Research Notes

Arm & Hammer Animal and Food Production

AviBrom effectively reduced bacteria on turkey parts when used as part of a multi-hurdle, multi-technology approach.

STUDY OVERVIEW

A study[1] was conducted to evaluate the broad-spectrum antimicrobial efficacy of AviBrom™ spray on parts used for ground turkey when applied as part of a multi-hurdle approach. Turkey parts were treated in a commercial spray application using AviBrom (350 ppm) followed by peracetic acid (PAA, 1100 ppm) in a COPE unit for 11-15 seconds as part of the normal daily operations to determine reductions in aerobic plate counts (APC) and Enterobacteriaceae (EB) from the multi-hurdle, multi-technology treatment process.

Comparisons of the results were determined prior to and post-treatment (AviBrom spray followed by PAA in the COPE chiller). Samples were collected using the USDA FSIS parts methodology over a two-day period and represent four production batches (4 samples per batch and location; 16 each pre- and post-). The data were analyzed using a mixed effects censored regression model with maximum likelihood used for estimation. The censored regression model used the observed values plus results below the limit of quantification (QL = 1 cfu/g) to estimate averages.

RESULTS

Results for APC and EB (Log10 CFU/g) reductions are shown below (Table 1).

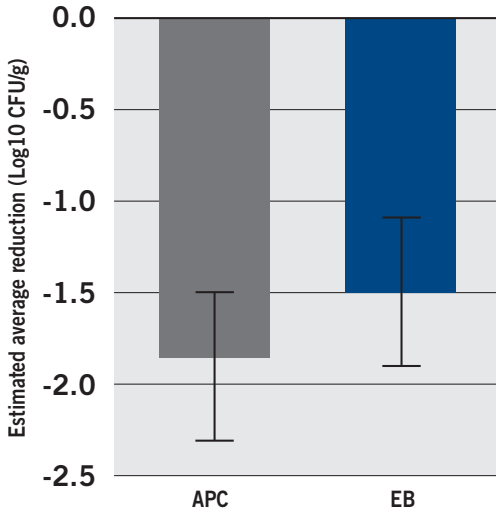
TABLE 1 Summary of APCs and EBs for turkey part rinses by replicate and timing.

Replicate	Pre-treatment Control (Log10 CFU/g)		Post-treatment (Log10 CFU/g)	
	Mean	Below QL (%)	Mean	Below QL (%)
APCs				
R1	2.22	0%	0.27	0%
R2	2.27	0%	0.44	0%
R3	2.25	0%	0.51	25%
R4	1.98	0%	0.31	50%
EBs				
R1	1.47	0%	0.00	50%
R2	1.00	0%	0.00	75%
R3	1.17	0%	0.00	100%
R4	1.09	0%	0.23	75%

Results for the average APC and EB (Log10 CFU/g) reductions in parts rinses are shown in Fig. 1.

- The estimated average decrease in APC from pre- to post-treatment was 1.86 CFU/g ($P<0.001$); 95% CI: 1.48-2.25 decrease).
- The estimated average decrease in EB was 1.49 CFU/g ($P<0.001$; 95% CI: 1.12-1.86 decrease).

FIGURE 1: APC and EB reductions.



CONCLUSION

In this trial, significant reductions were observed in both APC and EB on turkey parts treated with AviBrom™ spray followed by PAA in the COPE unit. The findings suggest that this combination of AviBrom followed by PAA may be an effective multi-hurdle, multi-technology process to significantly reduce APC and EB counts and improve quality of turkey parts.

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1 AviBrom+PAA Validation on Combo Parts. ARM & HAMMER, 2020. Study report and data on file.