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The availability of using deep-seawater as an alternative of curing solution in processing meat products

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Deep-seawater (DSW) contains several minerals beneficial for human bodies. The effect of DSW has been known to improve specific immune functions. The beneficial effects of DSW suggest that it could be used for development of new health functional foods. The purpose of this study was to evaluate the inhibitory effect of DSW on bacterial survival and microbiological food safety of meat products processed with DSW. The concentration of salt in the Concentrated DSW (CDSW) was measured as 5.6% which is similar to the concentration of salt in the conventional curing solution. Bacterial killing activity was measured against three foodborne pathogens (*E. coli*, *Salmonella Typhimurium* DT104 and *S. enteritis*) by incubating the bacteria in CDSW or 0.85% saline (control) at 4 °C and measuring viable bacteria after 24 hours and 72 hours. Two different pork sausages were produced using traditional curing solution and CDSW as an alternative, respectively. Bacterial contamination in the sausages was measured at days 0, 10 and 40 post-production. The bacterial survival in CDSW and control saline was assessed by measuring Colony Forming Unit (CFU) at different time points. The survival rates of three tested bacteria were more rapidly decreased in CDSW than in control solution until 72 hours post-incubation. In the bacterial contamination study, no bacteria was detected in either of traditional or CDSW sausages until 40 days after production. DSW showed some degree of bacterial killing activity and pork sausages made with DSW had kept sterile condition up to 40 days after post-production which is the recommended expiration date of pork sausages. The result indicates DSW could be used for an alternative curing solution in processing meat products to develop new health functional foods.

Biography

Jae Hee Kim has completed DVM course in 2016 and has passion in research. She is interested to study about hygiene of food related to animal industry, such as meat products and milk and causative agents of zoonosis. She is currently enrolled in PhD program in the Department of Veterinary Microbiology at Seoul National University, South Korea.

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