

THE EFFECT OF BLAST FREEZING ON *Escherichia coli* IN SKINLESS CHICKEN SAUSAGES

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Sausage industry is one of the rapidly developing industries in Sri Lanka. Sausage has a great demand among the comminuted meat products and is used to store at the frozen condition under the -18 °C. The present study was conducted to find out the blast freezing effect on *E. coli* on the skinless chicken sausages under vacuumed packed condition.

Skinless chicken sausage samples were steamed at 85 °C to eliminate the total *E. coli* at the beginning. Three dilution series of *E. coli* pure culture was prepared as (10-100), (100-1000), (>1000). Sausage samples were inoculated from the dilution series of *E. coli* and vacuumed packed. Samples were blast frozen for eight hours and transferred to the production freezer until it was tested for *E. coli*. Sausage samples were examined just after blast freezing, after two days, a week, two weeks, three weeks, and four weeks of blast freezing. The temperature and pH were in 28 °C and 6.5 respectively. Complete Randomized Design (CRD) was used as experimental lay out. The data were analyzed using the software package Statistical Analysis System (SAS) to compare the mean value of different initial counts of *E. coli* and to find out the effect of the freezing time with initial count of *E. coli*.

The effect of *E. coli* initial count (10-100), (100-1000) and (>1000) at the blast freezing condition did not show the significant effect ($p>0.05$) on the reduction of bacterial count with the freezing time. However, there was a significant effect ($p<0.05$) on the difference between initial count of *E. coli* and final count of *E. coli* after time series of freezing. The initial count of *E. coli* (>1000) and (10-100) showed the highest and lowest effect on *E. coli* cell reduction rate respectively. Initial count of *E. coli* (100-1000) had a higher effect than (10-100) initial count of *E. coli*. Finally, it can be concluded that *E. coli* count at frozen skinless chicken sausage samples did not reduce with the time. *E. coli* in the frozen condition has ability to overcome the unfavorable environmental conditions.

Key words: Blast Freezing, *Escherichia coli*, Skinless chicken sausage, Vacuumed package