B-30: Effects of water exchange on growth of *Penaeus monodon* (Forster) and water quality in outdoor earthen ponds

Udeni Edirisinghe[1], J P Wannigama[1], J M P K Jayasinghe [2]
([1]*Dept of Animal Science, Faculty of Agric, Univ of Peradeniya,* [2]*Inland Aquatic Resources Div, NARA, Colombo 15*)

In shrimp culture ponds, continuous water flow helps to maintain excellent water quality, which prevents the establishment of pathogens in addition to higher production, survival rates, feed conversion ratios. Presently the daily water exchange rate practised in Sri Lanka is around 20-30%. The main objectives of this study were to determine variation in water quality parameters and effect of water exchange on growth of shrimps so as to determine the most suitable exchange rate under intensive farming system.

Outdoor earthen ponds of approximately 0.4 ha located in Arachchikattuwa, Chilaw were used. Stocking density was 15 PL 20/m. Water exchange started during the third week of culture period. Water sampling was carried out bi-weekly from second week up to 10th week.

Mean physico-chemical parameters of DO 7.52 mg/l, pH 8.4, salinity 19.37 ppt, BOD 9.53 mg/1, nitrite 0.0889 ppm, total suspended solids 41.8 mg/l, secchi disk visibility 33.23 cm did not show significant difference ($P>0.05$) in 25 and 30% treatments when compared with the 20% daily water exchange rate.

Mean values of diurnal variation of pond water, DO 4.83 mg/l, temperature 28.9°C and pH 8.26 did not show significant difference ($P>0.05$). Weight gain 30.23 g and total length 165.73 mm of shrimps also did not show significant difference $P>0.05$) within the 3 treatments. According to these results, the economical daily water exchange rate appears to be around 20%.