

Comparison of batch-wise post larvae quality of Black tiger prawn (*Penaeus monodon*) at the acclimatizing process

Abstract

The *Penaeus monodon* (Black Tiger Shrimp) is the main commercially cultured species in Sri Lanka due to its fast growth; large size; high price; and market demand. The hatchery bred post larvae (PL) is the key element in the shrimp farming industry and they are acclimatised before transferring into earthen ponds to minimize the stress due to rapid change in temperature and salinity. Acclimatizing is done in nursery tanks, for 6-7 days, by reducing salinity levels till it reaches the salinity levels of earthen grow-out ponds, where PL are going to be transferred. Therefore, this study investigated whether there are any batch-wise quality differences in the PL during acclimatizing process. Batch-wise sub-samples (n ~150 PL), belongs to PL12-PL19, were drawn randomly. Standard PL scoring system (NAQDA, 2008) was used, to assess the PL quality by considering behavioural patterns; length variations; microscopic appearances; and survival under stress testes. Further, disease and abnormalities as swollen hind gut, and Necrosis were compared. External and internal parasites were also compared.

As per behavioural patterns, all batches have more than 80% of PL capable of swimming against water current while jumping and their 'V' shaped antennae was fluctuated in 75-90% range. PLs from all batches were 100% withstand for stress temperature but only 94%-96% survival at formalin test. Microscopic examinations revealed 75% of PLs in each batch were absence from swollen hind gut; not infected with any internally or externally parasites; and any necrosis and abnormalities in their body. Observed difference in gut-muscle ratio in 25% of PLs in the first batch was not significant ($P>0.05$).

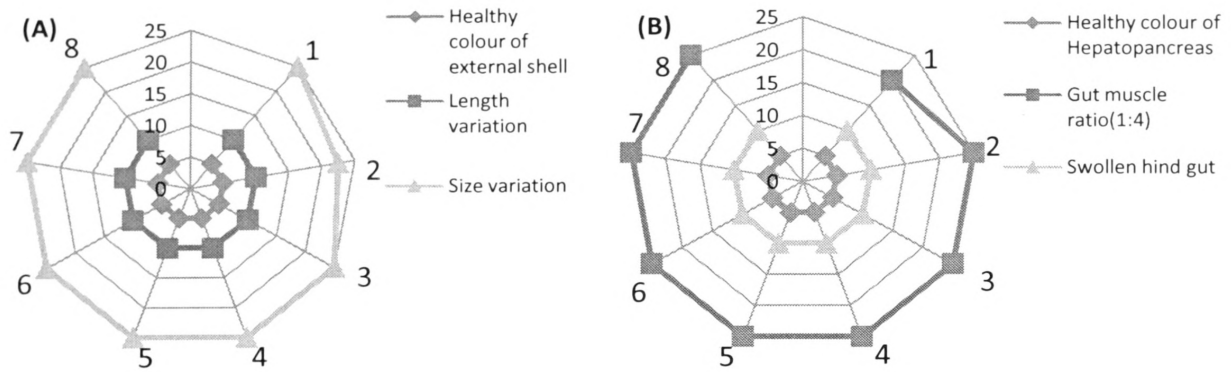


Fig. 1: A schematic composite diagram proposed as a visual illustration of estimated external (A) and internal (B) microscopic PL qualities of eight batches. Three interior solid lines with symbols represent scoring respective parameter for each of the eight batches on scales, as a score (not solid lines) of the desired or predicted baseline values

The allocated scores for eight analysed batches were within the PL quality standards recommended by the NAQDA protocol. Further, the estimated scores revealed no significant difference in the PL qualities among the eight batches ($P>0.05$). As seasonal and weather variations were not observed during the study period, thus recommended to continue the study for a longer period considering brood stock qualities as the regions of origin; number of previous spawning runs in understanding the broader differences in PL qualities.

Keywords: *Penaeus monodon*, Post larvae, cultured shrimp, Acclimatizing process, Hatchery