DOI: doi.org/10.47363/JALP/MarineFuture2025/2025(6)5

Effectiveness of Wedelia Chinensis Extract Supplementation on the Histology of Hepatopancreas of White-Leg Shrimp (Penaeus vannamei) Experimentally Infected with AHPND-Causing Vibrio Parahaemolyticus

Tran Nguyen Ngoc

Hue University, Vietnam

Abstract

This study aimed to evaluate the effects of Wedelia chinensis extract (WCE) supplementation on the histological changes of the hepatopancreas of white-leg shrimp (Penaeus vannamei) experimentally infected with Vibrio parahaemolyticus causing acute hepatopancreatic necrosis disease (AHPND). White-leg shrimp with an average weight of 1.5 - 2.0 g/individual was randomly placed into 12 Fiber plastic tanks (50 shrimp/120 L tank) and fed with basal diet (Control) or with basal diet supplementation with WCE at three different concentrations: 31.25 mg.L-1; (312.5 mg.L-1 or 625 mg.L-1 for the first 7 days and then fed with basal diet for the next 7 days, and repeated with the same experimental diets for the following 7 days. An experimental challenge with V. parahaemolyticus was introduced on day 14. Sample for histological was conducted on day 0, day 7, and day 14 after challenge. In addition, in the challenge test against Vibrio parahaemolyticus at day 8, histological changes of hepatopancreas (HP) of shrimp fed on WCE treatment were not observed while shrimp fed basal diet clearly showed histopathological characteristics of AHPND such as pale or yellow HP, massive necrosis in tubules and star-shaped polygonal structures of the lumen disappeared. The results indicate that the WCE supplementation has positive affects on the shrimp's health and reduces the damage of the shrimp's hepatopancreas infected with AHPND-causing Vibrio parahaemolyticus.

Keywords: Herb, Penaeid Shrimp, Bacteria, Vibriosis, Early Mortality Syndrome