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Study on *Vibrio parahaemolyticus*, Halophilic Food-Poisoning Bacterium, in Salted Food

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Summary

In Japan, there was salted food called “hishio” for a long time ago. The salted food came from China through Korea in old days. There were three types of the salted food. The salted food called “shishi-bishio” was made by meat and seafood. This type of the salted food is the origin of “shiokara”. The most popular “shiokara” is salted cuttlefish in Japan. It occupies approximately 80 % of “shiokara”. Many Japanese consumers like low salinity rather than high salinity for the salted food now. The large food-poisoning outbreak by *Vibrio parahaemolyticus* occurred in eastern area of Japan on 2007. The cause of this food-poisoning outbreak was low-salted cuttlefish produced by seafood processing company in Tohoku area. *Vibrio parahaemolytucus* infection is caused by consumption of raw or partially cooked seafood. The major virulent factors of *V. parahaemolyticus* are thermostable direct hemolysin (TDH) and TDH-related hemolysin (TRH). The virulent strain of *V. parahaemolyticus* has one or both virulent genes. The population of the virulent strain of *V. parahaemolyticus* is less than 1 % of total *V. parahaemolyticus* in environmental condition. The purpose of this study is to clarify contamination and growth of bacteria and *V. parahaemolyticus* in the salted foods.

The 11 products of 8 kinds for tested salted foods were collected from supermarket near laboratory. The salt concentration and water activity of these salted foods were evaluated. The 7 products is low salinity (3 to 6 %) and 4 products is high salinity (over 10 %). The water activity (Aw) for products of low salinity and high salinity was 0.84 to 0.91 Aw and 0.77 to 0.83 Aw, respectively. The products of low salinity are high water activity and these of high salinity are low water activity. The numbers of bacteria in the salted foods of low salinity increased than 100 times after 48 hours at 25°C. The contamination of *V. parahaemolyticus* for all products of the salted food collected from the market was not detected. *V. parahaemolyticus* could not be recovered in the all salted foods after 6 hours of inoculation of *V. parahaemolyticus*.

The salted foods of low salinity that are purchased in supermarket have high level of water activity. The increase of bacteria in them happens drastically. Bacteria in the salted food of high salinity were constant. There was no contamination of *V. parahaemolyticus* in the all salted food of this study. *V. parahaemolyticus* cannot survive in them. The manufactures for seafood processing have to pay attention to low salinity and high water activity in the salted food.