

## **Investigation of Regions Free of *White Spot Syndrome Virus* Contamination in Wild *P. monodon* Brooders to be Used as Broodstock Resource for Shrimp Hatcheries**

M. Y. F. Nathiya<sup>1</sup>, P. K. M. Wijegoonawardane<sup>2</sup>, P. B. A. I. K. Bulumlla<sup>1</sup> and S. C. Jayamanne<sup>1</sup>

<sup>1</sup>Uva Wellassa University, Sri Lanka

<sup>2</sup> National Aquatic resources Research and Development Agency (NARA), Inland Aquatic Resources and Aquaculture Division, (IARAD), Crow Island, colombo5, Sri Lanka

At present White Spot Disease (WSD) is one of the most serious viral diseases affecting farmed shrimp species globally. The causative agent, White Spot Syndrome Virus (WSSV), is extremely virulent, and has a wide host range and can also be inherited. The present study reports the prevalence of WSSV, in the wild *P. monodon* brooders collected from different geographical locations around Sri Lanka and analyzed using Polymerase Chain Reaction (PCR). Out of 156 selected brooders, a total of 60 individuals were positive for WSSV either by 1-step or 2-step nested PCR (nPCR). Out of 60 positive samples, the infection intensity was mild in 42 brooders while the other 16 showed higher infection intensity. The overall percentage positivity was 38.46% (60 of 156; 95% Confidence Interval of 30.19% to 45.93 %) and revealed that the brooders along the coast of Sri Lanka were infected by WSSV and they can act as carriers. Among the different geographical locations Negombo displayed the lowest WSSV prevalence significantly ( $P < 0.05$ ). WSSV prevalence in North Western, Eastern and Western province was found to be 61.54%, 57.69% and 28.44% respectively. The WSSV isolates present in brooders were subjected to 2-step WSSV genotype nPCR, the brooders contained 5 different TRS (Tandem Repeat Sequence) genotypes (4, 6, 9, 14 and 15-TRS) and the 6-TRS was the most predominant. As earlier studies have shown that 6-TRS type was commonly associated with disease outbreaks, it could be speculated that major route of WSSV transmission in Sri Lanka could be vertical. More information from expanded geographical locations around Sri Lanka would allow zoning of WSSV free zones and to formulate better *P. monodon* broodstock management strategy to sustain the shrimp industry in Sri Lanka. As a precautionary measure and to control further contaminations of the wild, strict bio-security measures should be adhered during WSSV outbreaks.

Key words: White spot syndrome virus (WSSV), Nested PCR (nPCR), Polymerase Chain Reaction (PCR)