

ABSTRACT

Bacteriological aspects of chicken processed in Jamaica were studied. The effect of processing techniques on the number of bacteria on chicken from the largest processing plant (Jamaica Broilers) was investigated with reference to international standards. Microbial numbers, temperature and total organic matter content of selected washing tanks were examined. The number of bacteria on the hands of the workers and the final temperature of the carcasses after packaging and before freezing were also determined. Bacterial counts on the Jamaica Broilers chickens were compared with those of chickens from a smaller processing plant.

Bacterial numbers on chickens sampled at retail outlets were also investigated and found to differ significantly from those on chicken sampled at the processing plant. Microbial examination of the delivery trucks, and observation of the hygienic condition of the outlets were conducted. The question of whether the transport system or condition of the retail outlets was the major factor responsible for the increase, was discussed. A correlation was found between the level of hygiene of the outlets and the number of bacteria on retail chickens.

The shelf life and dynamics of the microbial population of chicken during storage at 4°C was examined. Chicken purchased at a retail outlet was stored at 4°C and rinsed in 0.1% peptone every 48 hours. The number of bacteria per ml of rinse water was determined.

A total of 50 to 100 organisms were isolated and purified from total count plates of each sample day. Preliminary identification was by the method of Shewan et al. (1960) with confirmation by further biochemical tests. Pseudomonas species were found to be the major group of spoilage bacteria.

Pseudomonas isolates were classified into different biochemical groups which were shown to undergo changes in distribution during storage. They were also characterised by their intrinsic antibiotic resistance patterns. While all the isolates were found to be resistant to penicillin and ampicillin, only 28% displayed high resistance to one or more of six other antibiotics tested.

This investigation of bacteriological conditions of chicken processed in Jamaica is a pioneer effort. Nevertheless, it has provided sufficient information for the compilation of recommendations which may help to improve the microbial quality of chickens, with consequent increase in the shelf life. This study may also be useful to other Caribbean islands in which the conditions of processing, transportation and retail handling of chickens are similar.