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PARASITES OF ALIEN FISHES *SPHYRAENA FLAVICUDA* RUPPLELL, 1838 AND *SPHYRAENA CHRYSOTAENIA* KLUNZINGER, 1884 IN WESTERN COAST OF LIBYA

Abstract
Fish parasites are considered as a part of marine biodiversity worldwide and it is very important to know the native and invasive species in Libyan waters to be included in the Libyan marine biodiversity database. Here we investigate fish parasites in alien barracudas, Sphyraena flavicauda and S. chrysotaenia, which entered the Mediterranean through the Suez Canal. A total of 46 and 10 individuals of S. flavicauda and S. chrysotaenia, respectively were collected along the western coast of Libya. A total of seven parasites were identified. The rates of infection in S. flavicauda and S. chrysotaenia were 46% and 32% respectively, the highest prevalence was 95.7 % for the D. cazauxi and the lowest prevalence was 4.35% for the Contracaecum type III in S. flavicauda., Moreover, the highest prevalence in S. chrysotaenia was 70% for Halacarus sp. and the lowest prevalence was 30% for Diplectanum dunanchae. D. cazauxi and D. dunanchae are monogeneans, belonging to the family Diplectanidae. These results provide a first assessment of the parasitofauna of alien barracudas in the Mediterranean Sea, filling a gap of knowledge on the biological and ecological trait of these Lessepsian fishes.

Key-words: classification, fish parasites, Lessepsian fish and Libya

Introduction
Marine ecosystems of the Mediterranean have changed at an alarming rate over the past two centuries, due to the human-mediated arrival of new species (Rilov and Galil, 2009). Marine organisms serve as hosts for various parasites and other pathogens, which can negatively affect the host population but also the food chain, with socio-economic implications (Lessios, 1988). This study aimed to investigate parasites associated to alien barracudas and assess their origin (donor region -Red Sea vs Mediterranean).

Material and methods: A total of 56 fishes were collected by local fishers along the western coast of Libya and the study was focused on metazoan parasites. The parasites examination was carried out according to Heil (2009).

Results
The rates of infection in *S. flavicauda* and *S. chrysotaenia* were 46% and 32% respectively. A total of seven parasites was identified. Their prevalence, intensity and abundance are given in Table. 1.

Tab. 2: The prevalence, intensity and abundance of parasites in *S. flavicauda* and *S. chrysotaenia* collected along the western coast of Libya

Host	*S. flavicauda*			*S. chrysotaenia*		
	Prevalence	Intensity	Abundance	Prevalence	Intensity	Abundance
Hysterothylacium aduncum	6.52	1	0.06	-	-	-
Contracaecum type III	4.35	3	0.04	-	-	-
Diplectanum cazauxi	95.7	1.36	0.95	-	-	-
Diplectanum dunanchae	85.1	1.48	0.85	30	0.30	0.30
Gnathia sp .	30.4	2	0.30	-	-	-
halacarus sp.				70	0.70	0.70
Paraclanus paravus	21.2	10	0.21	-	-	-

Discussion

Fish hosts can display a different parasitofauna when comparing native and invasive populations (e.g. Mele *et al*., 2012). In this study we provide new data on the parasitofauna of alien barracudas highlighting relatively high levels of infection. Gnathiid were recorded in all examined fishes. These parasites have probably infested the exotic barracudas after their introduction in the Mediterranean Sea. Other species of parasites are known in both the Mediterranean and the Red Sea, but their short lifespan would indicate that they were acquired in the newly invaded habitat (Mackenzie and Abaunza, 2014).

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