

CHAPTER V



CONCLUSION

5.1 CONCLUSION

The CCSB processing was developed to produce the shelf-stable product using hurdle technology. For custard cream filling, the optimum levels of humectants were 6% glycerol and 6% fructose which resulted in reduction of a_w from 0.958 to 0.915 and the highest sensory score of 7.38, 7.18, and 7.38 for sweetness, texture, and overall acceptance, respectively. For bun, the addition of 2.5% glycerol and 0.25% lactic acid could reduce a_w and pH of Chinese steamed bun to 0.912 and 5.78, respectively, and the sensory qualities were not significantly different from the control ($p>0.05$). From microbiological test, this treated bun could be stored for at least 16 days at $30\pm 2^\circ\text{C}$ without preservative, while controlled Chinese steamed bun could be stored for only 4 days. However, the hardness and gumminess of this treated bun increased during storage led to unacceptable from panelists after 8 days. The hurdled treated custard cream filled Chinese steamed bun with oxygen absorber in PVDC packaging could be stored for at least 10 days at $30\pm 2^\circ\text{C}$ without microbial spoilage. But after storage for 8 days, the texture was unacceptable. The verification test was done by using all of chosen hurdle from the previous studies and found that the result from verification test was not significantly different.

Therefore, from the microbiological and textural viewpoints, it is possible to extend the shelf-life of custard cream filled Chinese steamed bun from 3 days to at least 8 days at $30 \pm 2^\circ\text{C}$ using hurdle technology by lowering the a_w of custard cream with 6% glycerol and fructose each and a_w and pH of bun with 2.5% glycerol and 0.25% lactic acid and packing with OA in PVDC pouch. The overall cost of the production was 5.03 baths per each bun. This develop process can be used for commercial processing.

5.2 SUGGESTIONS

To extend the storage life to 10 days, the texture must be improved. It could be observed that panelists did not accept the product after 8 days storage, when physical and chemical properties of the product were changed, therefore application of hydrocolloid (gum) may be used to retard the physical and chemical deterioration. This application should be further investigated.