

A Historical Research on Native Foods of Korea

— with special reference to soybean and mungbean sprouts —

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(Received June 1, 1986)*

한국 고유식품의 역사적 연구 - 콩나물과 숙주나물을 중심으로 -

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(1986年 6月 1日 接受)

Summary

Soybean and mungbean sprouts are vegetables **indigenous** to Korea which have been grown throughout the year from the most remote age. They had been called interchangeably as duchaeah or duah.

Control method of environmental conditions for soybean or mungbean sprouts growing had been already appreciated from long time ago. A growing method once developed might have been handed over considerable period.

Siroo (시루) and yongsoo (용수) had been the most common containers and the watering skill is of the utmost importance for soybean sprouts growing.

As the demand of soybean sprouts in the market increased, a pit has been used for bean sprouts growing, and transformed into regular soybean sprouts factory.

Now bean sprouts are international food and the demand of bean sprouts seems permanent in Korea. Accordingly the long-term policy concerned with the production of soybean sprouts should be prepared, placing emphasis on improved quality and safety.

An origin of bean sprouts growing

Probably soybean and mungbean sprouts are vegetables indigenous to Korea which have been grown throughout the year from the most remote age. Bean sprouts could be easily grown even during the winter season scant of fresh vegetables. Thus they have been wide-spread as self-supplying vegetables in the households regardless of rural district or city.

It is very hard to know exactly when our ancestors began to grow beansprouts. However, soybean is one of important crops which has the longest history of cultivation⁽¹⁾ and its introduction period dates away back to B.C..⁽²⁾ Also soybeans have the characteristics that are easily germinated. Accordingly it is presumable that bean sprouts had been grown and used from time immemorial.

In "hyangyakkukeubbang" (鄕藥救急方;1236-1251), it has been described that daeduhwang, sun-dried germinated soybean sprouts were used as a medicine. This is the first historical record on soybean sprouts. It is probable that fresh soybean sprouts, without drying, had been used for food at that time.

The record on soybean sprouts was seen in "kokapilyong" (居家必用) of Won (元) dynasty, the book which had been written at similar era, for the first time.⁽³⁾ Lee presented the view that soybean sprouts might be an invention of Korean nation, and they had crossed over to China.

After that, in the ancient books of "hanjungrok" (閑情錄), "sanrimkyungjae" (山林經濟), "kyosasibeejib" (政事十二集) and "imwonsibyukji" (林園十六志), "kwanhyuji" (灌畦志), the soybean sprouts identical to the ones of "kukaplilyong" had been put down on record.⁽⁴⁾

According to these ancient books, legumes soaked in water, sprouted, and dried for medicinal purpose had been called daeduhwang (大豆黃), and fresh sprouted beans for eating duchaeah (豆菜芽) or duah (豆芽). Probably both of soybean and mungbean sprouts had been called interchangeably as duchaeah or duah.

However, in "imwonsibyukji", "kwanhyuji", soybean sprouts were described as hwangduahchai (黃豆芽菜) or mungbean sprouts nokduahchai (蒙豆芽菜).

Even though fragmentary knowledge, the first historical record concerned with duahchai reveals very interesting facts. The following is the description about duahchai shown in "sanrimkyungjae"⁽⁵⁾ cited from "kukapilyong", which had been described by Hong man sun (1643-1715) at the time of King Sookjong in the Chosun dynasty:

"Selected mungbean seeds are soaked for 2 days and then swollen seeds are washed with fresh water. After pouring them over moistened reed screens on the soil, these seeds are covered with jar. They are watered twice a day, and covered with damp strawstacks."

When their length reaches 1 feet, soybean sprouts are washed, removing seed coats, scalded with boiling water, and then seasoned with ginger and sesame oil for using as foods.

It is noticeable that soybean sprouts were watered twice a day and wet reed screens or strawstacks were used to preserve moisture.

In "imwonsibyukji" "kwanhyuji"⁽⁴⁾ (edited by Soyuko (徐有渠); 1764-1845) at the time of King Sooncho in the Chosun Dynasty, it had been described that soybean sprouts were grown in the warm room and with warm water during the winter. This is a good indication that temperature control had been attempting at that time.

According to the record of mungbean sprouts in the above book, it was common to grow soybean sprouts in the moist sand of porcelain container as if crops were seeded and cultivated in the soil. And porcelain container was covered with deep vat to interrupt light and wind.

Presumably the facts that soybean sprouts should be grown under light interrupted condition and are easily withered by wind blowing, had been already recognized at that time.

