

# The beef meat quality before and after wet-aging

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## Introduction

Meat aging used to improve the culinary and technological properties as the tenderness, flavor, juiciness (water holding capacity) also color and aroma of the meat. There are two types of meat aging methods: wet aging and dry aging (Domaradzki et al., 2016; Lee et al., 2017). During wet-aging method the beef meat usually packed in the vacuum bags and stored at refrigeration temperature, whereas during dry-aging beef meat normally stored without any packing and hold to the controlled temperature, appropriate relative humidity and air flow. Also weight loss occurs during meat maturation. Weight losses of the dry-aged meat could decrease by 30 %, depending, while during wet-aging, it could seek only 7-8 % (Dashdorj et al. 2016). During wet-aging no oxygen were in the vacuum bags for the meat aging period, in that case the meat ages in its natural juices. The enzymes in the meat allow it to tenderize and build up specific the flavor, texture and aroma.

**The aim of the research** were to evaluate and compare quality indicators of fresh and wet aged in the different parts of beef meat.

**Research object:** different parts of beef: entrecote with bone, ham and cuts.

**Key words:** wet-aging, beef, meat quality.



## Methodology

The experiments were carried out at the laboratory of Institute of Agriculture and food sciences of Vytautas Magnus University laboratories of Academy of Agriculture and Faculty of Agronomy, Institute of Agriculture and Food Sciences, Quality and Safety of Food Plant Raw Materials and easily accessible laboratories of Quality and Safety of Food Plant Materials in 2020-2021 years. There were used Limousine beef meat from the ecological farm, which was studied 48 our after slaughter of the animal. Pieces of beef meat were placed in special bags and vacuumed, and stored in a ventilated refrigerator at 0-2 °C temperature for 21 days. The quality evaluation of the beef meat were performed before aging and 21 days after wet-aging.

By standard methods in beef meat were evaluated: the amount of dry material – dry the samples until stable weight + 105°C temperature; the amount of ashes by burning of the meat samples in muffle furnace at 600-800° C temperature. Also the meat were determined the loss of boiling, watery content of the meat.

Experiments were carried out in two factors with three repetitions. The experimental data were statistically processed by the dispersion analysis method (ANOVA), software STATISTIKA 7.0 (StatSoft, USA). Arithmetical means and standard errors of the experimental data were calculated. Tukey test ( $p < 0.05$ ) was applied to estimate statistical significance of differences.

## Results

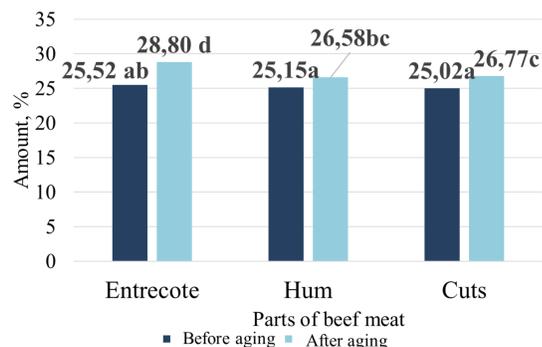


Fig. 1. Amount of dray maters of beef meat, %

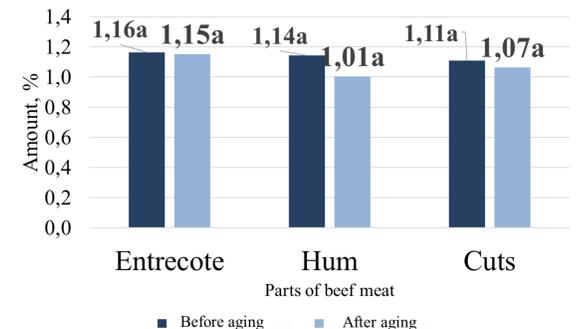


Fig. 2. Amount of ashes of beef meat, %

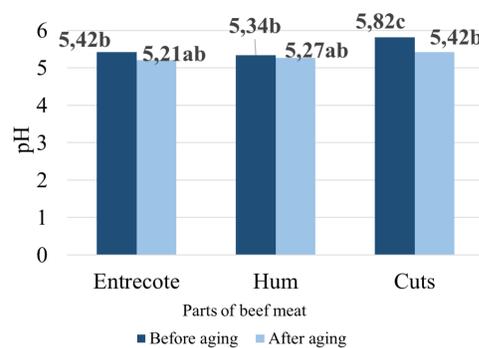


Fig. 3. pH value of beef meat, %

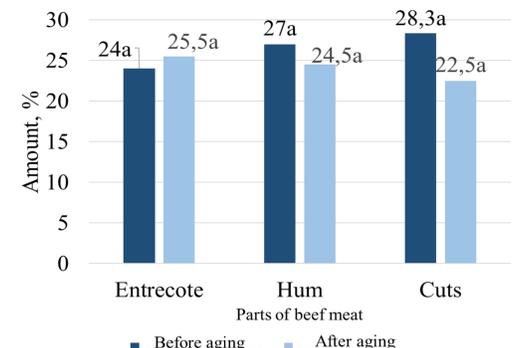


Fig. 4. Water content of beef meat, %

Note: Significant differences between variants are indicated in different case letters when  $p \leq 0.05$ .

## Main conclusions

The results showed that the dry matter amount have significantly increased in beef meat after wet-aging, especially of the entrecote. Wet-aging method significantly reduced the pH value of the meat, especially of the beef cuts.

The meat wet-aging significantly reduced the water content of beef meat and increase the softness of the texture, especially of beef entrecote meat comparing with meat before aging.