

An History of the Manufacturing Technology of Korean Native Vinegar.

Referred especially on Vinegars which appeared in Old
Texts of Korean Agriculture

by

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The origin of vinegar as a condiment in Korea is historically unknown. In the oldest Chinese agriculture text, *Chai-Min-Yo-Sul* (齊民要術) and a Korean text, *Chi-Bong-Yu-Sul* (芝峰類說), vinegar was named as "bitter-wine". Probably vinegar appeared almost at the same time as the *SUL* (酒; fermented alcoholic products are generally called *SUL*). However, it was recorded clearly that the *SUL* making with *kokja* (koji) started from *Sam-kuk* age (三國時代), and this may be the first record of vinegar in Korea.

In *Ko-Ryo* dynasty (高麗時代) according to *Hai-Tong-Yuk-Sa* (海東釋史), vinegar was described already as a food seasoning. Various uses of vinegar as medicine was recorded in *Hyang-Yak-Ku-Kup-Bang* (鄉藥救急方) a text written in the era of King *Kochong* (高宗時代) of *Ko-Ryo* dynasty 1236. It appeared that the vinegar making had much developed at this age although the technology was not at all recorded in the literatures. Probably using cereals as the raw material vinegars were prepared in similar way as in the alcoholic fermentation.

According to *Ko-Sa-Chal-Yo* (攷事撮要) and *Ku-Hwang-Chal-Yo* (救荒撮要), old texts published in the reign of King *Myung-Chong* (明宗朝) of the early *Yi* dynasty (李朝時代), the vinegar making had become much popular practice among the people since the King *Se-Chongs* time. Cereal vinegars primarily made from barley as the raw material appeared and vinegar fermentation technique largely developed as the people had been using more vinegar as the food seasoning.

In the King *HyO-Chong* age (孝宗) the vinegar

making technology was largely influenced by the Chinese agricultural and medical literatures. The various old texts at that age, *Sa-Si-Chan-YO* (四時纂要), *Kyu-Ho-Si-Yiu-Bang* (閩壺是議方), *Sak-Kyong* (穡經) records the popularized vinegar making and preservation methods at the time. The vinegars in these days were cereal origin using nonglutinous rice, wheat and glutinous rice as the raw material. Some fruit vinegars such as plum vinegar also appeared then.

In the middle period of *Yi* dynasty the literatures, *San-Lim-Kyung-Chai* (山林經濟), *Kyu-Hap-Chong-So* (閩閩叢書), reveals further development of cereal and fruit vinegars and the new appearance of honey vinegar in this period. Probably the traditional vinegar making and preservation technology as seen in the present day was initiated from since that time.

During the last period of *Yi* dynasty the manufacture of vinegar with *SUL* waste and wheat brans appeared. The production of some other rather specific vinegars were recorded but most of them are too specialized and hidden to some restricted families and it never had been popularized among the people. Only the easiest way of vinegar making, namely the production of cereal vinegars, has remained among people until the present day. This simple method of vinegar making is principally the acetic acid fermentation following the *Yakk-Ju* (a kind of *SUL*) alcohol fermentation with cereals. The starters of vinegar fermentation were either added or not added to the *Yakk-Ju*. In the modern ages even this simple method of traditional vinegar making are also being abolished.

—The history of vinegar making technology in Korea—

(1) Raw material of vinegar

Until the start of Yi dynasty the cereal vinegars had been made from barley, wheat, glutinous and nonglutinous rice. The plum was used to make instant fruit vinegar.

During the middle period of Yi dynasty barley, wheat, glutinous and nonglutinous rice, millet, sorghum, were used as the starting materials of the cereal vinegars. Plums, persimmon, and dates were used to manufacture fruit vinegar. Iris and chinese bellflower were used to produce grass-vinegar. Honey vinegar was also prepared. Cereals and their alcohol fermentation products, SUL, were combined to make Zu-cho (alcoholic-vinegar).

In the late period of Yi dynasty the above described cereal vinegars, fruits vinegars using persimmon, dates, plums and peaches; grass vinegar (lotus flower vinegar) using iris and chinese bellflower; continued to be made. Beside the honey vinegar, rice syrups were used to make syrup vinegar. SUL wastes and cereal brane had become to be used in making new kinds of vinegar since this time. However, among them the cereal vinegars, especially barley vinegar had become the most popular among the people.

(2) Vinegar technology

1. Vinegar fermentation starter

During the Yi dynasty the cereal vinegars were the most popular ones and the special vinegar fermentation starter were used as that of alcohol fermentation starter. The vinegar starter was made from wheat and prepared just as the soy-sauce fermentation starter. It was recorded that the best starter were so prepared as to have yellow mold covered.

2. vinegar fermentation

a) The cereal vinegar

This most popular vinegars during Yi dynasty were made through a quite similar procedure as in the other cereal alcohol fermentation products. Cereals, fermenting starter, and water were mixed and allowed to ferment. From the middle period of Yi dynasty So-kuk (燒麴, the roasted fermenting starter) was introduced to make a special kind of vinegar.

b) The Fruit vinegar

In the beginning the fruits were soaked in to

vinegar to give flavor and taste. For examples the plums were treated with the vinegar to make a semi-synthetic type fruit vinegar. In the later part of the middle period of Yi dynasty the whole fruits were put into the cereal wine (SUL), and only in the end period of Yi dynasty fruits were used as the raw-material of Zu-Cho (alcoholic vinegar), employing the principle that the natural fermentation of fruits leads to the vinegar production.

c) Grass vinegar

During the Yi dynasty grasses were put into the cereal wine or later the grasses were fermented with the starter.

d) Zu-cho-the vinegar made from the SUL (cereal wine)

Since the middle period of Yi dynasty the SUL was used to make vinegar instead of cereals. However, some amount of cereal was added to the fermenting vinegar. Later spoiled SULs were mixed with vinegar to make the so-called SUL vinegar.

e) The SUL-waste vinegar

The SUL-waste were mixed with cereals and allowed to undergo fermentation.

f) The cereal bran vinegar

The fermentation starter made of cereal bran were mixed with cereals and subjected to vinegar fermentation. This was recorded in the literatures of the end of Yi dynasty.

g) The other vinegars

The honey vinegars which had been used since the middle of Yi dynasty were prepared by mixing honey with warm water, followed by fermentation at warm place. The syrup vinegars during the end period of Yi dynasty were the fermented one with water and BAIK-KUK ("white fermenting starter made of rice").

3. The preservation of vinegar

The conventional method of preserving the fermented vinegar which began from the early stage of Yi dynasty was to add a cup of SUL to a cup of the vinegar taken out. Since the middle period of Yi dynasty the above method had been somewhat modified. In addition to SUL, the fermentation starter and/or So-Kuk ("the roasted fermenting starter") and/or the roasted wheat were added at the same time. The similar techniques were applied to other types of vinegars such as the fruit vinegars.