Nattakul Yaemsooksawat 2009: Effect of Low Protein Diet on Growth and Immunity of *Litopenaeus vannamei* (Boone, 1931). Master of Science (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Associate Professor Orapint Jintasataporn, Ph.D. 87 pages.

This experiment was conducted to determine the effects of low protein diets on growth performance and immune response of pacific white shrimp (*Litopenaeus vannamei*). The diets of 36, 32, 28 and 24% crude protein (CP) was fed to shrimp on 51-100 day of culture periods. In an outdoor pond trial, *L. vannamei* postlarvae with average weight of 2.3 mg were stocked into 50 m^2 earthen pond lining with black polyethylene plastic (PE) at density of 100 shrimp $pond^{-1}$ later on reared for 100 days. The experiment was set up for four treatments, treatment 1: shrimp were fed diet of 36%CP throughout the culture period and the others, shrimp were fed diet of 36%CP only first 50 days, after that switched to diet of 32, 28 and 24%CP until harvest for treatment 2, 3 and 4 respectively. At the end of trial, weight gain, average daily gain, survival rate and specific growth rate of shrimps were not affect by treatment ($p>0.05$). However, the production of shrimp from treatment 2 (32%CP) was highest and closed to production of treatment 3 (28%CP) but production of treatment 1 and 4 were significantly lower ($p\leq0.05$) with treatment 2 (32%CP). Based on feed utilization, protein efficiency ratio and protein retention of treatment 1 was significant lower than treatment 3 and 4. The immune response in term of total hemocyte count (THC) and the production of superoxide anion (SO), also known as respiratory burst activity, on day 60 and 100 of culture were not significant differences ($p>0.05$). Therefore low protein diets of 28% can be fed for *L. vannamei*, after 50 cultured days or over 7.5 g, without any adverse affected on growth performance and immune response.

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