

<Abstract>

Factors involved in beef palatability

(牛肉の食味性に影響を及ぼす要因に関する研究)

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If the amount of beef imported increases under a future TPP, it will become important to highlight the features of domestic beef from the perspective of methods of preservation and cooking in order to maintain consumption of the local product.

Here, I examine heating method as a factor affecting the palatability of beef. I look at the fat content and long-term aging treatment of beef. I also discuss the relationship above all.

Chapter 1, the aim of this study was to clarify the characteristics of the taste and texture of Holstein loin meat using different methods, namely, grilling (GR), roasting (RO), poaching (PO), vacuum-packed low-temperature (VPLT) cooking, and microwaving (MW). The cooking loss was the lowest in GR, RO beef, while it was the highest in MW. The tenderness was the highest in beef cooked by the VPLT method and while it was low by odor. PO was medium value. Grilled and roasted beef were judged to possess greater juiciness, a more desirable odor, and greater umami intensity.

Chapter 2, to analyze the sensory characteristics of meat samples with a crude fat content between 23.8% and 48.6% taken from 34 Japanese black steers, we grilled the meat and subjected it to analytical sensory evaluation. We also measured the amounts of moisture, protein, nucleic acid, and glutamic acid. An increase in crude fat content increased the tenderness, juiciness, and fattiness in the meat quality evaluation. Increasing the fat content up to a certain point greatly enhanced the *umami* intensity and beef flavor intensity in the meat quality evaluation and raised the overall evaluation score; the peak of the appropriate crude fat content for these purposes was about 36%.

Chapter 3, analysis of the quality of highly marbled beef during dry aging for 60 days after slaughter showed that the changes in some qualities differed from those of conventional meat. The tenderness of these meats did not

change during aging for 50 days but then gradually increased until day 60. The *umami* intensity of these meats in the sensory evaluation and the value calculated by Glu and IMP quantification were highest on day 40.

The knowledge acquired in this thesis has helped to elucidate the best methods of preserving and cooking to highlight the features of domestic beef. These data can be used to establish the status of our marbled beef as a specific major livestock export product of which our country can be proud.