

TITLE: ISOLATION AND CHARACTERIZATION OF AN *AEROMONAS JANDAEI* STRAIN ISOLATED FROM DISEASED LAMBARI FISH (*ASTYANAX ALTIPARANAE*) IN BRAZIL

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ABSTRACT:

Members of the genus *Aeromonas* are emerging pathogens found mainly in aquatic environments, responsible for large economic losses in aquaculture production, being important opportunistic pathogens and carrying multiple virulence factors. In addition to its importance as an etiological agent for fish diseases, these bacteria have been associated with gastroenteritis in humans. An event involving the death of 250 lambaris (*Astyanax altiparanae*) was recorded at the CEPTA/ICMBio in the city of Pirassununga, state of São Paulo, Brazil. External examinations revealed ulcerations on the body surface with loss of epithelium, ocular and cutaneous hemorrhages, predominantly at the base of the fins, flank corrosion and neurological disorders progressing to erratic swimming in vertical circles. After this report, some specimens were sent for laboratory analysis, aiming to identify and characterize the etiological agent responsible for the outbreak. For that, a polyphasic approach was adopted, which included bacterial isolation, biochemical tests, antibiogram, PCR amplification, sequencing and phylogenetic analysis. The initial result showed that it was a bacillus Gram-negative. Biochemical characterization using automatic system BioMérieux VITEK-2 revealed that the strain belonged to the species *Aeromonas sobria*, with a confidence level of 96%. The isolated *Aeromonas* strain showed multidrug resistance against ampicillin, ampicillin/sulbactam, piperacillin/tazobactam, imipenem, meropenem and colistin. Molecular and phylogenetic identification based on the amplification of housekeeping genes (16S, GyrB and RpoD) and a virulence gene (GCAT) revealed the species *Aeromonas jandaei*. Discrepancies between the phenotypic and genotypic characterization highlighted problems concerning the potential misidentification of bacteria when commercial identification systems are used, which emphasizes the importance of molecular tests for confirmation of bacterial species. Therefore, we report for the first time in Brazil the isolation and characterization of an *Aeromonas jandaei* strain from diseased lambaris, exhibiting resistance to carbapenems, contributing significantly to better etiological understanding of the infectious diseases of farmed fish species.

Keywords: *Aeromonas jandaei*, Brazil, fish diseases, lambari, *Astyanax altiparanae*

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