

## **Antibiotic susceptibility and pathogenicity of *Aeromonas hydrophila* isolated from red hybrid tilapia (*Oreochromis niloticus* × *Oreochromis mossambicus*) in Malaysia**

### **ABSTRACT**

Background and aim: *Aeromonas hydrophila* is a major cause of bacterial infections affecting a wide range of warm water fishes worldwide. In Malaysia, *A. hydrophila* isolations from diseased fishes were previously reported; however, with limited information. The present study investigates the antibiotic susceptibility and pathogenicity of *A. hydrophila* isolated from farmed red hybrid tilapia (*Oreochromis* spp.) in Malaysia. Materials and methods: *A. hydrophila* was biochemically identified and subjected to antibiotic susceptibility tests. The isolate was then intraperitoneally injected into red hybrid tilapia, and the mortality, clinicopathological changes, and LD<sub>50</sub> were determined up to 240 h post-infection (hpi). Results: The isolate demonstrated multiple antibiotic resistances (MAR) toward amikacin, ampicillin, cefotaxime, amoxicillin, trimethoprim-sulfamethoxazole, erythromycin, and streptomycin, with a MAR index of 0.5. The experimental infection of *A. hydrophila* at 10<sup>5</sup> CFU/mL in the red hybrid tilapia resulted in 100% mortality at 240 hpi. The LD<sub>50</sub> was determined at 1.1 × 10<sup>4</sup> CFU/mL. Infected fish demonstrated occasional erratic swimming patterns, localized hemorrhages and depigmentation on the body and operculum areas, fin erosion, enlargement of the gall bladder, and hemorrhage in internal organs. Microscopic observation of infected fish revealed brain congestion, tubular necrosis, and glomerular shrinkage in the kidneys, necrosis of hepatocytes, and congestion of blood vessels in the liver. Conclusion: The high virulence of *A. hydrophila* to the red hybrid tilapia emphasizes the importance of active, on-going monitoring of its prevalence in Malaysian tilapia farming.

**Keyword:** *Aeromonas hydrophila*; Antibiotic sensitivity; Aquaculture; Pathogenicity; Tilapia