



Preliminary Study On Parasites In Loggerhead Turtles (Caretta Caretta) From The Southern Tunisian Waters

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Abstract

Objective: The occurrence of parasites has been used not only to assess the health status of their hosts, but also as an important tool to understand aspects of the biology of the host, namely their migratory behaviour, distribution and feeding ecology.

Material and Methods: The presence of parasitic agents on the loggerhead sea turtle in the Gulf of Gabes (South of Tunisia) was performed on five stranded and two accidentally caught animals between 2005 and 2010.

Results: Three helminthic species were found in the intestine (one digenean trematode and two nematodes) and two species of ectoparasites (one herpacticoid copepod and one annelid) were recorded in different locations of the body.

Conclusions: The parasitological findings here described are consistent with previous reports from loggerheads in the Mediterranean. Further studies appear necessary to outline the parasitic fauna of the Loggerhead turtles from the gulf of Gabes as an important foraging and wintering area in the Mediterranean Sea.

Keywords: Parasites, Loggerhead turtles, Tunisia

Introduction

In the last decades the occurrence of parasites have been used not only to assess the health status of their hosts, but also as an important tool to understand aspects of the host's biology, namely their migratory behavior, distribution and feeding ecology. Among host, the sea turtles are no exception regarding their parasites infection. Loggerhead turtles (Caretta caretta) the most abundant marine turtles in the Mediterranean Sea harbour a great variety of metazoan parasites belonging to the Trematoda, Nematoda, Cestoda and Hirudinea Class. In this study, we present preliminary information about the parasite fauna of Caretta caretta from the Gulf of Gabes (Southern Tunisian water).

Methods

As a part of a project evaluating the health status of the loggerhead sea turtle along the Tunisian coasts and under the

marine turtle stranding network, a systematic study was performed to assess the presence of infective agents of the loggerhead sea turtle in the Gulf of Gabes (southern Tunisian) (Figure 1). A total of five stranded and two accidentally caught loggerhead (Curved carapace length SCCL, ranging from 47 to 59 cm) collected between [1] and 2010 were studied in respect to their metazoan parasites. Parasitological examinations of the stomach and intestine were carried out. The helminths were collected and preserved in 70° alcohol. The nematodes were clarified in lactophenol and the trematodes were stained with carmine aluminic acetate, before being studied microscopically. Ectoparasites were removed from the external surface of the turtles and then fixed and preserved in 70% ethanol (Figure 1).

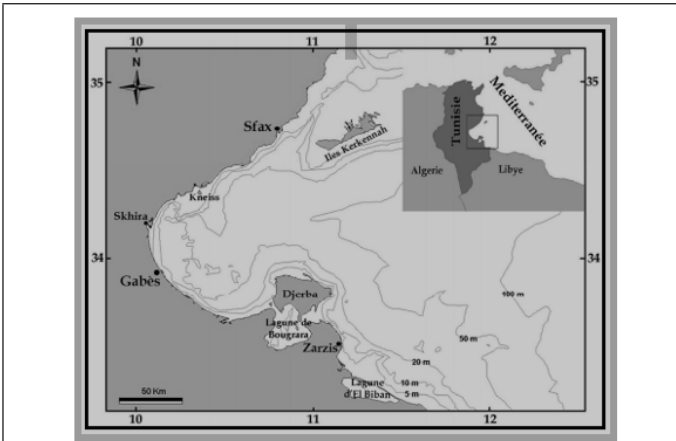


Figure 1: Map of the Gulf of Gabes.

Results

Three helminths species: one digenean trematode: *Diaschistorchis pandus* (Braun, 1901) and two nematodes: *Kathlania leptura* (Rudolphi, 1819) and [2] (Lane, 1914) were located in the intestine of three accidentally caught loggerhead (Table 1). Two ectoparasites species were recorded in different locations. The copepod of the genus *Harpacticoida* was found on the carapace of a single accidentally caught loggerhead turtle, this copepod seems to be a *Balaenophilus* sp. Many Hirudinea identified as *Ozobranchus margo* (Davies and Chapman 1974) were located mainly between the carapace and the plastron of three sampled turtles (two stranded and one accidentally caught) (Table 1) (Figure 2-5).

