

Metazoan Parasites (Crustacea, Digenea and Monogenea) from Atlantic Black Skipjack *Euthynnus alletteratus*: A Checklist



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Submission: February 23, 2018; **Published:** March 26, 2018

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Abstract

A checklist of the metazoan parasites of host fish Atlantic black skipjack (*Euthynnus alletteratus*) was compiled from parasitological records published between 1967 and 2018. The checklist is arranged alphabetically, providing valid names and authorities of the parasite species, its capture sites, author(s) and date of published records. A total of 18 valid species are listed from *E. alletteratus*. Parasite species where host data are missing or where the parasite was found not associated with a *E. alletteratus* not are included.

Keywords: Checklist; Fish parasites; Crustacea; Digenea; Monogenea

Introduction

The dispersion pattern of the parasites has been considered of great importance to the population dynamics of the parasite-host relationship [1,2]. Are the parasitic abundance dependent processes influence on survival and fertility of hosts [3].

Bullard et al. [4] mentioned that the behaviour of forming shoals facilitates the horizontal dispersion of the larvae in some species of fish. Various studies have been conducted over the years to determine the diversity and relative effect of parasitism in the world [5].

Parasites are now recognized as important components in global biodiversity [6], helping to understand the biology, survival, host population structure and ecosystem functioning, directly influencing fish populations by mortality or indirectly in reducing fecundity, behavioral changes, reduced swimming speed or increased risk of predation by the host [7].

The parasites Crustaceans are the most diverse and ubiquitous subphylum of arthropods in the seas. Most of the crustacean parasites are ectoparasites of a wide range of marine invertebrate and vertebrate organisms [8]. Monogeneans are a group of largely ectoparasitic members of the phylum Platyhelminthes. These worms are considered to be among the most host-specific parasites in fish, commonly found on fins, body skin, gills, gill chambers, buccal cavity, cornea and nostrils of their host [9]. Digeneans have a ventral or postero-ventral sucker, sometimes absent and the adults are primarily parasites

of the gut, but they also occur free or incapsulated in the tissues of the vertebrates [10,11].

The Atlantic black skipjack *Euthynnus alletteratus* (Rafinesque, 1810) is a pelagic scombrid fish that inhabits the coastal tropical and subtropical waters of both sides of the Atlantic Ocean [12]. In the world, there is no checklist of parasites that infest the host fish *Euthynnus alletteratus*, which can generate deficiencies for the understanding of new studies.

This study is a start in correcting this deficiency by giving an updated checklist of the Metazoan parasites that infest the host fish *Euthynnus alletteratus*, using current and, as far as is possible to determine, correct nomenclature, can be a useful tool for studying the parasite distribution as well as the general parasite diversity in *E. alletteratus*, and it may also be an important tool for planning research activities in marine fish parasitology.

Methods

To compile the list parasites of Atlantic black skipjack *Euthynnus alletteratus* in the world, the records were obtained by searching the SciELO, Web of Science, Scopus, Springer, Elsevier, in the Portal of Periodicals CAPES / MEC and the mechanism of search of Google Scholar. To compile the data of the parasitic fauna of Atlantic black skipjack (*E. alletteratus*) data were compiled from the following studies: Palombi [13]; Cressey & Cressey [14]; Hendrix [15]; Fuentes [16]; Alves & Luque [17]; Chisholm & Whittington [18] and Mele et al. [12].

Checklist

This metazoan parasite checklist includes only Crustacea, Digenea and Monogenea. This checklist was compiled from records published between 1949 and 2016, covering a total of 7 papers. The papers analysed by us recorded 26 valid species parasitizing *E. alletteratus*. Reports of seven parasites that had

not been identified to the species level were included in this checklist. Parasite species where host data are missing or where the parasite was found not associated with a *E. alletteratus* not are included. The results are presented as a list of parasite species in *E. alletteratus* (Table 1). The specific distribution of species in the host fish is also recorded.

Table 1: Checklist of the metazoan parasites of Atlantic black skipjack *Euthynnus alletteratus* (Parasite-Host list).