From this initial record, the following facts are presumable. Control method of environmental conditions for soybean or mungbean sprouts growing had been already appreciated from long time ago. Thereafter the principal axis of the growing method peculiar to Korea, had been attained undertaking gradual change on the kinds of containers, materials for drain, and handling method.

It couldn't be said that such growing methods turned out to be different with the elapse of times so that they were clearly distinguishable. Rather various growing methods existed together, and then the ones convenient for particular region were used for soybean sprouts production. A growing method once developed should have been handed over quite a long time.

The most common methods for soybean sprouts growing that the aged could remember at the present had been reported as the growing techniques peculiar to Korea by Japanese writer.⁽⁶⁾

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1. Chun Yung Lee. 1964. History on Agricultural technology of Chosun Dynasty. Korean Study Library. 21. Hankuk Yunkuwon.
 2. Shin Han Kwon. 1972. Origin and importance of protein and oil of Korean soybean. Kor. J. Food Sci. Technol. 4:158-161.
 3. Sung Woo Lee. 1978. Studies On The Dietary History in Korea. Hyangmoonsa (In Korean).
 4. Sung Woo Lee. 1981. Studies on the literatures of dietary history. Hankuk shikkyung daechun (韓國食經大典). Hyangmoonsa (In Korean).
 5. Man Sun Hong. 1974. Sanrimkyungjae. Hankukhak kibonchongso 8. Kyunginmoonwhase (In Chinese).
 6. Sangchunsangil (MMMM). 1932. Soybean sprouts of Chosun. Chosun of Moonkyo (In Japanese).

Containers and watering for soybean sprouts growing

Siroo (시루), black unglazed ceramics, which were originally manufactured for steaming rice cakes, had been most frequently employed for soybean sprouts growing in the household. They must be suitable for soybean sprouts growing with perforated bottom.

Soybeans soaked overnight (8-12 hours) are transferred into siroo with reticulated sedge cover. After filling jabagi (자배기; earthenware tub) about two thirds full with water, siroo is placed on the Y-styled or two paralld wooden sticks bridged over jabagi. Drawing water with a gourd from jabagi and giving it to soybean sprouts, water flows out again into jabagi. The water of jabagi is frequently replaced with fresh water.

It has been recognized that the watering skill is of the utmost importance for soybean sprouts growing. In case moisture is scant during germination, soybean sprouts of poor quality are produced on account of profuse rootlets. Therefore care should be taken on watering. The statements that soybean sprouts are properly grown only with great care and devotion reveal the importance of watering.

To raise uniform sized ones, soybean sprouts should be watered sufficiently and evenly so as not to break or push growing sprouts. Soybean sprouts have been watered just frequently rather than regular time interval. It may safely be said that soybean sprouts have been watered at intervals of giving a baby suck (8-10 times per day).

Temperature control is also important for bean sprouts growing. Generally soybean sprouts have been grown in a hot floored room (ondol; 온돌). Germination of soybean seeds has been performed by placing them in warm water (25-30°C) and wrapping the containers with the wad stuffed quilt.^(6,7)

On the other hand, commercial growers raise soybean sprouts in a water jar, pottery with dark-brown glaze, which housewives had used to carry spring water on their heads. Several small holes have been punched on one side of the bottom of water jar. Water jars with broken edges have usually been used for soybean sprouts growing. Commercial growers used to pile up many water jars in hot-floored room and take down the jars one by one, rearranging them after watering.⁽⁶⁾

It appears that yongsoo (용수) had been used for soybean sprouts growing previous to the above method. It is a long tube made of ssari (싸리) which had originally been used as a rice-wine strainer. Yongsoo for soybean sprouts growing was cone-shaped and made of rice straw.

To grow soybean sprouts in yongsoo, dry soybean seeds have been placed on the bottom and then swollen seeds on the upper layer. Then soybean sprouts had been harvested from the top to use them for food. Yongsoo had been tied with string at both sides and hung from a rafter or shelves. The container receiving drained water had been placed beneath yongsoo.

The containers employed for soybean sprouts growing were covered with variable materials such as hemp cloth, reed screen or straw mat. Wooden vat, orange box, and large flower pots have been used for soybean sprouts growing because of their easy drainage, and small stone, bamboo, and reed screens have been put at the bottom of the container.⁽⁷⁾

In Korea, Chonju has been noted for its excellent soybean sprouts. The reputation of Chonju soybean sprouts has been originated from lack of tough string and consequent tenderness.

