

Pirat Manjaiang 2009: Application of Vaccine to Prevent Disease Caused by *Streptococcus agalactiae* in Nile Tilapia (*Oreochromis niloticus* L.). Master of Science (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Associate Professor Nontawith Areechon, Ph.D. 87 pages.

Study on the application of formalin-killed *Streptococcus agalactiae* vaccine in Nile-tilapia (*Oreochromis niloticus*) with average weight of 51.33 ± 7.83 gm was conducted in the farm. Efficacy of single intraperitoneal injection and injection and boosted by oral vaccine were compared by antibody production and relative percent survival (RPS) within the four-month experimental period. After injection, all vaccinated fish developed significant level of serum antibody titer ($P < 0.05$), however, the boosted vaccination in the feed did not clearly enhance the titer when compared with the non-boosted fish. Challenge test by intraperitoneal injection of virulent *S. agalactiae* clearly indicated that all vaccinated fish had significantly lowered mortality rate than the control ($P < 0.05$) and the RPS values were high at two months after vaccination. At the end of the trial, vaccinated fish with oral vaccine at twice a month had RPS value at 92.3. This study clearly showed that vaccination by single injection and boosted by oral vaccine could induce good protection against pathogenic *S. agalactiae* throughout the culturing period of Nile tilapia.

Effective method of vaccination by immersion in tilapia fry with average weight of 0.26 gm was determined. Direct and hyperosmotic immersion were applied with the fish and challenged by immersion in virulent *S. agalactiae* at 14 and 28 days after vaccination to determine RPS value. All vaccinated fish of both methods did show better resistance against *S. agalactiae* than the control ($P < 0.05$), however, the RPS values of both methods did not appear to be much different. This study demonstrated that tilapia fry did show good response to vaccination by immersion method which should be applicable for the effective approach for the prevention of *S. agalactiae* infection.

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Thesis Advisor's signature

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