

Thesis Title Difference in Biochemical Characteristics, Serovars, and Hemolysins among Isolates of *Vibrio parahaemolyticus* from Individual Raw Seafood Samples

Name Paviga Limuthaitip

Degree Master of Science (Public Health)
 major in Infectious Diseases

Thesis Supervisory Committee

 Orasa Suthienkul, M.S. (Microbiol.)

 Boonchuay Eampokalap, M.Sc. (Trop. Med.)

 Suvanee Supavej, Docteur de l' Universite' Louis Pasteur

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ABSTRACT

The study on the differences in biochemical characteristics, serovar and hemolysins among 10 isolates per individual raw seafood samples was carried out in four types of 200 raw seafood samples purchased from local markets in Bangkok, during May to October, 1994. It was found that 155 of 200 (78%) raw seafood samples were contaminated with *Vibrio parahaemolyticus*. Mussel was found to be the most contaminated seafood (100% ; 53/53) and salted mangrove crab was least contaminated (28% ; 11/40). Typable *V. parahaemolyticus* isolates were found in all of the 13 O groups. O3 was the dominant O group found in this study (21.1% ; 211/1,000). Only 4% of samples had the same O group of *V. parahaemolyticus* in all 10 isolates per individual raw seafood samples and 96% had 2 to 7 O groups in 10 isolates per individual raw seafood samples in different ratios.

The study of biochemical reactions showed that the 1,000 *V. parahaemolyticus* isolates were distributed in only 2 Heiberg's types, 76% (756/1,000) of *V. parahaemolyticus* isolates were Heiberg's type VII, and 24% (244/1,000) were type V. Only 7 (0.7%) of *V. parahaemolyticus* isolates were urease positive. *V. parahaemolyticus* showing the positive indole production in all 10 isolates per individual raw seafood samples were found in 99%, growth in peptone water with 6% NaCl in 96%, with 8% NaCl in 53%, arabinose fermentation in 2%. Those showing different ratios of positive and negative reaction in arabinose fermentation, growth in peptone with 8% NaCl, 6% NaCl, urease production, indole production in 10 isolates per individual raw seafood samples were found 98%, 47%, 4%, 2% and 1%, respectively. It was found that 94.7% of isolates were resistant to ampicillin but were sensitive to the other 6 antimicrobial agents tested.

All isolates did not produce hemolysin activity by the modified Elek test. Only one sample (1%) or one isolate (0.1% ; 1/1,000) were positive for the *tdh* gene (*tdh*⁺) while the other were negative reaction to both *tdh* and *trh* genes (*tdh*⁻, *trh*⁻) by DNA hybridization test kit. A total of 7 (0.7%; 7/1,000) isolates with urease positive were further confirmed for the hemolysins production and their genes. The isolate of urease positive *V. parahaemolyticus* that showed the positivity for *tdh* gene by DNA hybridization test kit was positive for the *tdh* and *trh* genes by PCR and TDH by ELISA. The other 6 urease positive isolates that did not possess the *tdh* and *trh* gene detected by DNA hybridization were positive for the *trh* gene by PCR technique.