

A wooden box filled with white rice, a ceramic pitcher pouring sake into a ceramic cup, and the text "Sake Lees Extract" overlaid on the image.

Sake Lees Extract

◆ Sake in Japan

酒

[사케 / さけ / Sake / 酒]

Sake is the general term for alcohol in Japan.

The sake we commonly call is a type of alcohol called 'Nihonshu(日本酒)' in Japan, which is made by fermenting rice.

Due to the difference in taste depending on the raw materials and manufacturing method, people around the world are looking for and enjoying the various flavors in different region.

Kyoto is known for the best origin for quality Sake in Japan.

With its ideal geographic and climatic factors, *Kyoto is famous for high quality rice and its abundant clean underground water suitable for making Sake.*



◆ Fushimi(伏見) area, Traditional district with sake breweries



We, GSI use sake lees
come from Fushimi(伏見)

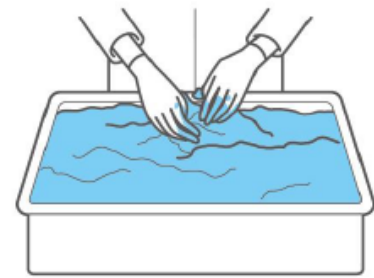
Fushimi(伏見) in Kyoto is known to the best sake brewing district in Japan. Fushimi(伏見) has been a leading sake brewing district in the country and famous as the place where most breweries were located.

A geologically an ideal place to transport high quality of rice, climate and the unique quality of underground water are the major contributing factors to brew high quality of sake.

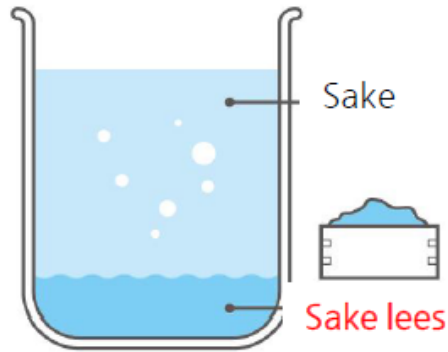


◆ Manufacturing process of “Sake Lees Extract”

use sake by-product as raw material



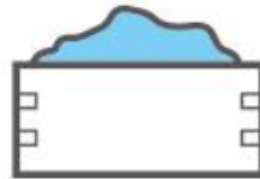
Sake production in brewery



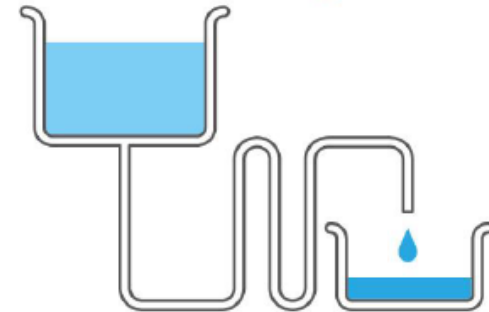
Get discarded Sake lees



Efficacy research of Sake Lees



Saccharomyces : isolated from sake lees



Prepare Saccharomyces Ferment Filtrate and mix Sake lees extract and filtrate together.

◆ Ingredient 1.Sake lees Extract

	Common Name	Sake lees
	INCI Name	Oryza Sativa (Rice) Lees Extract
	China compliance	稻 (ORYZA SATIVA) 糟提取物

Sake lees are solids left over from sake production(after the sake has been pressed out of the mash). This pressed, pasty sake lees are called to 'sake kasu(酒粕酒)' in Japanese and has been widely used in many ways.

As they have a sweet, funky taste and aroma of the sake itself , they used as a the main ingredient of amazake, a cooking paste to add flavor to food, etc. For skin care, sake lees are well known for sake brewers to keep their skin moisture and whitening and rich in variety of nutritions.

◆ The way of use Sake lees



[Soap]



[Facial pack]



[Cosmetics]



[Baking]



[Cooking]



[Natural fertilizer]

