

THE EFFECT OF COMMON TABLE SALT ADDED IN DIFFERENT LEVELS
OF WATER SALINITY AS CULTURE MEDIUM ON GROWTH AND
SURVIVAL OF PRAWN LARVAE
Penaeus monodon Fabricius

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ABSTRACT

A study was conducted on the effect of common table salt added in waters of different salinity levels used to determine the survival rate, developmental stage, and carapace length of Penaeus monodon larvae from zoea one to post larva one. The following treatments which were adjusted to 33 ppt by adding varying amount of common table salt were: treatment I (8 ppt + 29 g/l), treatment II (13 ppt + 23 g/l), treatment III (18 ppt + 17 g/l), treatment IV (23 ppt + 11 g/l), and treatment V (28 ppt + 5/g). Natural seawater with salinity of 33 ppt was used as control. Certain key ions like Na^+ , Cl^- , Ca^{2+} , and Mg^{2+} were analyzed in each treatment.

A sharp drop of population in all treatments was recorded in the first 5 days of the zoeal stage. Treatment V gave the highest survival rate (25%), but not significantly higher than treatment IV (20.5%) and control (18%); however, significantly higher than treatment III (10.5%) and treatment II (6.5%) at $P < 0.05$. None of the larvae survived in treatment I after 5 days.

Larvae exposed to treatment V had completed post larva one in 11 days (growth index 7). This was not significantly different, however, from those obtained from the control (growth index 6.6) and treatment IV (growth index 6.3). The lowest growth index value which was significantly lower than treatment V was obtained from treatment II and treatment III (growth index 6.0).

During the first sampling, carapace length in treatment I reached 0.47 mm, succeeded by the following treatments: III (0.43 mm), II (0.42 mm), and V (0.40 mm). Treatment IV and control gave similar results (0.30 mm). After 2 days, rate of increase of CL had shifted from lower to high ionic concentrations culture media. At the end of the study the following carapace lengths were obtained: 1.2 mm for treatment V, 1.15 mm for control, and 1.08 mm for treatment IV. Values obtained from treatment II (0.94 mm) and treatment III (0.98 mm) were significantly lower than treatment V (1.15 mm).

Rearing waters with higher concentrations of K^+ and Mg^{2+} (control, treatments I, and II) showed better growth rate and percent survival than those media with relatively lower concentrations (treatments III, II, and III). The addition of common table salt to low saline waters, however, did not compensate for the loss of physiologically important ions needed for growth and survival of prawn larvae.