Influence of microflora composition on safety and colour parameters of “kumpia wieprzowa” during ripening

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Abstract

The aim of this study was to define the influence of microbiological activity on the safety (microflora composition, biogenic amine amount) and colour of “kumpia wieprzowa” during the 3-month ripening period. The study included the amount of aerobic bacteria, yeast, lactobacilli rods, coagulase-negative cocci, pH and colour parameters as well as the content of nitrates (V) and (III), biogenic amines and amino acids. The lactobacilli and cocci constituted the predominant microflora of the ready-to-eat product (4.9–5.2 and 5.2–5.4 log cfu/g, respectively), although further mesophilic bacteria identification revealed the presence of numerous aerobic, aerotolerant and anaerobic species, mostly gram-positive, spore- and non-spore-forming. The absence of 2-phenylethylamine and putrescine and the low level of tryptamine (2.5 mg/kg) at the beginning of the ripening as well as the increase of tyramine and spermine amounts from 11.5 and 2.7 to 21.9 and 4.0 mg/kg, respectively during the treatment, denoted the good quality of raw meat used and dynamic growth of the desired acidifying and denitrifying microorganisms. The development of the coagulase-negative cocci population corresponded with the a* and C* colour parameters and the nitrate (III) content increase, the final result of which was 26.9, 27.5 as well as 19.4 mg/kg. The content of nitrates (V) and (III) was optimal to obtain a non-cured, safe and suitably coloured, long-term ripened meat product.

Key words: kumpia wieprzowa, microflora, colour, biogenic amines

Introduction

Traditional raw ripened meat products are an important part of the European Union meat market. Depending on the region, they differ with their recipes and technology as well as microflora composition. The interest in fermented meat products results from their characteristic aroma and their content of biologically active ingredients. “kumpia wieprzowa” is a unique pork product, entered on the “List of Polish...