Detection of Laem-Singh virus in cultured Penaeus monodon shrimp from several sites in the Indo-Pacific region

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ABSTRACT: Laem-Singh virus (LSNV) is a positive-sense single-stranded RNA (ssRNA) virus that was recently identified in Penaeus monodon shrimp in Thailand displaying signs of slow growth syndrome. A total of 326 shrimp collected between 1998 and 2007 from countries in the Indo-Pacific region were tested by RT-PCR for evidence of LSNV infection. The samples comprised batches of whole postlarvae, and lymphoid organ, gill, muscle or pleopod tissue of juvenile, subadult and adult shrimp. LSNV was not detected in 96 P. monodon, P. japonicus or P. merguiensis from Australia or 16 P. monodon from Fiji, Philippines, Sri Lanka and Mozambique. There was no evidence of LSNV infection in 73 healthy juvenile P. vannamei collected during 2006 from ponds at 9 locations in Thailand. However, LNSV was detected in each of 6 healthy P. monodon tested from Malaysia and Indonesia, 2 of 6 healthy P. monodon tested from Vietnam and 39 of 40 P. monodon collected from slow-growth ponds in Thailand. A survey of 81 P. monodon collected in 2007 from Andhra Pradesh, India, indicated 56.8% prevalence of LSNV infection but no clear association with disease or slow growth. Phylogenetic analysis of PCR amplicons obtained from samples from India, Vietnam, Malaysia and Thailand indicated that nucleotide sequence variation was very low (>98% identity) and there was no clustering of viruses according to site of isolation or the health status of the shrimp. The data suggests that LSNV exists as a single genetic lineage and occurs commonly in healthy P. monodon in parts of Asia.

KEY WORDS: Laem Singh virus · Shrimp · Geographic distribution

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