

ABSTRACT

Rayhan Dhito Arimbi Putri, 24020221120002. **Effects of Dietary *Lacticaseibacillus casei* on the Growth Performance, Immune Response, and Disease Resistance Against *Aeromonas hydrophila* in Nile tilapia (*Oreochromis niloticus*)** (under the guidance of Anto Budiharjo and Chumporn Soowannayan).

Nile tilapia (Oreochromis niloticus) is among the most cultivated fish species globally. However, this species is vulnerable to many bacterial infections, such as Motile Aeromonas Septicemia (MAS) caused by many species of Aeromonas bacteria, including Aeromonas hydrophila. This study aimed to evaluate the effects of Lacticaseibasillus casei feed supplementation on the growth performance, gastrointestinal colonization, disease resistance, and histopathological changes in Nile tilapia. For this, 270 Nile tilapia fingerlings were divided into 6 groups, and in each group, there were 3 replicates of 15 fish. The fish were fed with either unsupplemented (control) or Lacticaseibasillus casei feed at 10^6 , 10^7 , 10^8 CFU/g and supernatant for 1 week before the fish were immersion-challenged with A. hydrophila at 10^8 CFU/ml. The fish in each group continued to be fed with their respective unsupplemented or L casei-supplemented diets for another week, during which health and mortality were monitored.

The results of this study showed that fish fed with L. casei at 10^8 CFU/g showed the highest growth parameters (WG, ADG, SGR, and FCR) although no statistically significant difference ($p>0.05$) among the treatment groups. This group also showed a significantly higher survival rate ($p<0.05$) post-infection compared to the positive control and the other treatments, but was not significantly ($p>0.05$) from the uninfected control group (negative control). Furthermore, the 10^8 CFU/g group showed the highest colonization of LAB in the gastrointestinal tract. Histopathological observations showed reduced tissue damage in this group compared to the positive control. This suggests that L. casei may enhance nutrient absorption and gut colonization, thereby improving immune readiness against infection. These findings are important as they provide an effective strategy to enhance fish growth and disease resistance, contributing to more sustainable practices.

Keywords: *Aeromonas hydrophila, growth performance, immune response, Lacticaseibacillus casei, Nile tilapia*