Effects of Water pH and Alkalinity on the Survival Rates and Growth of Young Mangrove Crab (*Sesarma mederi* H. Milne Edward, 1854)

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Abstract

The effects of water pH and alkalinity on the survival rates and growth of young mangrove crab (*Sesarma mederi* H. Milne Edward, 1854) were investigated by performing two experiments. Each experiment comprised 2 sub-experiments. Completely Randomized Design (CRD) was used for the experimentation. Each sub-experiment was divided into 3 treatments with 3 replications. Analysis of Variance was employed for data analysis. Means of the survival rates and size of crab from each treatment were compared by using Duncan 's New Multiple Range Test at 95% level of confidence.

Experiment I, rearing mangrove crab from zoea I to 10 days old-crab stage in water with different pH by performing 2 sub-experiment. Sub-experiment 1, the crab larvae reared in pH 8.0 of water produced the average survival rate (7.65±0.38%) significantly higher than those in pH 7.0 (3.58±0.58%) and 9.0 of water (0%) (P<0.05). Sub-experiment 2, the crab larvae reared in pH 8.0 of water (13.27±0.51%) was significantly higher than those in pH 8.5 (10.65±0.33%) and 7.5 (4.87±0.05%) of water (P<0.05). Besides, the crab larvae reared in pH 7.5 of water produced the average carapace width and carapace length significantly larger than those in water pH 8.0 and 8.5 (P<0.05).

Experiment II, rearing mangrove crab in water with different alkalinity were performed by which crab from zoea I to 10 days old-crab stage was used in sub-experiment 1 and crab from 10 days old-crab to 40 days old-crab in sub-experiment 2. Sub-experiment 1, the average survival rates of crab larvae reared in water with alkalinity of 100, 150 and 200 milligram per liter were 20.63±6.37, 19.27±1.60 and 16.92±2.06%, respectively which had no significant differences (P>0.05). The average size of crab larvae in water with alkalinity 150 milligram per liter was significantly larger than those in water with alkalinity 100 and 200 milligram per liter (P<0.05). Sub-experiment 2, the crab larvae reared in alkalinity 100 milligram per liter of water produced the average survival rate (68.27±4.89%) which was significantly higher than those in water with alkalinity 150 (45.72±7.20%) and 200 milligram per liter (45.04±1.92%) (P<0.05). Besides, the crab larvae reared in alkalinity 150 and 200 milligram per liter of water produced the average carapace width and length which was significantly higher than those in water with alkalinity 100 milligram per liter (P<0.05).

Key words: Mangrove Crab, pH, Alkalinity, Survival Rates, Growth

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