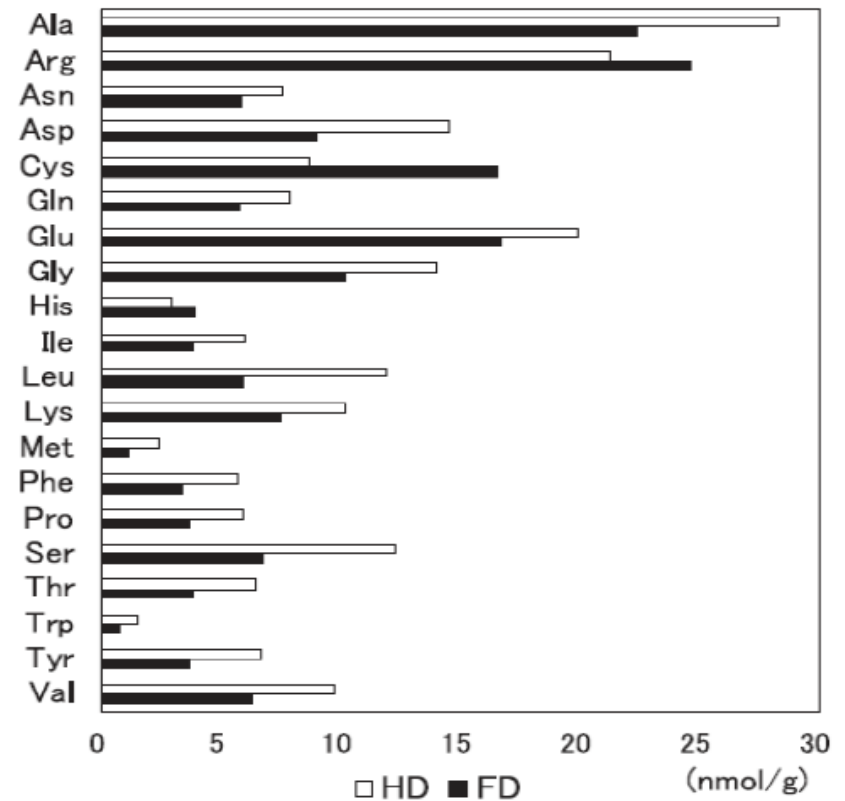
◆ Nutritional characterization of Sake lees

General nutrients

Nutrient	Content (g/100g)
Protein	46.4
Lipid	8.5
Carbohydrate	30.9
Vitamin B ₆ (mg/100g)	5
β-glucan	3.9
Resistant protein	15.7

Sake Lees contains rice-derived components, as well as cell components and metabolites of *Saccharomyces cerevisiae*.

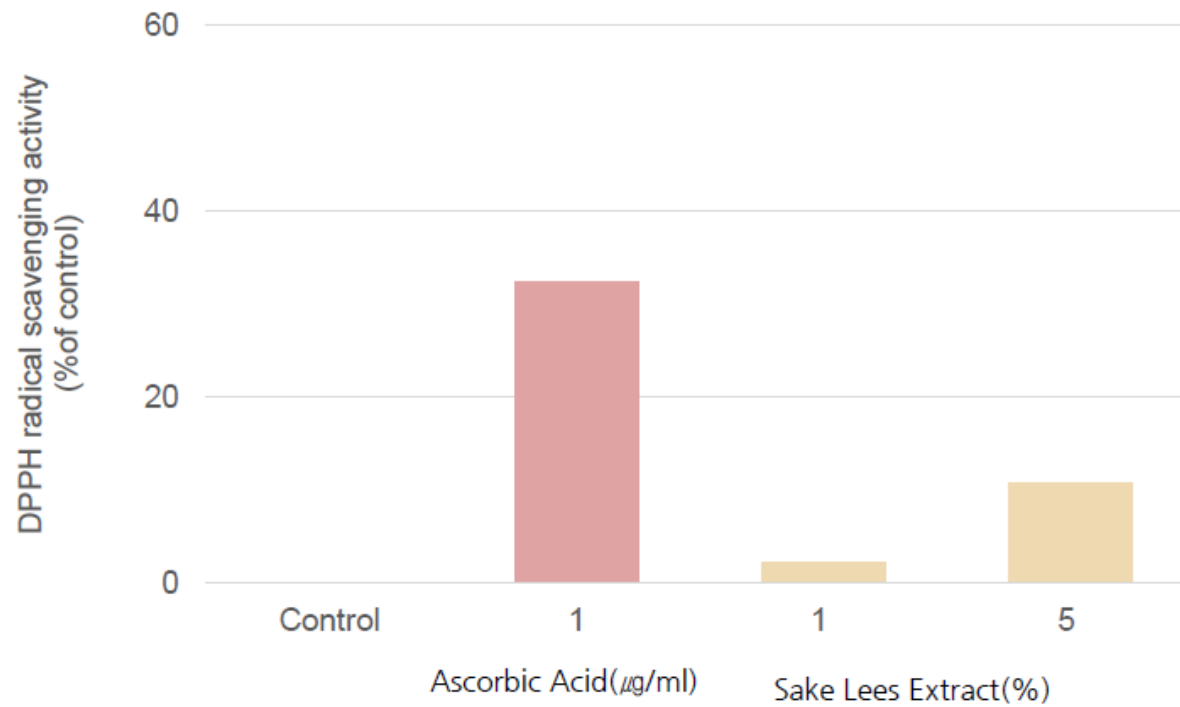
Free amino acids



*HD: Heat dried sake lees
*FD : Freeze-dried sake lees

Ref. Nutritional characterization of sake cake (sake-kasu) after heat-drying and freeze-drying, BIOSCIENCE, BIOTECHNOLOGY, AND BIOCHEMISTRY, 2018

