

Charinthip Channakorn 2012: Effect of Temperature and Salinity on Survival Rate, Hatching Percentage and Phenoloxidase Activity in Brine Shrimp (*Artemia* sp.). Master of Science (Marine Science), Major Field: Marine Science, Department of Marine Science. Thesis Advisor: Assistant Professor Jintana Salaenoi, Ph.D. 135 pages.

Effect of temperature and salinity on survival rate, hatching percentage and phenoloxidase activity in brine shrimp (*Artemia* sp.) were investigated in this study. Four levels of temperature (20, 25, 30 and 35°C) and three levels of salinity (25, 35 and 50 psu) were determined. Control condition was assigned at 30°C and 30 psu salinity. It was found that the fastest development period into breaking stage was 5 hours at 35 °C and 25 psu and the fastest period from breaking stage to the embryo was 10 hours at 35 °C and 30- 35 psu. Development from embryo to Instar I took 13 hours at 35 °C and 25 psu. The lowest hatching percentage (40.28 ± 0.56 percent) was found at 35 °C and 50 psu salinity while the highest hatching percentage (80.15 ± 0.22 percent) was at 30 °C and 25 psu. High survival rate was found at 30°C with 25 and 35 psu salinity after 24 hours. The highest survival rate was 99.48 ± 0.16 percent at 25 °C and 25 psu while the lowest survival rate was 69.34 ± 2.22 percent at 25°C and 35 psu salinity. Moreover, survival rate was gradually decreased over the time to 48 and 72 hours, respectively. The highest phenoloxidase activity of brine shrimp was 27.64 ± 0.19 units mg protein⁻¹ at 35 psu and 35 °C and phenoloxidase activity was lowest (8.86 ± 0.70 units mg protein⁻¹) at 35 psu and 20°C. The highest *Chlorella* sp. consumption rate was 9.95×10^5 cells/*Artemia*/h at 20 °C and 50 psu.

Student's signature

Thesis Advisor's signature