

Study of Salty-Taste Related Peptides for the Progress of Low-Salt Animal Food

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Summary

The peptide components that contribute to salty taste are widely known. Peptide components which are hydrolyzed from such foods as bonito and soybean, have already been put to practical use as salty taste enhancers. On the other hand, these salty taste enhancers still have a problem in versatility as a food additive derived from the raw material remains. Therefore, the development of a new salty taste enhancer, suitable for processed products of livestock products, is an important issue for achieving the compatible animal products between "tastiness" and "moderate salt content". In this study, we carried out an exhaustive analysis of the peptide components using high-resolution mass spectrometry technology based on liquid chromatography (LC-FTMS) to analyze the different species of beef, the manner of cooking, and dry-aging. First, using LC-FTMS, we examined the peptides produced in the beef that had been subjected to cooking, and dry aging. We detected 102 components as commonly detected peaks in beef. Moreover, we were able to obtain the characteristic chromatograph for each of the beef samples. We conducted the multivariate analysis of these peaks whose results revealed noticeable differences among beef species compared with cooking, and dry aging. Additionally, we carried out a detailed examination of the characteristics of the peptide components in different species among Japanese black cattle and dairy cattle by using LC-FTMS, and detected 332 components. Based on the molecular weight of the peaks whose significance differences, we estimated characteristic dipeptide, tripeptide and tetrapeptide in beef meat. In addition, we conducted a sensory evaluation to survey the preference type on the different parts of beef. The results revealed that salty taste was recognized most strongly in the rump (gluteus muscles) of beef. In the future, by conducting a comprehensive analysis of peptide components, using the beef parts with different salty taste strengths, we expect to obtain useful information for developing "salty taste enhancers" that take into consideration the reduction of salt, associated with the intake of animal foods.