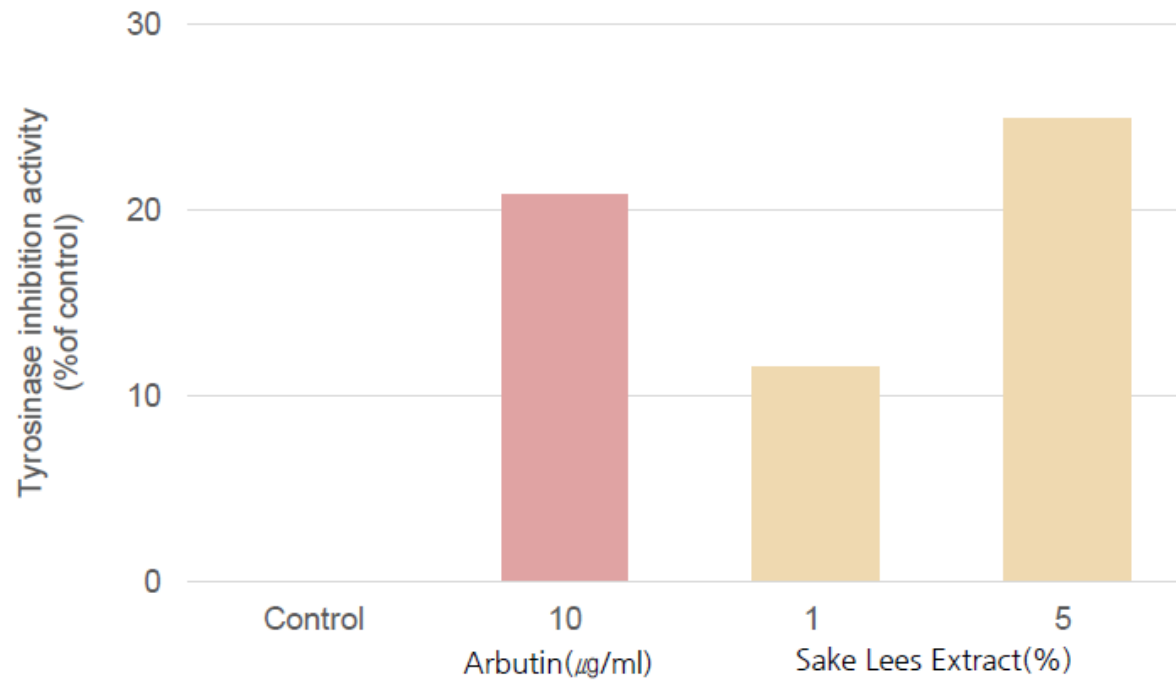
◆ Anti-oxidant Effect



To find anti-oxidant effect, check DPPH radical scavenging activity.

In the study, Sake Lees Extract shows anti-oxidant effect increase does dependently.

