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The influence of marinade composition on pork tenderness

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Abstract

The aim of the study was to identify the effect of marinating meat on selected quality determinants. Fifty-four pork samples were prepared from *longissimus dorsi* muscles, each 2.5-cm-thick; they were subsequently marinated for 24 hours ($n = 12$) and control samples were also prepared ($n = 6$). The following marinades were used: base marinade (M) whose ingredients included a mixture of herbs and condiments (salt, pepper, juniper berries, rosemary, bay, pimento, garlic) and 3 liquid marinades obtained by adding to the base marinade of apple cider vinegar (MV), light beer (MB) and buttermilk (MM). In the samples pH, marinade absorption, drip loss, cooking loss, WBSF and tenderness by sensory assessment were measured^(1,2).

The pH value of the material used for the study was 5.8 ± 0.02 . The use of the base marinade increased the pH to 6.37 ± 0.03 , whereas the liquids used in the marinades decreased the pH to 5.5 ± 0.05 . Marination resulted in an increase in the material weight by $2.87 \pm 0.05\%$ (MB), $4.45 \pm 0.07\%$ (MM), $0.87 \pm 0.03\%$ (M). The addition of vinegar resulted in exuding meat juice and a decrease in the material weight by $2.53 \pm 0.06\%$ (MV). Using the base marinade reduced drip loss ($0.53 \pm 0.01\%$) compared with the control ($1.37 \pm 0.03\%$). Sour marinade (MV) increased cooking loss by 18% compared to the control, the MB and MM marinades did not affect this parameter significantly, and the base marinade had a significant effect on reducing cooking loss by 24%. Each of the marinades used had a significant effect on reducing the maximum shear strength by 31% (liquid marinades) and by as much as 46% – base marinade. This relationship was confirmed in a sensory assessment, where higher notes for tenderness were given when base marinade (9.2 ± 0.3 pts), marinade with buttermilk (8.1 ± 0.2 pts), and marinades with vinegar and beer (7.3 ± 0.3 pts) was used compared with control samples (5.7 ± 0.4 pts).

This study has shown a beneficial effect of the marinades on the tenderness of the products. The most beneficial effect on the quality determinants under study was exerted by the base marinade, which consisted of herbs and condiments only.

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Conflict of Interest

There is no conflict of interest

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