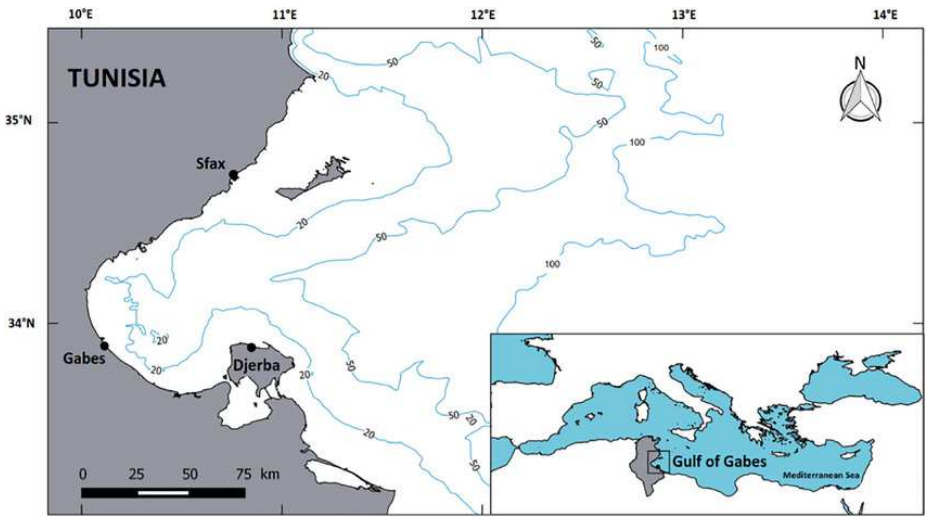

Fig. 1. Map of the Gulf of Gabès (Tunisia, Central Mediterranean Sea).

RESULTS

A total of height specimens of *P. segnis* infested by *C. patula* were sampled. The barnacles were attached to the carapace and clamps (Fig. 2, Table 1). Other epibionts were also recorded: the annelid *Hydroides sp* fixed on the carapace of the specimens 5 and 7; the green algae *Enteromorpha sp.* fixed on the carapace of the specimen 5 and the cirripedia *Balanus trigonus* on the carapace of the specimens 3, 5 and 6.

Table I. Distribution of the *Chelonibia patula* on their host *Portunus segnis* off the Gulf of Gabès

Portunus segnis					*Chelonibia patula*		
Specimens	Sex	Carapace length (cm)	Carapace width (cm)	Weigth (gr)	Number	Diameter (mm)	Localisation on the host
1	M	6.81	13.25	205.76	3	Between 3.2 and 6.4	2 on the carapace and 1 on the clamps
2	M	6.91	13.61	228.48	2	2,8 and 5.9 mm	Carapace
3	F	5.91	12.36	147.87	7	Between 5.5 and 12.1	Carapace
4	M	4.84	10.25	85.04	1	4.32	Carapace
5	M	6.6	14	180	29	Between 1.7 and 9.2	Carapace
6	F	6.1	12.5	162.4	10	Between 2 and 7.1	Carapace
7	M	5.1	10.17	95.23	2	1.5 and 1.7	Carapace
8	M	6.6	11.11	196.47	79	Between 1.6 and 13.7	60 on the carapace and 19 on the clamps

Fig. 2. Specimens of *Chelonibia patula* and their host *Portunus segnis* off the Gulf of Gabès

DISCUSSION

This study examined the cirripedia *C. patula* ectosymbionts on blue swimming crabs *P. segnis* reported for the first time in the Gulf of Gabès. Generally *C. patula* fouling the carapace crabs (ROSS et JACKSON 1972, KEY *et al.*, 1997, PASTERNAK *et al.*, 2002, BAKIR *et al.*, 2010). Several study reported this species on carapace, chelipeds and also walking legs of crabs, such as *P. segnis* from Turkish and Iran coasts (OZCAN, 2012, BASTAMI *et al.*, 2012), *Charybdis hellerii* from Pakistan (MAHJABEEN et MUSTAQIUM, 1994), and *Callinectes amnicola* and *Portunus validus* off Lagos Coast, Nigeria (LAWAL-ARE et DARAMOLA, 2010). The main epibiont of the crab *Arenaeus cribrarius* was *C. patula* (5.6% of mature crab) from Fortaleza and Ubatuba Bays in Brazil (COSTA *et al.*, 2010). According to PASTERNAK *et al.* (2002), 91% of the *C. patula* orientation on both small and large crabs. Males showed a higher infestation rate by *C. patula* when compared to mature non-ovigerous crab females (COSTA *et al.*, 2010). In this study *C. patula* was recorded mainly on the carapace and clamps of *P. segnis*.

The carapace could be more fouled because it was better available to the settling barnacle larvae. Moreover, the dorsal surface of the crabs is exposed to more light and it has a more attractive biofilm (CRISP et BARNES, 1954).

The potential benefit of the host crabs in this relationship is the protective role via camouflage

(WILSON *et al*., 1987). Furthermore, there is a variety of potential benefits for *C. patula* living on motile benthic host substrates: the movement of the host may improve the dispersal and gene flow of the epizoans and expand the biogeographic distribution of the epizoans by increasing the range of larval dispersal (CRISP, 1983).

Portunus segnis are affected negatively by infestation of *C. patula* by means of their market values (OZCAN, 2012). In order to understand the distribution range and the effects of *C. patula*, especially on the economically important species, further studies should be conducted in the area.

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