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OVEN COOKING AS ALTERNATIVE TO SMOKING: EVALUATION OF PHYSICOCHEMICAL, MICROBIOLOGICAL, TEXTURAL AND SENSORY PROPERTIES OF CIRCASSIAN CHEESE DURING STORAGE AND DETERMINATION OF PAH CONTENTS

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ABSTRACT

The aim of this work was to evaluate the physicochemical, microbiological, textural and sensory changes in three batches of Circassian cheese (non–smoked (AN), natural smoked (AS) and oven–baked (RO) cheese) during storage period of 90 days. Nine polycyclic aromatic hydrocarbons (PAHs) were also detected by HPLC-RD. Differences in cheese samples (total solids, fat, salt, titratable acidity, water-soluble, trichloroacetic acid-soluble and phosphotungstic acid-soluble nitrogen, hardness, gumminess, springiness, cohesiveness, chewiness and color properties) were observed depending on the manufacture procedure and smoking process. Microbial community in oven-baked cheese was found significantly lower than other samples. Use of oven for smoking enhanced the sensory properties compared to natural smoking, but batch AN had higher acceptability. Total and carcinogenic PAHs levels of oven-baked smoked cheese were remarkable lower than the levels of natural smoked cheese. Benzo[a]pyrene was detected only batch AS at the levels of 0.11 μg kg^{-1}. In this study, it was demonstrated that oven-baked smoking technique can be used as smoking technique instead of natural smoking for manufacture of Circassian cheese.

Keywords:

Characterization;
Circassian cheese;
Polycyclic aromatic; hydrocarbons (PAHs);
Oven baked;
Smoking.