

## **Dietary microorganism and plant effects on the survival and immune response of *Litopenaeus vannamei* challenged with the white spot syndrome virus.**

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The effect of plants and probiotics on the survival and immune response of *Litopenaeus vannamei* challenged with the white spot syndrome virus (WSSV) was evaluated. A probiotic mixture (PM), plant extract (PE) or powdered plants (PP) were added to feed with the attractant Dry Oil. An experiment was conducted with five treatments in triplicate. Shrimp were cultured in 120 L plastic tanks and fed twice a day with commercial feed plus additives or with commercial feed plus WSSV. Animals were monitored for the occurrence of WSSV using single-step and nested PCR. The PM and PP added to the commercial feed showed high survival, a decrease in WSSV prevalence in shrimp and an increase in the activity of lysosomal enzymes, N-acetyl-b-glucosaminidase and acid phosphatase. The total haemocyte count in shrimp treated with PM was significantly higher than that in the control group (treatment I) and in shrimp fed with PE. The results of the present work indicate that PP and PM are good candidates for use as feed additives against WSSV in shrimp cultures.