Abstract

Ammonia oxidizing bacterial count in the bottom soil of black tiger shrimp pond in Prachuabkhirikhan province was studied in order to obtain the relationship between ammonia oxidizing bacteria and water and soil qualities. Soil samples were taken from sixteen black tiger shrimp ponds before culture and every month along the culture period. Ammonia oxidizing bacteria were enumerated during October 1998 - January 2001. Eight of the studied shrimp ponds were cultured in low salinity with the average of 6.3, 6.6, 6.8, 8.1, 8.2, 10.0, 10.33 and 13.25 ppt, respectively; the other group were cultured in normal salinity, with the average 20.3, 25.0, 27.8, 30.0, 31.5, 31.8, 31.8 and 35.0, respectively. The results showed that initial ammonium oxidizing bacterial number were \(4.63 \pm 4.86 \text{ log CFU/g of soil in wet weight of low salinity cultured. While compared to } 5.78 \pm 5.91 \text{ log CFU/g of soil in normal salinity. However, there is no significantly difference between these two groups of cultured pond. (} P>0.05)\)

The study on correlation showed no relationship between ammonium oxidizing bacterial number and culture periods (\( P>0.05 \)) but the study on correlation between ammonium oxidizing bacterial number and water and soil qualities in shrimp ponds showed low positive relationship with dissolved oxygen, BOD and pH (\( P<0.05 \)) (\( r=0.272, 0.260 \) and 0.288, respectively) while they showed moderately negative relationship with soil pH (\( P<0.01 \)) (\( r=-0.596 \)) and highly positive relationship with organic matter (\( P<0.01 \)) (\( r=0.813 \))

**Key words**: Ammonia oxidizing bacteria, shrimp pond, water quality, salinity, soil quality