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CHEUNJIT JUNWATTANAWONG : RAPID METHOD FOR ESTIMATION OF TOTAL NUMBER OF CATALASE PRODUCING BACTERIA IN FRESH BLACK TIGER PRAWN Penaeus monodon Fabricius. THESIS ADVISOR : ROMANEE SANGUANDEEKUL, Ph.D., THESIS CO-ADVISOR : SUWIMON KEERATIPIBUL, Ph.D. 144 pp.
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The rapid methods for estimation of the total number of bacteria in fresh black tiger prawn were devloped by detecting activity of enzyme catalase. The method were assessed in 2 ways by using Catalasemeter constructed in this project and Gas column method. Two detecting systems were tested in Catalasemeter using filter membrane system and paper disk system. The bacterial catalase was separated from the prawn's tissue by rinse method. Catalasemeter method was able to detect commercial catalase (Microcatalase®) at the level between 10^{-1} to 10^{2} International Units.ml^{-1}. Paper disk Catalasemeter was able to detect activity of catalase in Pseudomonas fluorescens between 10^{4} to 10^{8} CFU.ml^{-1}, while Filter membrane Catalasemeter method could detect activity of catalase only at 10^{8} CFU.ml^{-1}. For Gas column method, detection level of pure catalase and catalase from Pseudomonas fluorescens were 10^{-2} to 10 International Units.ml^{-1} and 10^{5} to 10^{7} CFU.ml^{-1} respectively. Using paper disk Catalasemeter, the total number of bacteria of fresh black tiger prawns from Nakon Si Thammarat, Rayong and Surat Thani were estimated to be in between 10^{4} to 10^{9} CFU.g^{-1}. Which is not significantly different at $P \leq 0.05$. Identification of predominant bacteria was found to be those which give strong catalase activity (+++). Mixtures of strong (+++) and weak catalase (++ or +) producing bacteria at ratio of 2:1 gave the same catalase activity as the strong catalase positive bacteria (+++). Predominant bacteria of black tiger prawn from Rayong was the genus Micrococcus, whereas predominant bacteria from Nakon Si Thammarat and Surat Thani was the genus Acinetobacter. Both genera are strong catalase positive.

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