Parasite Species	Location	Author And Record
Monogenea		
<i>Capsala gouri</i>	Northwest Atlantic Ocean	Chisholm & Whittington [18]
<i>Capsala magronum</i>	Southwest Atlantic Ocean	Chisholm and Whittington [18]
<i>Capsala manteri</i>	Mediterranean Sea Central-eastern Atlantic Ocean Central-western Atlantic Ocean Southwest Atlantic Ocean	Mele et al. [12] Chisholm & Whittington [18] Chisholm & Whittington [18] Chisholm & Whittington [18]
<i>Capsala onchidiocotyle</i>	Northwest Atlantic Ocean	Chisholm & Whittington [18]
<i>Hexostoma euthynni</i>	Southwest Atlantic Ocean	Alves & Luque [17]
<i>Hexostoma thunninae</i>	Mediterranean Sea Mediterranean Sea Mediterranean Sea Southwest Atlantic Ocean	Mele et al. [12] Palombi [13] Palombi [13] Alves & Luque [17]
<i>Metapseudaxine ventrosicula</i>	Southwest Atlantic Ocean	Alves & Luque [17]
<i>Neohexostoma mochimae</i>	Southwest Atlantic Ocean	Zambrano [16]
<i>Udonella caligorum</i>	Northwest Atlantic Ocean	Hendrix (1994)
Digenea		
<i>Didymocystis sp. 1</i>	Mediterranean Sea	Mele et al. [12]
<i>Didymocystis sp. 2</i>	Mediterranean Sea	Mele et al. [12]
<i>Didymozoinii sp.</i>	Mediterranean Sea	Mele et al. [12]
<i>Didymozoon sp.</i>	Mediterranean Sea	Mele et al. [12]
<i>Neonematobothrium cf. kawakawa</i>	Mediterranean Sea	Mele et al. [12]
<i>Lobatozoum multisacculatum</i>	Southwest Atlantic Ocean	Alves & Luque [17]
<i>Melanocystis cf. kawakawa</i>	Mediterranean Sea	Mele et al. [12]
<i>Oesophagocystis sp. 1</i>	Mediterranean Sea	Mele et al. [12]
<i>Oesophagocystis sp. 2</i>	Mediterranean Sea	Mele et al. [12]
Crustacea		
<i>Caligus bonito</i>	Northwest Atlantic Ocean Southwest Atlantic Ocean Mediterranean Sea	Cressey & Cressey [14] Alves & Luque [17] Mele et al. [12]
<i>Caligus coryphaenae</i>	Central-western Atlantic Ocean	Cressey & Cressey [14]
<i>Caligus pelamydis</i>	Southwest Atlantic Ocean	Alves & Luque [17]
<i>Caligus productus</i>	Northwest Atlantic Ocean	Cressey & Cressey [14]
<i>Ceratocolax euthynni</i>	Mediterranean Sea	Mele et al. [12]
<i>Unicolax collateralis</i>	Mediterranean Sea	Mele et al. [12]
<i>Pseudocycnus appendiculatus</i>	Mediterranean Sea Northwest Atlantic Ocean Central-western Atlantic Ocean Southwest Atlantic Ocean	Mele et al. [12] Cressey & Cressey [14] Alves & Luque [17]
<i>Isopoda gen. sp.</i>	Southwest Atlantic Ocean	Alves & Luque [17]

It is noticed the importance of literature review works, since it facilitates the work of future researchers, when there is a checklist of a certain species. During the research, it is understood that there are few researches in the branch of parasitology and mainly in Brazil there are few reports of parasite works of fish of the species *E. alletteratus*, even with this species inhabiting the entire Brazilian coast.

