

Feeding activity and growth performance of shrimp post larvae *Litopenaeus vannamei* under Light and dark condition

ABSTRACT

The present study was conducted to elucidate the effects of light and dark condition on the feeding activity of shrimp, *Litopenaeus vannamei*. Examination on the ingestion rate of shrimps at different sizes (0.5, 1.0 and 1.5 cm total length, TL) under light and dark condition was conducted using newly hatched frozen *Artemia* nauplii. For each condition, shrimp were let to ingest known number of *Artemia* nauplii for 30 minutes, thereafter the remaining *Artemia* nauplii was counted. For the observation of eye structures under light and dark conditions, 1.0 cm TL shrimps were preserved in Bouin's solution for histological observation. Another feeding trial was conducted to examine the growth performance and survival of shrimps (initial size 1.0± cm, TL) under different photoperiod regimes (24 hours dark: 24D, 24 hours light: 24L and 12 hours light and dark: 12LD) for three weeks. Results showed that, the 0.5cm TL shrimp significantly ingested more *Artemia* nauplii under light condition compared to dark condition ($P = 0.000$). The 1.0 and 1.5 cm TL shrimps consumed *Artemia* nauplii equally under both conditions. The shrimp attained a complete eye structure which can be differentiated into crystalline cone, clear zone, rhabdom and fasciculated zone at 1.0cm TL. This study also showed that growth ($P = 0.557$) and survival ($P = 0.686$) of shrimps did not vary significantly among different photoperiod. This study suggests that the feeding activity of the smallest shrimp (0.5 cm TL) is affected by light condition. However, feeding activity, growth and survival of bigger sized shrimp (> 1.0 cm TL) were not affected by light and photoperiod regimes.