Table 1: List of parasites species found in loggerhead from the Gulf of Gabes.

Parasites	Date	SCCL (cm)	Method	Status	Number	Position
Endoparasites (Figure 2.3)						
Class Trematoda						
<i>Diaschistorchis pandus</i>	2009: MAR 27	53	Stranded	Fresh dead turtle	39	intestine
Class Nematoda						
<i>Tonaudia tonaudia</i>	2005: JAN 10	48	Stranded	Fresh dead turtle	47	intestine
<i>Kathlania leptura</i>	2006: SEP 9	53	Stranded	Fresh dead turtle	8	Intestine
Ectoparasites (Figure 4.5)						
Class Maxillopoda						
<i>Harpacticoida</i> sp	2005: JAN 30	71	accidentally caught	Fresh dead turtle		Carapace
Class Hirudinae						
<i>Ozobranchus margo</i>	2007: FEB 02	59	Stranded	Putrefy	97	Between the carapace and the plastron
	2008: MAR 10	57,5	Stranded	Fresh dead turtle	6	Around the cloaca
	2010: JAN 04	47	accidentally caught	Alive	3	Around the cloaca

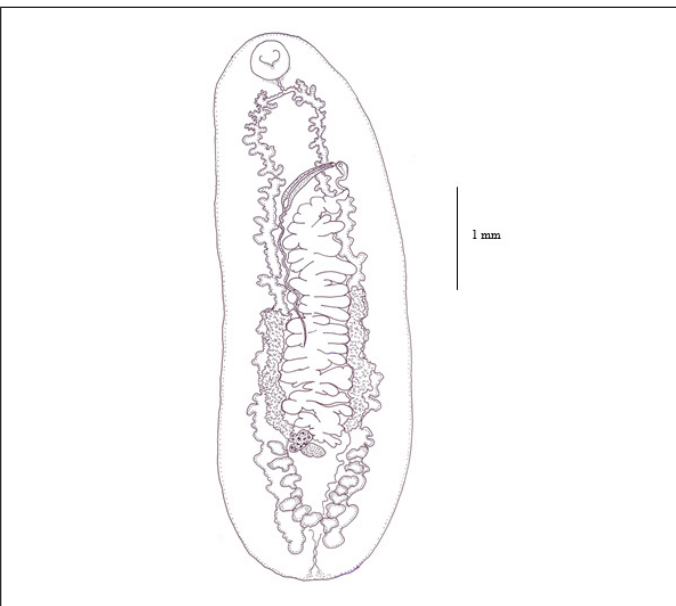


Figure 2: *Diaschistorchis pandus* (Ventral view).

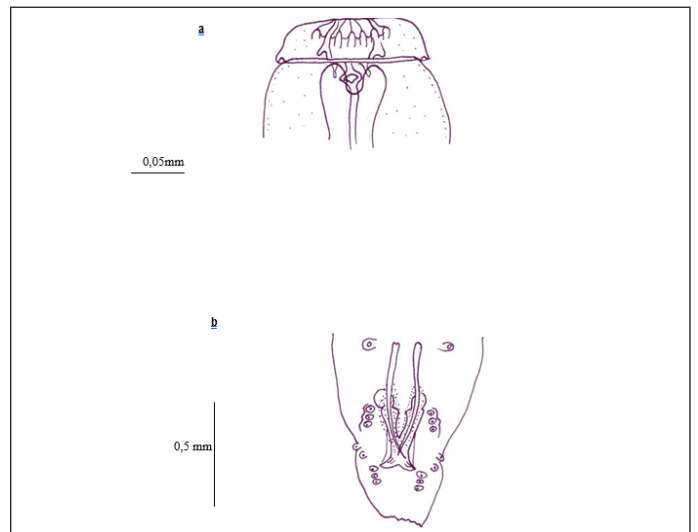


Figure 3: *Kathlania leptura*
 a: Cephalic extremity in view
 b: ventral point of a male individual in ventral view



Figure 4: Harpacticoida sp.

