Application Frequency of Dietary *Vibrio harveyi* Lipopolysaccharide (LPS) on Growth and White Spot Syndrome Virus Resistance of Post Larvae *Penaeus monodon*

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Abstract

This study evaluated the effects of dietary *Vibrio harveyi* lipopolysaccharide (LPS) as an immunostimulant fed at different frequencies for improving growth performance, immune response, and disease resistance of post larvae *Penaeus monodon* against white spot syndrome virus (WSSV). In an 8 week feeding trial, shrimp were fed a treatment diet containing *Vibrio harveyi* LPS at a predetermined dose of 50 mg/kg diet daily or every 2, 5, and 7 days. A basal diet was given to the treatment groups when the shrimp were not fed the dietary immunostimulant. Results showed 90-96% survival of the test animals, and weight gain (WG) and specific growth rate (SGR) were significantly enhanced in shrimp fed LPS every 2 days. No significant differences were observed in the feed conversion ratio (FCR) of any of the test groups. Following WSSV challenge, the groups receiving LPS-supplemented diet exhibited increased disease resistance compared to the control group. Shrimp fed with LPS every 2 days exhibited significantly higher survival rate (53%) than the other treatments. The same group consistently showed significantly higher values in all immune indices measured including total hemocyte count (THC), phenoloxidase (PO) activity, and respiratory burst activity (RBA). This study suggests that dietary administration of *Vibrio harveyi* LPS at 50 mg/kg concentration fed every 2 days is optimum to enhance growth, immune response, and protection against WSSV in post larval *P. monodon*.

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