

PCR detection of white spot syndrome virus (WSSV) from farmed Pacific white shrimp (*Litopenaeus vannamei*) in selected sites of the Philippines

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Abstract. Great losses caused by white spot syndrome virus (WSSV) in shrimp culture have been attributed to poor screening procedures in farms and the lack of sufficient access to specific pathogen free brood stock. Thus, early detection of the virus is considered the best option for shrimp farmers. The study, thus, assessed viral incidence in the Philippines and partially sequenced and characterized the Philippine WSSV isolate with regards to other isolates in GenBank. Developed primers for PCR can detect target genes from 0.4 pg of DNA extract from shrimp samples. PCR detection revealed that 6.67 % (1/15) of market samples from Zambales are infected with WSSV. Shrimp samples from a local shop and a public market in General Santos City showed 46.67% (7/15) and 20% (3/15) WSSV-positive samples respectively. Shrimp sources from Capiz and Batangas, however, showed negative detection for WSV. No significant difference in the number of infected samples from the sampling sites was found. Combined detections reveal that the Philippines have a low infection rate of 14.67%. The study has partially sequenced and characterized Philippine isolate. During the sampling period, most shrimps in General Santos City were WSSV-positive by PCR detection.

Key Words: WSV, Philippines, shrimp, *Litopenaeus vannamei*.

Introduction. Global production of sea foods from aquaculture has grown rapidly over the past four decades, contributing to 45% of the world's supply of fish (including crustaceans, mollusks, echinoderms and amphibians) for human consumption (Subasinghe et al 2009). The shrimp aquaculture industry has grown rapidly over several decades to become a major global industry that has contributed significantly to socio-economic development in many poor coastal communities (Walker & Mohan 2009). However, the ecological disturbances and changes in patterns of trade associated with the development of shrimp farming have unfortunately hindered further growth because of the emergence and spread of viral and bacterial disease.

At least four viruses have adversely affected the global penaeid shrimp farming industry since 1980's (Lightner 2003). In the Philippines, the presence of these viruses have been confirmed as studies on shrimp viruses started when Albaladejo et al (1998) reported the presence of yellowhead virus (YHV) in some cultivated *Penaeus monodon*. A year after, Belak et al (1999), reported the presence of infectious hypodermal and hematopoietic necrosis virus (IHHNV), with an overall prevalence of 53%, but not of white spot syndrome virus (WSSV) in wild spawners obtained from Palawan, Quezon, Capiz, and Negros Occidental. However, Tapay et al (2000) detected evidence of the high prevalence of WSSV in cultured *Penaeus monodon* in the Philippines. Detection of WSSV in *P. monodon* from local shrimp farms in Negros Island from 2000-2006 followed