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Sub-lethal Ammonia Concentration (LC_{50}) for Pacific white shrimp (*Litopenaeus vannamei*) Post larvae at Different Salinities

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Abstract

Increased amount of Ammonia in water is one of the main problems in aquaculture that its effects and the effect size are still remained unknown. The present study aimed at determining the sub-lethal ammonia concentration at two salinity levels of 35 and 45 ppm for *Litopenaeus vannamei* larvae with mean weight of 3 ± 0.05 grams in laboratory conditions. The experiments were carried out in 7 treatments and 3 replicates with 210 *Litopenaeus vannamei* post larvae for each salinity using semi-static water method for 96 hours. Post larvae were exposed to various concentrations of total ammonia with zero values for the control group and 10, 20, 40, 60, 80, 100 mg / l of ammonia for other treatments, and then the behavioral changes and mortality rates were recorded every 24 hours. The sub-lethal concentration (LC_{50}) was only identified for 96 hours, which was 64.54 for salinity of 35 ppt and 73.64 for salinity of 45 ppt. According to the results obtained in this research, it can be argued that as ammonia concentration and exposure time are increased, ammonia toxicity to post larvae increases too, while increased salinity can enhance the tolerance of post larvae to ammonia toxicity. as a result, the LC_{50} value was higher at the salinity level of 45 ppt than at the salinity of 35 ppt.

Keywords: Toxicity, Salinity, *Litopenaeus vannamei*, Sub-lethal

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