

Effects of Dietary Heat-Inactivated *Lactobacillus Paracasei* Postbiotic on Growth Performance, Non-Specific Immune Response and Resistance Against Pathogens in White Shrimp (*Penaeus Vannamei*)

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Abstract:

High-density breeding of white shrimp has led to severe disease outbreaks, such as White Spot Syndrome Virus (WSSV) and Early Mortality Syndrome (EMS), causing significant economic losses. This study investigated the effects of supplementing shrimp diets with a heat-inactivated postbiotic, *Lactobacillus paracasei* RM-081, to enhance growth and disease resistance. Shrimp were fed diets containing 0, 10^6 , 10^7 , or 10^8 CFU/g of RM-081 for eight weeks. Results indicated that the 10^7 CFU/g group achieved the best growth performance (1244.55% weight gain) and showed significantly increased total haemocyte counts and upregulated immune-related genes. Furthermore, the 10^7 and 10^8 CFU/g groups exhibited the highest survival rates against *Vibrio parahaemolyticus* and delayed mortality when challenged with WSSV. In conclusion, supplementing feed with 10^7 CFU/g of RM-081 effectively promotes growth, boosts nonspecific immunity, and enhances disease resistance in white shrimp.

Keywords:

Penaeus vannamei, Postbiotic, Innate immunity, *Vibrio parahaemolyticus*, White-spot syndrome virus (WSSV), heat-inactivated *Lactobacillus paracasei*.