

STUDIES ON PERMEATION MECHANISM OF SALT
INTO FOOD DURING HEAT-SEASONING

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Summary

An investigation was made on how seasoning, mostly salt, permeates into food during heat-seasoning. This study was made by comparing the permeation states of salt and sugar when the temperature of the seasoning liquid was changed (decreased from the boiling point or increased from the room temperature at given speeds) against wherein the temperature was held constant (at boiling point or lower).

Another study was made on the effective method of heat-seasoning basing upon the results obtained from the above. The main conclusions were as follows:

1) On seasoning at a constant temperature, the higher the temperature of the seasoning liquid, the larger become the quantities of permeated salt and sugar. However, as no large difference was observed at 80°C or lower, it was clarified that an 80°C or higher temperature is effective for seasoning permeation.

2) On seasoning with a seasoning liquid under a descending temperature, which the temperature is descended slowly, for both salt and sugar, almost comparable quantities of permeation with those under the constant temperature of 90°C were obtained.

3) On seasoning with a seasoning liquid under an ascending temperature, the quantity of salt permeated showed no large difference from those on seasoning either under a constant temperature and or descending temperature. However, the quantity of sugar was remarkably small.

4) From investigation on how to effectively season in heat-seasoning, the heating-cooling method of seasoning by repetitively increasing and decreasing the temperature of the seasoning liquid within a temperature range between the boiling point and 80°C was found effective for both salt and sugar permeation.