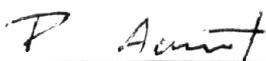
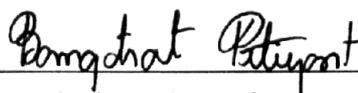


Petch Aunsaart 2007: Reduction of Ammonia and Nitrite by Using Bio-Extract to Increase Production of *Litopenaeus vannamei*. Master of Science (Sustainable Land Use and Natural Resource Management), Major Field: Sustainable Land Use and Natural Resource Management, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Bongotrat Pitiyont, Ph.D. 102 pages.

A study of ammonia and nitrite reduction in *Litopenaeus vannamei* culture was conducted in 15 m³ concrete ponds. The stocking density was 70 PL/m², culture period was 17 weeks and the two bio-extracts, namely, traditional bio-extract and modified bio-extract were used throughout this study. Completely Randomized Design was applied to test for ammonia and nitrite reduction in the three experimental ponds consisting of the control pond, traditional bio-extract treated ponds and modified bio-extract treated pond with three replications each. The results showed significant differences in ammonia and nitrite reduction efficiency between these bio-extracts at a 95% confidence level. Use of the modified bio-extract reduced ammonia and nitrite better than the others with average concentrations of 0.020 and 0.009 mg/l, respectively, the lowest among treated ponds were 0.030 and 0.012 mg/l, respectively. The control ponds, without bio-extract, had the highest average ammonia and nitrite concentrations of 0.048 and 0.020 mg/l, respectively. The average shrimp production of the ponds treated with modified bio-extract was the highest at 1,595.7 kg/rai with an average weight of 14.22 g and 83.3 % survival rate. By contrast, the average production of the ponds with traditional bio-extract and control ponds were 1,416.5 and 1,259.0 kg/rai, 13.11 and 13.97 g average weight, and 80.5 and 67.7 % survival rate, respectively. An average cost of materials for modified bio-extract and traditional bio-extract were found as 1.39 and 1.11 baht, respectively. The survey results revealed that farmers experienced with bio-extract were likely to use them to reduce ammonia and nitrite in shrimp ponds. The acceptable rate at which farmers adopted this technique was classified as of high, moderate, and low, equivalent to 66.7 %, 20.0 % and 13.0 % respectively.



Student's signature



Thesis Advisor's signature

22 / Oct / 2007