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Parasite Fauna of *Lutjanus synagris* Commercialized in the Fish Market from Bragança-PA, Brazil

Natalino da Costa Sousa^{1*} Daiana Silva dos Santos¹ Silmara Rosa Silva¹ Alexandre Vaz da Silva¹ Jucimauro de Araújo P. Junior¹ João Vitor Antunes Miranda² Pedro Rodrigo Nery de Souza² Matheus Carvalho de Melo² Fagner de Melo Xavier² Wellington Lima da Silva Junior³ Fabricio Ramos Menezes⁴ Márcia Valeria Silva do Couto¹

1. Federal University of Pará (UFPA), *Campus* Bragança, Alameda Leandro Ribeiro, Bragança, 68600-000, PA, Brazil
2. Federal University of Pará (UFPA), *Campus* Tucuruí-Pará, Brazil
3. Federal University of Sergipe (UFS), Departamento de Pesca e Aquicultura. Aracaju-Sergipe, Brazil
4. Instituto Federal do Pará (IFPA), *Campus* de Cametá-Pará, Brazil

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ABSTRACT

Studies about the parasite fauna of marine fish highlights as an important problem for public health with zoonotic parasites or affecting the fish quality. Thus, this study evaluated the parasite fauna of *Lutjanus synagris* commercialized in the fish market from Bragança-PA. In laboratory, 58 fish were measured, weighted and conducted to parasitological analysis to determine parasitological indexes and relative dominance. Every parasite was fixed and identified until to the lowest taxonomic level. Through the parasitological analysis, it found Cymothoidae, Digenea, *Cucullanus* sp. and *Procamallanus (Spirocamallanus)* sp., with total prevalence 67.24%. Digenea showed the highest prevalence and mean intensity values. For nematode, *Cucullanus* sp. obtained the greater prevalence and relative dominance, while *Procamallanus (Spirocamallanus)* sp. showed the greater mean intensity and abundance. Cymothoidae showed the lowest prevalence and mean intensity values. As conclusion, the parasite fauna of *L. synagris* has been noted with low diversity, reporting the nematode occurrence *Procamallanus (Spirocamallanus)*.

1. Introduction

Fishing activity, an important source of fish meat for human consumption, generated approximately 91 million of tons at 2016^[1,2]. Fish species from *Lutjanus* family are distributed in the tropical and subtropical regions with carnivorous habit and high commercial val-

ue, widely appreciated by consumers^[3,4]. Among the fish species, ariacó *Lutjanus synagris* commonly known as red fish are appreciated for all northeast region from Pará due to the meat quality and price.

Despite the commercial importance of this species for human consumption, its trade can represents risk to public health with zoonotic parasites^[5,6,7]. In addition, the high

*Corresponding Author:

Natalino da Costa Sousa,

Federal University of Pará (UFPA), *Campus* Bragança, Alameda Leandro Ribeiro, Bragança, 68600-000, PA, Brazil;

Email: natal.engpesca@gmail.com

parasite infestation can provoke physiological alterations in the fish, making it more susceptible to diseases^[8,9].

Currently, still are few scientific papers about the parasite fauna for genus *Lutjanus*, with reports of crustaceans, monogenea, nematode and cestode^[5,7,10,11,12]. In front of this, take knowledge about the parasite fauna can contribute with important information of national marine parasites. Thus, this study evaluated the parasite fauna of *L. synagris* commercialized in the fish market from Bragança PA.

2. Material and Methods

Species of *L. synagris* were purchased between September and October at 2018 of fish market from Bragança PA (1°05'42.94" S and 47°16'19.52" W) adequately packed in plastic bags and conducted to laboratory. Every fish were identified according to Lessa and Nóbrega^[13], measured (TL: total length) and weighted (W: weight).

Parasitological analysis were carried out according to Eiras *et al.*^[14] and Amato *et al.*^[15], being quantified, collected, fixed and identified until the lowest taxonomic level^[16]. Based on parasite quantification, this study determined the parasitological indexes as prevalence (P), mean intensity (MI), mean abundance (MA)^[17] as well as the relative dominance (RD)^[18].

