

Influences of Cultivation Conditions on Microbial Profiles of Pacific White Shrimp (*Litopenaeus vannamei*) Harvested from Eastern and Central Thailand*

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ABSTRACT

*This study investigated influences of cultivation conditions on microbial profiles of Pacific White Shrimp (*Litopenaeus vannamei*) from three different cultivation environments: location, season and cultivation system (sanitation control farm and semi-natural farm). The first shrimp samples were collected from a sanitation control farm in Rayong (Eastern Thailand) in January 2011 (S1). Average temperature of water in the ponds was 27.1 ± 0.2 °C with salinity 22.8 ± 2.5 ‰ and pH 8.50 ± 0.16 . After harvesting, the samples were immediately shocked by ice before subjecting to microbiological analysis. Under these conditions, total plate counts (TPCs) of shrimps were generally below 4.00 Log CFU/g. *Vibrio* spp. was observed in 25 g of all samples. *Vibrio parahaemolyticus* was observed in terms of most probable number (MPN) values ranging from 3.6 to 11 MPN/g. The second shrimp samples were collected from the same farm in June 2011 (S2). Average temperature and salinity of waters were significantly higher than S1 (30.6 ± 2.1 °C and 30.4 ± 0.4 ‰, respectively), whereas pH value was not significantly different (8.37 ± 0.17). The TPCs and occurrence of *Vibrio* spp. of this batch were also similar to S1, whereas MPN values of *V. parahaemolyticus* were significantly higher (240 to >1100 MPN/g). The third shrimp samples were collected from a semi-natural farm in Samut Songkram (Central Thailand) in August 2011 (S3). In this farm, salinity was dramatically lower than the sanitation control farms (0.6 ± 0.5 ‰), whereas the temperature and pH value were relatively similar (29.1 ± 0.3 °C and 8.27 ± 0.27 , respectively). TPCs observed were significantly higher than the control system farms (5.14 to 5.86 Log CFU/g). *Vibrio* spp. was detected in all samples. Interestingly, MPN values of *Vibrio parahaemolyticus* were significantly lower than the first two samples (<0.3 to 3.6). According to the results, microbial load on shrimp could*

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