

## EFFECTS OF MUSTARD-HONEY, APPLE VINEGAR, WHITE WINE VINEGAR AND KEFIR ACIDIC MARINADES ON THE PROPERTIES OF PORK

Alo Tänavots<sup>1,2</sup>, Arne Pöldvere<sup>1,3</sup>, Kristi Kerner<sup>1</sup>, Kristiina Veri<sup>1,4</sup>, Tanel Kaart<sup>2</sup>, Jaanika Torp<sup>1</sup>

<sup>1</sup>Chair of Food Science and Technology

<sup>2</sup>Chair of Animal Breeding and Biotechnology, Institute of Veterinary Medicine and Animal Sciences  
Estonian University of Life Sciences

<sup>3</sup>Estonian Pig Breeding Association

<sup>4</sup>Estover Piimatööstus OÜ

\*Corresponding author: Alo Tänavots, Chair of Food Science and Technology

Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences

62 Fr. R. Kreutzwaldi St, 51014 Tartu, Estonia. Tel: +372 731 3450, e-mail: alo.tanavots@emu.ee

**Summary.** The present research studied the quality of pork and the technological parameters of the *Longissimus thoracis et lumborum* muscle subjected to ageing with white wine vinegar (pH 3.0), apple vinegar (pH 3.1), mustard-honey (pH 3.9) and kefir marinades (pH 4.5) with the marinating time of one, three and seven days. Mustard-honey and kefir marinades retained their initial pH during the ageing period. As compared to the raw meat samples, a considerable drop in the pH value in the samples treated with apple and white wine vinegar marinades ( $P < 0.05$ ) could be observed after three days of treatment. Electroconductivity of the raw marinated meat increased slightly during the ageing process and there was no significant difference between the marinades. After thermal treatment, electroconductivity differed between marinades on a larger scale, but this difference decreased during ageing. The acidity in apple vinegar and white wine vinegar marinades turned raw samples significantly ( $P < 0.05$ ) lighter. However, the cooked samples treated with kefir marinade remained lighter during the seven-day period ( $P < 0.05$ ) and the samples treated with mustard-honey marinade were the darkest only on the seventh day. Raw mustard-honey marinated samples had a lower redness value ( $P < 0.05$ ), but a higher yellowness value, whereas cooking increased the yellowness considerably. Kefir marinade decreased the yellowness of raw samples ( $P < 0.05$ ), but cooking increased this value close to that of white wine and apple vinegar treated samples. The weight loss of kefir treated raw samples was not remarkable during the ageing period (0.27-1.35%), compared to that of other variants (4.25-8.70%). Thermal treatment had a smaller effect on the mustard-honey treated samples (25.43-27.41%), whereas kefir treated samples lost weight almost at the same level as the samples in two other groups. The cooked samples treated with white wine and apple vinegar turned tougher than compared to the other two marinades. The obtained data demonstrated that immersion in kefir and mustard-honey marinade turned samples softer after cooking.

**Keywords:** pork; acidic marinade; texture analysis; marinating time; pH; colour