3. Result and Discussion

About the 67.24% of analyzed *L. synagris* (58 fish 26.55 ± 5.12 cm 482.12 ± 186.30 g) has been infested by parasite at least one taxon. This study identified four taxon (table 1). The scientific literature has been reported crustaceans (*Lernanthropus* sp.) nematode (*Anisakis* sp., *Capillaria* sp. e *Cucullanus* sp.) and cestode (Larvas de *Floriceps* sp.) for *L. synagris*^[5,7,10,19,20].

Table 1. Parasitological indexes, relative dominance and infestation site on *L. synagris* commercialized in the fish market from Bragança PA

Parasite	IS	P (%)	MI	MA	RD
Cymothoidae	G/M	10.34	1.33	0.14	0.04
Digenea	PS/I	62.07	3.44	2.14	0.59
Cucullanus sp.	I	46.55	1.93	0.90	0.25
<i>Procamallanus (Spirocamallanus)</i> sp.	I	13.79	3.38	0.47	0.13

Notes: IS - Infestation site, P – prevalence, MI – mean intensity, MA – mean abundance, RD – relative dominance, G/M – gill/mouth, PS/I – pyloric cecum, I – intestine.

Digenea, found in the pyloric cecum and intestine, showed the greater prevalence, mean intensity, mean abundance and relative dominance (table 1). Within found nematode, *Cucullanus* sp. obtained the greater prevalence

(46.55%) and relative dominance (0.25), while *Procamallanus (Spirocamallanus)* sp. showed greater mean intensity (3.38) and mean abundance (0.47).

Fish are considered intermediary host to the digenea life cycle^[21], being a common parasite into aquatic ecosystem widely reported to *L. guttatus*; *L. adetti* and *L. fulviflamma*^[22,23,24]. According to the Argáez-García *et al.*^[19], they found digenea species *Hamacreadium mutabile*, *Helicometrina nimia*, *Metadena globosa*, *Stephanostomum casum*, *Paracryptogonimus americanos*, *Hemiurus* sp. and *Neoprosorhynchus* in the pyloric cecum, intestine and stomach of *L. griseus*.

According to the Morales-Serna *et al.*^[23], evaluating the parasite fauna of *L. guttatus* between 2004 and 2006, they found prevalence values of 0 to 21% for digenea, lower value if compared to the present study. However, its mean intensity for the same parasite (digenea) showed greater values (4.5) than this study.

The most studies of nematode at marine fish only describes the parasite^[25,26,27]. The greater importance about this parasite would be its zoonotic potential^[28,29]. In the present study, found nematodes have no zootechnical potential, different result if compared to the Alves *et al.*^[7] with genus *Anisakis* sp. and *Raphidascaris* sp. (*Ichthyascaris*) at prevalence 17.39 and 4.34% respectively for *L. synagris*. Other study on the same fish species, they found cestode larvae (*Floriceps* sp., *Pseudogrillotia* sp. *Oncomegas* sp.) with the first report about *Philometrai* sp.^[20,25], a parasite which affects the fish meat.

According to González-Solís *et al.*^[30], they identified nematode *Cucullanus* in fish species *Arothron hispidus*, *Abudefduf sordidus* and *Caranx ignobilis* with prevalence 47% and mean intensity (6±4.7) for *A. hispidus* species. The prevalence results were similar to the present study, this being the nematode group with greater relative dominance (0.25). None study is related to the presence of the genus *Procamallanus (Spirocamallanus)* in *L. synagris*, which is probably caused by the consumption of zooplankton, which is considered a parasite in the egg or larvae phase^[31].

In the present study, despite the low prevalence (10.34%), mean intensity (1.33), medium abundance (0.14) and relative dominance (0.04) observed for the crust of the Cymothoidae family, this record is relevant to survey the parasitic fauna of *L. synagris*. The reports by Cavalcante *et al.*^[10] observed this same species of fish the parasites *Lernanthropus* sp., *Lernaelophus striatus* and *Rocinela* sp. that were found in the gills and mouth. Therefore, information about a parasitological fauna of marine species with economic value in the market is essential for the management of the commercialization of this fish.

4. Conclusion

The *Lutjanus synagris* has been noted with a low parasite fauna, with the greater prevalence for digenea and occurrence of nematode *Procamallanus (Spirocamallanus)* sp.

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