



Natural breeding performance in different saline water pens, crablets rearing and cannibalism in juvenile phase of mangrove mud crab (*Scylla olivacea*) in earthen mangrove pens

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ABSTRACT

The current study focused on natural breeding techniques using locally available mud crab broods during breeding season. The breeding trial was tested in artificially created earthen pens that designed with mangrove plants and salt tolerance grass. Mature brood crabs were collected from local rivers and equally distributed in 20 L black color plastic containers in three different salinities (T1 = 24ppt, T2 = 26ppt, and T3 = 28ppt) and covered with black cloth. The river salinity was 26ppt during breeding season that is considered as control(T2), and treatment T1 and T3 were prepared artificially mixing with water and sea salt respectively. Broods are reared in containers until hatching and zoea was transferred to earthen pens immediately after hatching. Zoea were reared in earthen pens until turns to crablet(0.027 ± 0.005 g). The broods as well as crablet were identified through molecular barcoding and confirmed species as *Scylla olivacea*. Besides, morphometric characters like weight(126.22 ± 0.19 g), carapace length(6.36 ± 0.08 cm), carapace width(9.08 ± 0.08 cm), carapace color(brownish to brownish green), Anterolateral margin and teeth (3.79 ± 0.05 cm), abdomen length(3.04 ± 0.02 cm), hand (5.50 ± 0.03 cm), carpus(2.54 ± 0.04), antenna (2.69 ± 0.07), frontal margin(2.90 ± 0.07 cm), dactylus(3.13 ± 0.06 cm), thoracic sternites(4.17 ± 0.10), merus(4.16 ± 0.11 cm) etc. are also assessed during the experiment. The hatching rate, survival %, incubation period and other parameters are significantly different among the treatments. The highest hatching rate was observed in T2(91.34 ± 4.61 %) and lowest was in T1(57.98 ± 1.38) whereas the highest survival rate was recorded in T2(10.53 ± 1.56) and lowest observed in T1(2.87 ± 0.68). The order of incubation was T1(12.3 days) > T3(11 days) > T2(8.67days) observed during experiment. The cannibalism rate was also estimated in this experiment and observed cannibalism rate was 71.20 ± 2.08. Natural mud crab breeding is easy and can be applicable in fields at low cost with significant survival rate.

1. Introduction

Global aquaculture is growing at nearly twice the rate of capture [11] but mud crab aquaculture is growing very slowly. The crablet or

crabs are collected from the wild for grow-out or fattening has most likely been practiced for hundreds of years, inland conventional hatchery production of mud crabs is a relatively new invention, with the majority of research and development taking place in the last few

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