No. 1836

Studies on Appropriate Salt Concentrations in Low Salt Pickles with Same Hardness as Normal Pickles

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Summary

Salt is necessary for seasoning and role of important in the dehydration and penetration of vegetables. Therefore, there is a demand for a low-salt food which has a good texture and enough feel salty. Usually, the difference in the food texture is compared by the breaking strength with the instrumental measurements. However, the evaluation by the instrumental measurements is not comparable recognition by human's taste. Therefore, the difference may occur between the instrumental measurement and the sensory evaluation result. We thought it is necessary to clarify the relationship between recognition of instrumental measurement of hardness texture and human bites. In this contribution, we used the pickles made in immersed in the bitter ingredient salt with the way of the conventional instrumental measurement, together the load value change of human of chewing was measured by the multiple-point sheet sensor system. Furthermore, we also examined the influence of bitter ingredients on the texture of pickles. It is found when radish kept in NaCl or bitter ingredient salts, dehydration by bitter salt progressed speedy than those by NaCl alone at all immersion time in this study. After soaking the radish for 6 hours, the strength of texture of the radish was higher by the instrumental measurement device and the multiple-point sheet sensor system. In the texture evaluation using the instrumental measurement, the sample immersed in the bitter ingredient salt tended to show a larger breaking strength. As a result of measuring the chewing force when a person bites the samples using the multiple-point sheet sensor system, the chewing force of a sample in which 4 out of 5 persons were soaked in the bitter ingredient salt was higher. A relationship between the breaking force of the instrumental measurement and the chewing force of the multiple-point sheet sensor system was found. From the above results, it was clarified that the bittern components influence for the hardness of pickles. Furthermore, the results suggested that the difference in the texture tends to be recognizable by humans.