

Effects of different cooking methods and temperatures on residual nitrite content in sausage

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*Abstract

Background: Presence of nitrites in meat products is important because they combine with secondary amines and produce nitrosamine carcinogen.

Objective: The aim of this study was to determine the effects of different cooking methods and temperatures on residual nitrite content in sausage.

Methods: This experimental study was conducted in the Food and Drug Laboratory of Qazvin University of Medical Sciences in 2014. Sausage samples containing 90% meat that were produced under identical conditions in a factory in Qazvin were transferred to the laboratory under suitable conditions and their residual nitrite contents were measured. The residual nitrite content was remeasured three times after using different cooking methods (frying, grilling, and cooking in microwave oven) at different temperatures and durations in 39 experiments. Data were analyzed using one-way ANOVA.

Findings: Before cooking, the residual nitrite content was 33.57 mg/kg in the sausage samples and reached to 26.46 mg/kg after frying at 120° C for 5 minutes. Mean residual nitrite content was significantly different at other temperatures and cooking durations. The mean residual nitrite content reached to 1.42 and 0 after frying at 220° C for 5 and 10 minutes, respectively.

Conclusion: With regards to the results, the greater the temperature and the duration of cooking, the more the reduction in residual nitrite content of the final product.

Keywords: Nitrites, Meat Products, Temperature

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