

## Experimental Studies on the Reasonable Ranges of the Salting Quality of Pickles.

### 2. Establishment of the Reasonable Ranges of Salt in the Main Pickles.

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#### Summary

Pickles and sauerkraut popular in European countries are prepared through lactic acid fermentation of vegetables. The taste of the majority of these European pickles is based on the original tastes of vegetables and lactic acid formed by the fermentation. Therefore, the constituents of the taste are so limited as 2-3% of salt and 1-2% of acids.

In contrast, Japanese pickles have been consumed so far as one of important side dishes in the dietary habit of Japanese people in which rice is the staple food.

Japanese pickles can be classified roughly into 3 classes. In this report, it will be elucidated how the taste of the pickles is formed and what kind of attention is paid in the sanitization of Japanese pickles.

The first group is the simple pickling with salt, in which the taste formed by intrusion of salt into the juice of vegetables is to be enjoyed, provided the lactic acid fermentation should not be formed as a rule, and the pickles which have developed lactic acid fermentation are regarded as foul products. The vegetables mainly used are cucumber, eggplant, and leaf crops (edible leaves), which are subjected to pickling with 2-3% of salt and taken as side dishes 1-2 days.

The second group aims at enjoying both the vegetables themselves and the products resulting from fermentation during the pickling. Pickles of this sort can be further classified into two subgroups. One is the pickles of the class through lactic acid fermentation, similar to the principle of European pickles. "Suguki" produced in Kyoto district fall in this subgroup. The pickles of this subgroup are made by pickling turnip, cucumber, eggplant etc. with salt in a concentration of 2-3% which is similar of European pickles, by which these Kyoto products contain lactic acid in a concentration of 0.6-1.2%. Another subgroup is the one of garden radish, which is called "Takuan". The taste enjoyed with this subgroup is formed by pickling the garden radish with rice bran, to produce a mixture of tastes of resulting alcohols, added salt, and the original garden radish. The "Takuan" contains delicious palatable substances with ranges of salt of 4-4.5%, alcohols of 0.5-1.0%, and sodium glutamate of 0.4-1.2%.

The third group is prepared by pickling vegetables with salt as rich as in approx. 20% concentration, which is taken out as appropriate and desalted, and then pickled into another taste-donor solution which has high concentrations of taste donors. This group is called "Chomizuke". Consequently, the original tastes of vegetables are already lost at the desalting, and the taste offered by this group consists in that of the pickling solution. These consist in pickling vegetables into soysauce, which is prepared by immersing vegetables such as cucumber, eggplant etc. into taste donor solutions containing 5-7% of salt, 10-20% of soysauce, and 1.0-1.5% of sodium glutamate. Some of them are so special as to be pickled into taste donor solutions containing 20-30% of sugars. The key point for this group of pickles consists in how the tastes of the taste donor solutions are made palatable, along with emphasis on keeping the taste donor solutions in nicest possible color and in clarity.