

EVALUATION OF EXOGENOUS PLANT BASED ENZYMES IN A LOW-COST FOODSERVICE BEEF MODEL

Tylan Peckman

Dr. Bryon R. Wiegand, Thesis Supervisor

ABSTRACT

Choice beef hanging tenders (n=32) were randomly assigned to 1 of 4 treatments; control, antioxidant, enzyme (Bromelain), and antioxidant+enzyme. The enzyme treatment consisted of a 15% pump of a quarter concentration of the manufacturers labeled recommendation. Samples were injected, placed in a vacuum bag, and stored at 4°C for 3 days. Samples were evaluated for Slice Shear Force (SSF), Myofibrillar Fragmentation Index (MFI), lipid oxidation, cook loss, and sensory panel evaluation. All treatment groups had a greater amount of cook loss ($P = 0.0098$) over the control group with the antioxidant+enzyme group yielding the highest percent cook loss. Samples from the enzyme treatments yielded lower SSF values ($P = <0.0001$) compared to samples from treatments not containing the enzyme. Myofibrillar fragmentation was the greatest in treatment groups containing the enzyme ($P = <0.0001$) over the control and antioxidant groups. Sensory panelists indicated the enzyme treated groups yielded samples with more desirable tenderness scores compared to samples that were not treated with the enzyme ($P = <0.0001$). Samples from treatment groups containing the antioxidant showed a decreased rate of lipid oxidation ($P = 0.0043$) over samples that were not treated with the antioxidant. This indicates beef hanging tenders treated with bromelain can increase the tenderness of hanging tenders with little effect on other quality attributes in a 3-day storage system.