Lipid Oxidation, Volatiles, and Color Changes in Irradiated Raw Turkey Breast during Frozen Storage

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Abstract:

ABSTRACT: Raw turkey breasts were aerobically or vacuum-packaged, irradiated with a linear accelerator, and frozen for 0, 1.5, or 3 mo. Lipid oxidation, volatiles, color values, gas production, and oxidation-reduction potential of the samples were determined. Irradiation produced off-odor volatiles associated with lipid oxidation and sulfur-volatiles; the off-odor was much higher in aerobic packaging. Volatiles increased with irradiation dose, aerobic packaging, and storage time. Irradiation increased stable pink color with both aerobic and vacuum-packaging. Irradiation increased the production of carbon monoxide (CO) and reducing property, indicating that CO-myoglobin could be responsible for the pink color. Lipid oxidation and color changes were not related in irradiated frozen turkey

Keywords:

irradiation • lipid oxidation • volatiles • color • frozen turkey

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