

# ARCHIVES

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### Anisakis sp. larvae in *Plagioscion squamosissimus* (Heckel, 1840) from the Curralinho municipality, Marajó Island, Pará, Brazil

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*Anisakis* sp. larvae in *Plagioscion squamosissimus* (Heckel, 1840) from the Curralinho municipality, Marajó Island, Pará, Brazil

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**Abstract:** Several reports from Brazil indicate the presence of fish parasitized by nematodes with zoonotic potential, notably those within the Anisakidae family. This research investigates the morphology, morphometry, and prevalence of *Anisakis* larvae parasitizing fish being sold in the municipality of Curralinho, in the Brazilian state of Pará. Twenty specimens of *Plagioscion squamosissimus* were directly collected from the Guajará River by fishers in the city of Curralinho. These fish were purchased, necropsied, and their organs were individually placed in Petri dishes containing saline solution for helminthological examination using a stereomicroscope. All the fish (100%) were found to be parasitized, and a total of 1,390 third-stage *Anisakis* larvae were recovered, encysted in the intestinal serosa and mesentery. The third-stage larvae were analyzed using light and scanning electron microscopy. Morphologically, the third-stage *Anisakis* larvae exhibited an anterior end featuring a dorsal lip and two poorly developed ventrolateral lips, a boring tooth, and an excretory pore situated below the boring tooth. Internally, they possessed a muscular esophagus, a long ventriculus, a terminal mucron, and a ventricular appendix, while an intestinal cecum was absent. The presence of these third-stage *Anisakis* larvae in fish sold in markets underscores their significance for public health, as these Anisakidae nematodes, especially *Anisakis* spp., are known to cause anisakiasis.

**Keywords:** Anisakidae, Parasite, Fish, Amazon.

### 1. Introduction

Anisakidae Skrzabin & Karolchin, 1945 is a large family of Ascaridoidea Railliet & Henry, 1915, with emphasis on the genera *Anisakis* Dujardin, 1845, *Contracaecum* Railliet & Henry, 1912, *Perinacheilus* (Diesing, 1851), *Pulchrascaris* Vicente & Santos, 1972, *Pseudoterranova* Mozgovoi, 1951, *Skrjabinisakis* (Mozgovoy, 1951) and *Terranova* Leiper & Atkinson, 1914, all of which act as intermediate hosts (Anderson, 2000; Klimpel & Palm, 2001; Luque et al., 2011; Borges et al., 2012; Safonova et al. 2021). Numerous records in Brazil document the presence of parasites from the family Anisakidae in marine, freshwater, and estuarine fish, and many of these records note the zoonotic potential of this group (Fontenelle et al., 2013). According to Santos (2017), parasitic diseases linked to fish consumption in Brazil often go unnoticed, mainly due to some factors, such as the mild severity of symptoms and a lack of awareness among doctors, health inspectors, and consumers.

Anisakids are parasitic bioagents that pose a significant public health risk, as they can be accidentally transmitted to humans through the ingestion of raw or undercooked fish infected by L3 larvae (Andrade-Porto et al., 2015; Elias et al., 2016; Souza et al., 2016; Alves et al., 2019). Due to the substantial presence of parasites from the Anisakidae family in commercially important fish in Brazil, in 2010, the Ministry of Health classified the biological risk of infection by anisakids as Risk Class 2, indicating moderate risk and limited transmission potential (Brasil, 2010). According to Shih et al. (2010), the primary concern regarding these parasites is the disgust people experience when encountering them in food or during preparation, which can subsequently reduce consumption of this protein.

Pinheiro et al. (2019) highlight the scarcity of studies on Anisakidae larvae in fish in Brazil, particularly given the numerous environments that remain unstudied and the ichthyofauna present in these habitats across different states. This study aims to present the morphology and morphometry of the Nematoda Anisakidae parasite of *Plagioscion squamosissimus* (Heckel, 1840), captured in the Guajará River and sold in open-air markets in the Curralinho municipality of the Marajó Island, Pará.

### 2. Materials and Methods

Twenty specimens of *Plagioscion squamosissimus* [total length 14.5–22 (17.6) cm; weight 69–215 (124) g] were obtained. Fish were captured by artisanal fishers in Rio Guajará (1° 36' 39" S 50° 18' 12" W), municipality of Curralinho, the island of Marajó, Pará State, Brazil. Fish were collected from November to December 2023 with the aid of a cast net and transported dead in thermal boxes filled with ice to the laboratory for necropsy. After biometric analyses, the animals were necropsied for helminths. The digestive tract of each specimen was isolated in a Petri dish containing a physiological solution and analyzed using a

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#### GRAPHICAL ABSTRACT

***Anisakis* sp. larvae in *Plagioscion squamosissimus* (Heckel, 1840) from the Curralinho municipality, Marajó Island, Pará, Brazil**



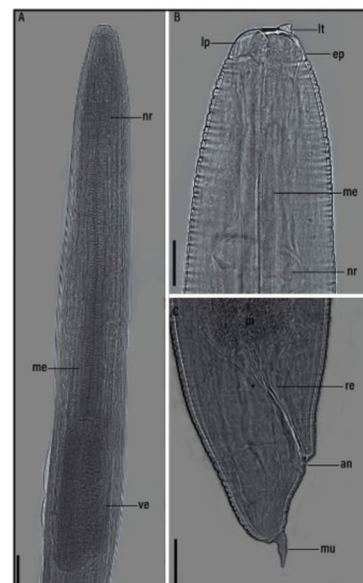
Larvae collected from  
*P. squamosissimus*



Microscopic  
analysis



*Anisakis* sp.  
larvae



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