

Production Performance and Status of Health of Black Tiger Prawn *Penaeus monodon* (Fabricius) Subsequent to the First Outbreak of Systemic Ectodermal and Mesodermal Baculo Virus (SEMBV) Disease in a Commercial Farm in Sri Lanka

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Abstract

Prawn farming industry of Sri Lanka was affected by Systemic Ectodermal and Mesodermal Baculo Virus (SEMBV) disease (White spot disease) around May 1996 which resulted in huge economic losses causing most of the farmers to abandoned their farms by August 1996. Production performance and status of health of *Penaeus monodon* subsequent to the first outbreak of SEMBV disease was studied in a commercial farm at Arachchikattuwa in North Western province in Sri Lanka. The two ponds in this farm which were 0.410 ha and 0.336 ha in surface area were stocked at a density of 24.4 pl m⁻² and 23.8 pl m⁻² respectively and the production cycle lasted from November 1996 to March 1997.

Average body weight, survival rate, feed conversion ratio and total production of shrimp were used in the present study to determine the production performance. Recurrence of SEMBV disease was monitored at regular intervals by the behavioural and external signs of the shrimp and by examining ectodermal and mesodermal tissues using rapid fixation and staining method. Haemolymph was stained with Wright Giemsa staining and wet mounts of gills, carapace and appendages were observed for potential pathogens/parasites. Histological preparations of hepatopancrease and gills were also examined. The level of *Vibrio* sp. infection in the haemolymph of shrimp and *Vibrio* sp. counts of pond water were estimated by culturing on TCBS agar.

Average body weights achieved by shrimp during the production cycle were 27.80g for pond I and 27.28g for pond II. The total production recorded for pond I was 5610 kg ha⁻¹. These values were comparable with standard values recorded for *P. monodon*. Feed conversion ratios were 1.52 for pond I and 1.57 for pond II. Final survival rates were 84% for pond I and 53% for pond II. SEMBV disease did not occur during this production cycle and other viruses that are commonly found in shrimps were not recorded. *Zoothamnium* sp., *Epistylis* sp. and *Vorticella* sp. were observed as external fouling organisms on *P. monodon*. Ten percent of the sampled shrimps of pond II were positive for haemolymph infection of *Vibrio* only at 6 and 8 weeks post-stocking. Correct management strategies in changing water, liming, feeding and aeration prevented any of these pathogens/parasites developing into an outbreak of disease. Shrimps of pond I were negative for *Vibrio* infection in the haemolymph throughout the culture cycle.