

JIRAPORN RUNGLERDKRIANGKRAI : EFFECTS OF NITRITE ON Clostridium sporogenes (ATCC 7955, PA 3679) IN SHELF STABLE CANNED HAM. THESIS ADVISOR : ASSI. PROF.PANTIPA JANTAWAT,Ph.D. THESIS COADVISOR : ASSO. PROF.CHAİYUT THUNPITHAYAKUL,Ph.D. 84 PP.

This experiment was to develop formula and process for high quality pressed ham and to study the effects of nitrite on Clostridium sporogenes (ATCC 7955, PA 3679) in shelf stable canned ham.

The experimental result revealed that pressed ham containing 2.0 and 2.5% salt were rated "liked moderately to like very much" and were not significantly different. The 2.5% salt level was then selected to produce canned ham by using size 307x113 can and sterile 110°C. The overall acceptability scores of the canned samples, sterilized at F₀ 1.49 and 1.07 mins., were not significantly different and in the range of like slightly to like moderately. Ham after smoking, had 10⁴-10⁷ counts/gram of the total bacteria and lower than 3 -4 MPN/gram of the putrefactive anaerobic bacterial spore. After sterilization at either the F₀ 1.49 or 1.07 mins., quality of the noninoculated canned ham were: vacuum 3.5-6.1 inch. mercury, filling weight 163-202 grams, net weight 136-173 grams, pH 5.63-5.80, seam overlap 52-58% and none of microorganisms was detected in the sample containing 125 ppm. nitrite. Added nitrite and storage time had significant effect on residual nitrites. Samples stored for 1 and 3 days had significantly higher residual nitrite than those stored for 6, 11, 17, 24 and 31 days. Samples processed with 0, 125 and 200 ppm. of the added nitrites had lower residual nitrite than those formulated with 300 and 400 ppm. nitrites and no significant difference could be observed between the 200 and 300 ppm. of the added nitrites. After 4 months storage, the nitrosamine level found was not higher than the safety limit margin. For the inoculated samples, in which PA 3679 spores at 7.6x10⁸ spores/can and after sterilization at F₀ 1.27 mins., interaction of storage time and added nitrite significantly affected the number of can swollen. Decrease in added nitrite level and increase in storage time resulted in increase of the swell rate. Time of first swell increased at higher added nitrite levels. Inhibition of swollen can at 0, 125, 200, 300 and 400 ppm. was 0, 8, 16, 8 and 52% respectively. At 400 ppm. added nitrite, sensory scores of canned ham stored for 5 months was not significantly different from that freshly processed. The proximate composition of the sample found was 63.47-66.23% moisture, 18.42-20.34% protein, 7.79-12.08% fat, 3.34-3.40% ash, 2.26-2.48% sodium chloride and 0.74-0.75% phosphate as P₂O₅.