

The optimal growth condition of biofilm formed by *Vibrio parahaemolyticus* and its relationship with cross contamination

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Outline

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Abstract

Seafood is getting more and more attention all around the world. However, pathogens from seafood will cause health threat to human beings. In Taiwan, the most common pathogen is *Vibrio parahaemolyticus*, which cause the most food poisoning cases in Taiwan. Furthermore, many bacteria can form biofilm, which can protect microorganism from outside stress, therefore make it hard to be removed. Some studies have found that there's relation between biofilm and cross contamination, which is another source of food poisoning. This study aims to investigate the optimal condition of biofilm formed by *V. parahaemolyticus* and its relationship with cross contamination. After knowing the optimal condition of biofilm forming condition, the biofilm growth curve will be tested, and the study will try to understand its distribution during the biofilm forming process by using confocal laser scanning microscopy (CLSM) and scanning electron microscopy (SEM). Last, cross contamination will be simulated during fish fillet processing, including the forming of *V. parahaemolyticus* biofilm, which will be used as model building. Results showed that the optimal condition for *V. parahaemolyticus* to form maximum biofilm is at pH 8.18, NaCl 4.68% and 26°C. In the biofilm forming growth curve, results showed that the initial adherent bacteria count is 4.02 log CFU/coupon. During incubation, biofilm reached the maximum counts of approximate 7.50 log CFU/coupon at 24 hours. At 48 and 72 hours, it remains around 7.50 log CFU/coupon. Therefore, in the further experiment, 24 hours will be used as the time for *V. parahaemolyticus* to form biofilm. In the future, the study will continue on the optimal condition of biofilm forming on PP material and its growth process. After that, the cross contamination will be simulated and the model will be built.

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