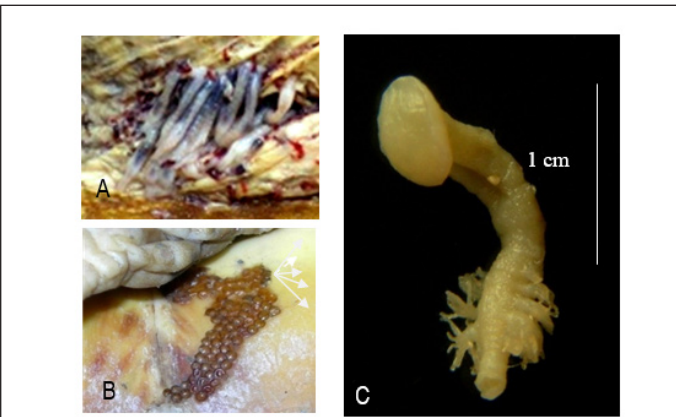


Figure 5: Ozobranchus margo (Apathy, 1890)
 A: O. Margo
 B: Eggs
 C: lateral view (--- gills).

The trematoda *Diaschistorchis pandus* and the nematoda *Tonaudia tonaudia* were signaled only in loggerhead from the southern Mediterranean [3] (Gulf of Gabes and Egypt). However, the infrequency of sea turtle's programs In the south Mediterranean Sea, the smallest number of turtles sampled and the difference in sampling period don't allowed us to confirm a clear geographical distribution of these helminthes. *Kathlania leptura* was present in different Mediterranean area with much higher intensities than those encountered by us (Table 2). Thus, in Egypt, *K. leptura* was found with a prevalence of 18.3% (n = 33) and an intensity range from 8 to 240 individuals in *C. caretta* [4]. In Australia [5], found about 200 individuals in one of the turtles examined.

The copepod of the order Harpacticoida was found on the carapace of a single accidentally caught loggerhead turtle. Although it has not proceeded to the identification of this species, there are characters obvious morphological rule out its allocation to the Balaenophilidae family. Given the ecological versatility of the harpacticoid copepods (see [6]) that confirm the regular presence of this species as a commensal of the loggerhead turtle, feeding on diatoms or bacteria that usually grow on the back [7]. Three turtles were found infected with leeches identified as *Ozobranchus margo*. This Hirudinea species occurs on most species of Cheloniidae and it is a cosmopolitan ectoparasite of loggerhead turtles. This ectoparasite is most often located on the soft tissues of the body surface. In the Mediterranean Sea, this finding is not common [8]. One stranded loggerhead in February [9] had numerous specimens of *Ozobranchus margo* adhered between the carapace and the plastron. Various developmental stages of the parasites were found. A massive infestation of *Ozobranchus* sp can induce pathological effects, like anaemia, because it is a hematophagous parasite [10].

Discussion

The parasitological findings here described are consistent with previous reports from loggerheads in the Mediterranean (Table 2).

Table 2: Prevalence (%infected turtles in the sample) of ectoparasites and helminthes of loggerhead Sea turtle *Caretta caretta* in 5 localities from the Mediterranean Sea

Parasites	Locality	Valancia [3,4]	Campania [3]	Adriatic Sea [5]	Agean Sea [6]
Diaschistorchis pandus	Egypt [1,2] (n=33) 12,1%				
Tonaudia tonaudia	?				
Kathlania leptura	(n= 33) 18,3%	(n= 44) 2,3%	(n= 32) 15,6%	(n=14) 7,2%	
Harpacticoida sp		(n=30) 78%			
Ozobranchus margo		(n= 22) 1,9%		(n=14) 7,2%	(n=109) 5,4%

Conclusion

This paper documents, for the first time, the parasites of the loggerhead sea turtle in the southern Tunisian waters. Further studies appear necessary to outline the parasitic fauna of the Loggerhead turtles from the Tunisian waters as they were an important foraging area for loggerheads in the Mediterranean Sea.

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