



Seasonal Feeding Dynamics and Parasitic Impacts on Immune and Histopathological Responses in *Brachirus Orientalis*

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ABSTRACT

With a focus on the related clinical and histological alterations, this study seeks to determine the connection between feeding practices and nematode infection in the flatfish *Brachirus orientalis*. The fish population under study showed significant seasonal change in feeding activity and food composition based on monthly investigation of gut contents. Over the course of the investigation, 87 fish were examined. For the majority of the months, the predominant food item was crustaceans. The amount of feeding varied significantly by month, with April showing the most activity and all of the fish under examination having completely swollen intestines. While higher percentages of empty bellies were noted in January and June, high feeding activity continued in May, July, August, and September. Fish overall length varied from 165 to 420mm; larger size ranges typically corresponded with times of increased eating activity. In January, two fish were infected with a total of three nematodes, corresponding to a prevalence of 22% and a mean intensity of 1.5 parasites per infected fish. A similar prevalence (22%) was recorded in May, although with a lower mean intensity. In September, infection prevalence reached 18.1% with a mean intensity of 1.5. Parasitic infections were observed during the remaining months. Immunological assessment showed a significant elevation in serum immunoglobulin levels in infected fish compared with controls. Serum IgT and IgE concentrations were significantly increased, indicating activation of the immune response following infection. Histopathological examination of infected livers revealed inflammatory alterations, including cellular infiltration, necrosis, congestion, and granulomatous lesions associated with parasite attachment, confirming tissue damage linked to nematode infection. The study demonstrates significant seasonal fluctuation in feeding activity and diet composition. Although nematode infections were infrequent, low in frequency and severity, they caused notable histopathological and immunological reactions.

INTRODUCTION

The consumption of fish has increased substantially due to their high nutritional and protein value (Colangelo *et al.*, 2009). Flatfishes are a significant class of commercial food fishes that live mostly on soft, muddy, and sandy bottoms. There, they serve as essential benthic predators and are crucial in the transfer of benthic energy to