ARTICLE

Parasite Fauna of *Lutjanus synagris* Commercialized in the Fish Market from Bragança-PA, 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 value, widely appreciated by consumers [3,4]. Among the fish species, ariáço *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
parasite infestation can provoke physiological alterations in the fish, making it more susceptible to diseases [5,9].

Currently, still are few scientific papers about the parasite fauna for genus Lutjanus, with reports of crustaceans, monogenea, nematode and cestoda [5,7,10,11,12]. In front of this, take knowledge about the parasite fauna can contributes 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 (1º05’42.94” S and 47º16’19.52” 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 (Le- rnanthrops 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 |
| Procamallanus (Spirocamallanus) 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 Procamal lus (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-Garcia et al. [19], they found digenec species Hamacreadium mutabile, Helicometrina nimia, Metadenas globosa, Stephanostho m um casum, Paracryptogonimus americanos, Hemiu rus 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 de scribes 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 Philometrae sp. [20,29], 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 larvæ 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. [30] observed this same species of fish the parasites Lern anthrops sp., Lernaeolophus striatus and Rocinela sp. that were found in the gills and mouth. Therefore, information about a parasitological fauna of marine species with eco nomic 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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