PRELIMINARY STUDY ON MICROBIAL CONTAMINATION OF BACON AND IT'S BY PRODUCT

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ABSTRACT

Bacon is a type of processed meat produced from the sides, belly or back of a pig. Microbial count of the final product is increased due to various kinds of contamination sources leading to rejection of the product and causing possible health hazards. This study was conducted to determine the microbial contamination sources under current process of bacon production and to increase the final quality of the product by minimizing the contaminations. Meat samples collected at eight different stages of the processing line; slaughtering, chilling, deboning, brine injection, smoking, freezing, bacon slicing and bacon ends slicing and samples were examined microbiologically for *E. coli* and *S. aureus*. Further, swab samples were collected from deboning table, cutting board, needle of curing machine, crates/bucket, slicer blade, conveyer of slicer and table surfaces for the microbiological examination for *E. coli* and *S. aureus*. After identification of possible contamination sources, workers were advised on proper cleaning and sanitizing of the equipment and contact surfaces, use of freshly prepared ingredients/brine solution for curing purpose and maintenance of proper storage conditions of the raw and processed meat for the prevention of microbial contamination. Same sampling procedure was followed for microbiological evaluation after practicing the above hygienic measures in the processing line. Data were analyzed by two-sample t-test using MINITAB 14 statistical software. Microbial loads of *E. coli* and *S. aureus* at slaughtering stage, deboned meat, chilled meat and cured meat were found above standard limits. Microbial count in equipment surfaces were found below the acceptable standard values, and accordance with the microbiological limits that are referred under SLS specifications. After practicing hygienic measures in the production line of bacon, microbial counts were reduced significantly compared to the previous microbial counts ($P<0.05$). Microbial loads of *E. coli and S. aureus* in all the examined processing stages were lower than the standard. It was identified that poor hygienic conditions and working practices of the handlers is one of the most possible reason for poor microbial quality. In conclusion it can be stated that adherence to proper hygienic measures can reduce the microbial count to acceptable level.

Key words: Microbial contamination, Bacon and bacon ends, Hygiene, Quality