References

1. Carvalho AR, Martins RT, Bellei PM, de Souza Lima S (2017) Aspectos ecológicos da helmintofauna de *Hoplías malabaricus* (Bloch, 1794) (Characiformes, Erythrinidae) da Represa Dr. João Penido (Juiz de Fora-MG, Brasil). *Revista Brasileira de Zootecias* 18(1).
2. Penczykowski RM, Laine AL, Koskella B (2016) Understanding the ecology and evolution of host-parasite interactions across scales. *Evolutionary Applications* 9(1): 37-52.
3. Visser MD, Schnitzer SA, Muller-Landau HC, Jongejans E, de Kroon H, et al. (2017) Tree species vary widely in their tolerance for liana infestation: A case study of differential host response to generalist parasites. *J Ecol* 0: 1-4.
4. Bullard SA, Goldstein RJ, Hocking R, Jewell J (2003) A new geographic locality and three new host records for *Neobenedenia melleni* (MacCallum)(Monogenea: Capsalidae). *Gulf and Caribbean Research* 15(1): 1-4.
5. Appeltans W, Ah Yong ST, Anderson G, Angel MV, Artois T, et al. (2012) The magnitude of global marine species diversity. *Curr Biol* 22: 2189-2202.
6. Cavalcanti ETS, Nascimento WS, Takemoto RM, Alves LC, Chellappa S (2013) Ocorrência de crustáceos ectoparasitos no peixe ariacó, *Lutjanus synagris* (Linnaeus, 1758) nas águas costeiras do Rio Grande do Norte. *Biota Amazônia* 3: 94-99.
7. Longshaw M, Frear PA, Nunn AD, Cowx IG, Feist SW (2010) The influence of parasitism on fish population success. *Fisheries Management and Ecology* 17: 426-434.
8. Rohde K (2005) *Marine parasitology*. CABI Publishing, Wallingford, UK, pp.1-590.
9. Costa EF, Chellappa S (2016) First record of *Amphipolycotyle chloroscombrus* Hargis, 1957 (Monogenea, Polyopisthocotylea, Gastrocotylidae) in the South Atlantic Ocean. *Brazilian Journal of Oceanography* 64(1): 101-104.
10. Cribb TH (2005) Digenea (endoparasitic flukes). In: Rohde K (Ed.), *Marine parasitology*. CABI Publishing, Wallingford, UK, 76-86.
11. Bray RA, Gibson DI, Jones A (2008) *Keys to the Trematoda*. Vol. 3. CAB International and Natural History Museum, Wallingford, UK, 1-848.
12. Mele S, Pennino MG, Piras MC, Macias D, Gómez-vives MJ, et al. (2016) Ecology of the Atlantic black skipjack *Euthynnus alletteratus* (Osteichthyes: Scombridae) in the western Mediterranean Sea inferred by parasitological analysis. *Parasitology* 143(10): 1330-1339.
13. Palombi A (1949) I trematodi d'Italia. Parte I. Trematodi monogenetici. *Arch Zool Ital* 34: 204- 408.
14. R, Cressey HB (1980) Parasitic copepods of mackerel and tuna-like fishes (Scombridae) of the world. *Smithson Contrib Zool* 311: 1-186.
15. Hendrix SS (1994) *Marine flora and fauna of the eastern United States*. Platyhelminthes: Monogenea. NOAA Technical Report NMFS 121, USA.
16. Fuentes Zambrano JL (1997) *Neohexostoma mochimae* n. sp. y *Pseudochauhanea elegans* n. sp. (Monogenea) dos nuevas especies de parásitos de peces de la Bahía de Mochima, Venezuela. *Bol Inst Oceanogr Venezuela* 36: 45-52.
17. Alves DR, Luque JL (2006) Ecologia das comunidades de metazoários parasitos de cinco espécies de escombrídeos (Perciformes: Scombridae) do litoral do estado do Rio de Janeiro, Brasil. *Rev Bras Parasitol* 15: 167-181.
18. Chisholm LA, Whittington ID (2007) Review of the Capsalinae (Monogenea: Capsalidae). *Zootaxa* 1559: 1-30.



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DOI: [10.19080/CTBEB.2018.13.555864](https://doi.org/10.19080/CTBEB.2018.13.555864)

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