Mrs. Sung nyu Park, grandmother of soybean sprouts,⁽⁸⁾ had persisted in the growing method peculiar to Chonju until comparatively recent time. Her growing method had been very distinctive of watering skill. Small jar of no hole punched had been used as the container.

Watering had been done 3 times per day during summer and one time during winter. After watering, bean sprouts had been kept in water and then water was completely poured out from the container. Thus soybean sprouts of Chonju were known to be very tender since they had been kept in water for several hours per day.

Specialized soybean sprouts growing

As the demand of soybean sprouts in the market increased, soybean sprouts growing for self-supply, in the

7. Sung Kuk Oh. 1946. An actual state of vegetable crops growing in Chosun. Saingwhalsa (In Korean).

8. Bee Suk Chung. 1965. Yuwon 8 (In Korean).

household, has been terminated and the scale for growing has been gradually enlarged. In large city, a pit or a cellar has been used for soybean sprouts growing and it seems to be an origin of soybean sprouts growing factory.

A pit was the structure with a straw-thatched roof of triangle shape which has been established after digging up soil. Its door was made of wood, and the back and both sides mud walls. Square wooden frame siroo of 1m height had been used with a pine board and straw mat placed at the bottom for good drainage.

At that time, they pumped the water out of the underground and carried this underground water with the pail for watering soybean sprouts. Such structure was transformed into regular soybean sprouts factory around 1960.

Recently, in soybean sprouts factory, cemented or wooden frame siroo built in semiunderground or above the ground is used for soybean sprouts growing. The interior of wooden frame is covered with polyethylene film.

The size of siroo depends on the factory, and in 1.4m × 0.8m × 1m cemented siroo, a sack of raw soybeans (72kg) could be grown for bean sprouts. The factory with 15 siroos built on a 20 pyung ground is large scaled one. In these factories, room temperature is controlled using briquet or petroleum heater. Generally the interior is heated to 25-30°C in case of soybean sprouts, or 35-46°C in case of mungbean sprouts.

Regardless of summer or winter, soybean sprouts are forwarded to market at 8-day intervals and mungbean sprouts at 7-day intervals.

Nowadays soybeans are placed, without soaking, in cemented siroo which has been made so that the water is slowly drained. Then they are frequently watered and after standing there for one day, transferred to growing siroo.

Mungbean seeds are soaked in plastic vessel of 36-37°C warm water for 3 hours. Then they are placed in half-sized straw bag and watered frequently for germination. After 24 hours from the initiation of soaking, mungbeans are transferred to siroo.

It has been said that bean sprouts are apt to spoil, unless the water pumped out of deep well. This reflects that the importance of water quality is related to microbial contamination.

For germination or growing, soybean sprouts are watered at 5-hour interval and mungbean sprouts at 4-hour interval. Depending on the size of siroo and growing conditions of bean sprouts, 6-10 minutes are required for watering one siroo. Additional warm (20°C) water is given to mungbean sprouts for the acceleration of growth.

Mungbean sprouts require greater care than soybean sprouts. Uniform watering is essential, since considerable amount of respiratory heat produced from growing bean sprouts, results in raising the temperature.

At the bottom of cemented siroo, pine board and straw mat are placed so that the water is drained well. The top of soybean sprouts siroo is covered with nylon gauze and straw mat, or nylon blind. However, mungbean sprouts grown are not covered, since they might be easily damaged, and harvested after green portion is cut out.

The present situation and problem

Regional cultivars of soybeans employed for sprouts growing include kyungbook euisungtai (慶北義城太), orialtae (오리알太), yungducktai (盈德太), choongbook boeuntai (忠北報恩太), chunbook kuraitai (全北求禮太), chunnam yungkwangtai (全北靈光太), mokpotai (木浦太), yuwoltai (유월太), kohungtai (高興太), jaijutai (濟州太) and others.

At the present, small scaled factories using more than a sack of raw soybeans are approximately 3,100 throughout the whole country, and 260,000 M/T of soybean sprouts have annually been produced. In Seoul, about 820 factories are located in the area of bomundong, hongnung, chuksundong, wolkokdong, sooyudong, and hongjaedong.

As soybean sprouts become grown on large scale, harmful organic mercury chemicals have imprudently been used; therefore pesticide residue has been indicated as important problem.

Now bean sprouts are international food and exported to the foreign countries. Unless the eating habits of Korean nation are changed, the demand of bean sprouts seems permanent.

From the above point of view, the long-term policy concerned with the production of soybean sprouts in Korea should be prepared, placing emphasis on improved quality and safety.