

Effect of pre-cooking methods on the chemical and sensory deterioration of ready-to-eat chicken patties during chilled storage and microwave reheating

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Abstract

The effects of pre-cooking methods, namely, boiling (BL), roasting (RT) and grilling (GR), refrigerated storage (14 days/+4 °C) and microwave reheating on chicken patties were studied. Physical, chemical and sensory parameters were evaluated in order to correlate the chemical deterioration of ready-to-eat chicken patties with the acceptance of the odor. Chemical deterioration was evaluated through the chemical composition, Maillard compounds, Thiobarbituric acid-reactive substances (TBARS) and volatiles. Sensory deterioration (odor liking) was performed by an acceptance test with hedonic scale. According to the TBARS values and volatile compounds generated in the head space during the examined stages, the pre-cooking method and the storage time had a significant effect on lipid oxidation, whereas reheating in a microwave had a negligible impact. At each succeeding processing stage, panelists gave lower odor scores to all samples and no significant differences were found between treatments at any stage. RT and GR patties showed less intense chemical changes and presented higher acceptance scores by the sensory panel than BL patties. Thus, the choice of pre-cooking method and control of storage conditions plays a key role in the inhibition of oxidative changes in ready-to-eat chicken patties.