Effects of bottom substratum on survival and growth of early juveniles of blue swimming crab, Portunus pelagicus (Linnaeus, 1758) in captivity

ABSTRACT

Aim: Cannibalism remains a limiting factor during the nursery culture of crabs. This study was undertaken to improve the rearing techniques by investigating the impact of bottom substratum on crablet survival and growth. The knowledge gained from the research will be useful for the communal seed culture and development of crab farming, which are important factors regarding farmers' job stability in the future. Methodology: Blue swimming crab, *Portunus pelagicus* (first settled (C1 crabs); initial average weight and SD of 0.02 ± 0.01g) were cultured in glass aquarium (90 x 44 x 34 cm) and their survival and growth were assessed after 22 days of culture in four types of substratum such as control (none), sand, soil, or sand + soil. All treatments had 25 juvenile crabs, each of which was triplicated. Feeding was done twice a day (9 am and 5 pm) to apparent satiation. Results: Survival of early juvenile crabs cultured with sand was substantially higher at 65.33 ± 6.11% than those cultured with soil, sand + soil or control at 29.33 ± 10.07%, 28.00 ± 8.00%, and 21.33 ± 6.11%, respectively. Growth performance (such as final weight, weight gain and specific growth rate) of the early juvenile of *P. pelagicus* in all treatments were not significantly different ($p>0.05$). Interpretation: Overall, the best survival was achieved with sand substratum and can be recommended as a mean of reducing cannibalism during the early nursery rearing of blue swimming crab juveniles under captive culture conditions.

Keyword: Bottom substratum; Cannabalism; Captivity; Growth rate; Portunus pelagicus