Effect of cold shock and hormone on growth and male morphotypes of freshwater prawn, Macrobrachium rosenbergii (de Man)

ABSTRACT

A study was carried out to determine the effects of cold shock and 17Ŭ-methyl testosterone hormone on growth in male morphotypes of giant freshwater prawn Macrobrachium rosenbergii. Juvenile males were exposed at 18 ± 0.25°C for 24 h with normal feed and cultured at 27 ± 0.7°C for 70 days as well as administrated feed with hormone separately at 400 mg kgī 1 feed for the first 30 days of culture period (70 days). The growth (Mean ± SD) of male juveniles at harvest was closely homogenous in the cold shock (CLS) treated group; while it was heterogeneous in hormone-treated (MH) and control (CO) groups. Although total body weight of blue claw (BC) males was not significantly different in the controls and the treatments, the 2nd pereiopods (claw) weight and length of the BC was significantly lower in CLS (0.52 ± 0.05 g, 10.02 ± 0.65 cm) than that in the CO (0.71 ± 0.16 g, 12.53 ± 0.57 cm) and MH (0.75 ± 0.08 g, 12.85 ± 1.18 cm) treatments. Survival of prawns was similar in treatments. The morphotypes of male prawn were significantly different with 59% of BC males with small-sized claws in CLS and, 45% and 30% of BC males with large-sized claws in MH and CO respectively. Cold shock adversely affected male morphotypes of the prawn so that numbers of BC males with small-sized claw was the highest in CLS tank. However, the CLS treatment resulted in more uniform marketable prawns and suggested a high production of BC males in an all-male culture system.

Keyword: Cold shock; Freshwater prawn (Macrobrachium rosenbergii); Heterogeneous individual growth; Male morphotypes; 17Ŭ-methyl testosterone hormone