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Research Abstract

Silencing of White Spot Syndrome Virus (WSSV) Gene Vp281 By dsRNA and its Antiviral Effect in Shrimp (*Litopenaeus Vannamei*)

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Abstract: The white spot syndrome virus (WSSV) has caused huge losses to the shrimp industry. It has been shown that silencing of viral genes using RNA interference (RNAi) decreases viral replication. We evaluated the effect of silencing the gene 281 of WSSV using double stranded RNA (dsRNA) to trigger RNAi in *Litopenaeus vannamei*. Shrimp were collected from a commercial farm. Treatments were separated by dsRNA dose (1, 2 or 4 µg/shrimp) and dsRNA size (215, 394 or 843 bp). The dsRNA of each fragment was synthesized with a commercial kit. 10 shrimp were injected with dsRNA. After two days, were challenged against WSSV. Mortality was recorded twice a day. At the end of experiments, WSSV presence was confirmed by PCR. No antiviral effect was observed in the treatments with the dsRNA fragments of 215 or 395 bp, regardless of dsRNA dose. These results suggest that silencing of VP281 gene does not protect against WSSV infection. However, the treatment with the largest dsRNA (843 pb) and the higher dsRNA dose, achieved some survivors. As a conclusion, we showed that antiviral effect induced by RNAi depends of size and quantity of dsRNA supplied to shrimp.

Keywords: WSSV, Shrimp, RNAi, dsRNA, Gene silencing.

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