

Chompunut Kaewjairak 2011: Application of *Lactobacillus plantarum* LP64 as Probiotics for Immunostimulation in Giant Freshwater Prawn (*Macrobrachium rosenbergii*). Master of Science (Biotechnology), Major Field: Biotechnology, Department of Biotechnology. Thesis Advisor: Associate Professor Mangkorn Rodprapakorn, Ph.D. 90 pages.

Application of *Lactobacillus plantarum* LP64 as probiotics for giant freshwater prawn (*Macrobrachium rosenbergii*) was investigated. The viability study at 4°C showed this strain could alive for 30 days while cells which were mixed into commercial feed for giant freshwater prawn alived only 3 days. Effect of feeding *L. plantarum* LP64 as probiotics on growth and survival during the 60 days of feeding experiment was studied. The result showed that growth rate and survival rate of prawns between control and probiotics-supplemented feed treatments were not significantly different ($p>0.05$). However, growth rate and survival rate of prawns supplemented with probiotics showed tendency to increase especially at ratio 1:3 (v/w) which showed the highest result. The optimum probiotics ratio and supplement (period and pattern) for immunostimulation of prawn during the 60 days of feeding experiment were also investigated. There were significantly different in the total hematocyte count, phenoloxidase activity, phagocytic activity and antibactericidal activity among all treatments. It was found that prawns which were fed with probiotics-supplemented feed at ratio 1.5:3 (v/w) everyday have higher immune levels than prawns of other treatments and control. Moreover, the number of lactic acid bacteria in intestine of prawns of this treatment was also significantly higher than another treatments and control ($p<0.01$).

Student's signature

Thesis Advisor's signature