

Brief information on green soybean

-Cultivation, production, property, function, and recipes-

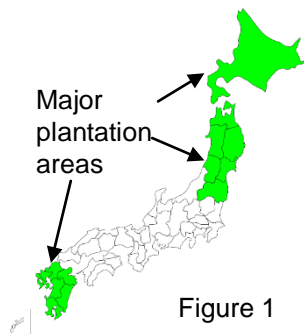
A research report by Aizu Traditional Food and Nutrition Workshop in Department of Food and Nutrition, Junior College Division, University of Aizu

[A table of contents]

1. General information on green soybean
2. Nutrition and function of green soybean
3. Original recipes using green soybean
4. Preparation of “Uchimame” from green soybean



1. General information on green soybean



Green soybeans are a sort of bean which continues to be green even after they mature. They are traditionally cultivated in Hokkaido prefecture and Tohoku area including Aizu. Recently different species of green soybean that can grow in warmer places have been developed and cultivated in Kyushu area (Figure 1).

A report published in 1919 shows that green soybeans have been cultivated in Fukushima prefecture since Taisho era. Plantation area and yield of green soybeans are less than those of soybeans. At present, a breed called Aohatamame in Aizu areas is predominantly sown in early summer. They which are cultivated until November are yielded, selected manually, and shipped (Photo 1).



Photo 1: Cultivation



People in Aizu produce soybean paste, flour, and tofu from green soybeans by traditional ways. Rich sweet taste comes from green soybeans squashed by wood hammer, called Uchimame (Photo 2). People use them to make traditional dishes

Photo: 2: Uchimame

such as miso-soup and foods boiled and seasoned. Uchimame that can be stored for long term is a useful processed food which is easily used without water suction or preliminary boiling.

2. Nutritional and functional ingredients of green soybean

Green soybean: (1) richer carbohydrates, (2) less proteins, (3) more fats, than regular soybean

Uchimame: (1) more proteins, (2) less fats, than green soybeans before process

Table1. Comparison of nutritional ingredients among green and regular soybeans and Uchimame

Soybean	Breed	Source	100 grains weight (g)	Energy (kcal/100g)	H ₂ O (g/100g)	Protein (g/100g)	Fat (g/100g)	Carbohydrate* (g/100g)	Mineral (g/100g)
Green	Aohata	Aizu	39.6	434	10.6	32.7	19.0	33.0	4.7
Uchimame	Aohata	Aizu	30.2	433	9.0	35.1	17.6	33.6	4.7
Regular	Ayakogane	Inawashiro	33.0	427	11.1	35.8	17.8	31.0	4.3

*: sugar + fiber

Recently, positive function in human health by supplementation of minor food ingredients has been

focused. Table 2. Main functional ingredients and positive function of soybeans

Soybean ingredient	Representative effects reported previously
Saponin	Improvement of lipid metabolism (Effect on animal model)
	Anti-obesity (Effect on animal model)
Isoflavone	Maintenance of bone homeostasis (Effect on human)
	Improvement of type II-diabetes (Effect on human)

This table shows functions on animal models or human when they took soybean ingredients. The descriptions are summarized by previous reports does not always guarantee when people take them.

Functional ingredients of green soybeans:

(1) saponin contents are higher than regular soybeans

(2) food processing does not affect saponin contents

(3) food processing promotes isoflavone contents

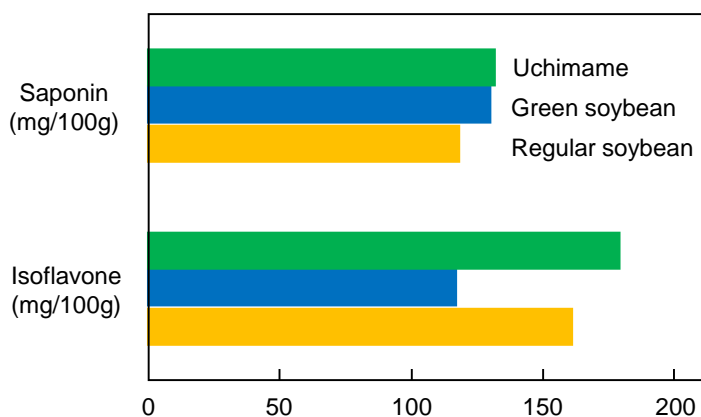


Figure 2. Comparison of saponin and isoflavone contents

This study shows that traditional food processing ways in Aizu which produce Uchimame make storage term longer, keep the original taste, and facilitate nutritional and functional values.