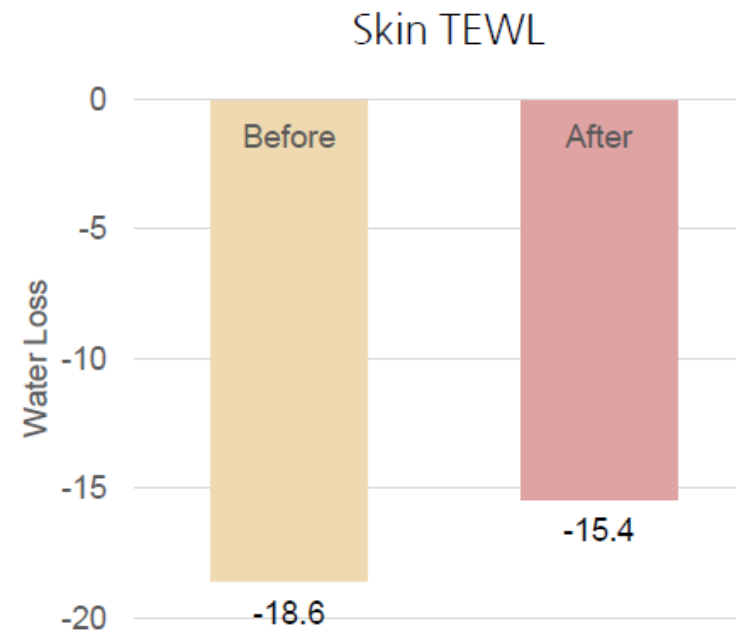
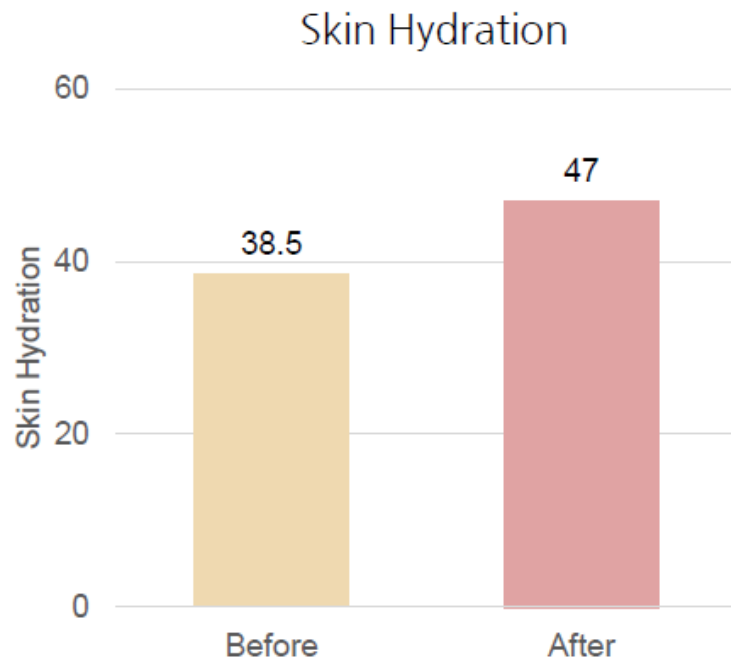
◆ Whitening Effect



To find whitening effect, check tyrosinase inhibition activity.

In the study, Sake Lees Extract shows tyrosinase inhibition activity increase does dependently.

◆ Moisturizing Effect [In-vivo]



- Subject : 10 people
- Sample : Sake Lees Extract 5% Mist
- Measurement : Apply the mist 2 times a day for a week and check skin hydration and TEWL.
- Result : Skin Hydration is increased 18% and Water loss(TEWL) is decreased 20%

◆ Ingredient 2. Saccharomyces Ferment Filtrate

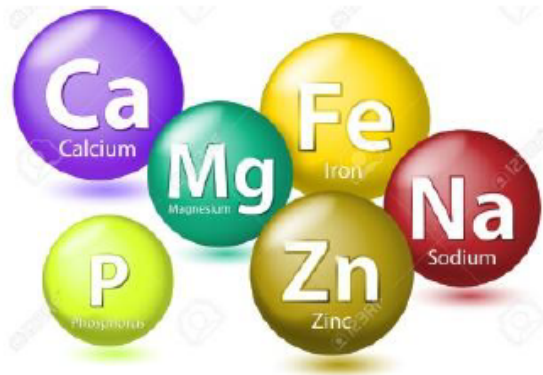
	Common Name	Yeast ferment filtrate
	INCI Name	Saccharomyces Ferment Filtrate
	China compliance	酵母菌发酵产物滤液

Yeast is the longest used microorganism by mankind to make sake and bread. Yeast contains a large amount of beta-glucan, so it is excellent in moisturizing the skin. We obtain the yeast from sake lees and produce yeast ferment filtrate

Yeast is rich in 20 kinds of amino acids that act as natural moisturizing factors. Also, there are many other nutrients including vitamin B, folic acid, pantothenic acid, etc. that good for skin health.



◆ Mineral contents in yeast



Mineral	Contents (mg%)
Potassium(K)	1659.7
Phosphorus(P)	1197.4
Magnesium(Mg)	210.4
Calcium(Ca)	105.6

Ingredient	Effectiveness
Potassium(K)	Essential components of enzymes that moisturize the skin.
Phosphorus(P)	Form and maintain skeletons and teeth and for regulating pH of body fluids.
Magnesium(Mg)	Facilitates the metabolism of the skin and generates energy
Calcium(Ca)	Produce Proteins and amino acids to prevent acidification of body fluids

Ref. Studies on the Processing of Yeast Extract by Waste Brewery Yeast
Korean Journal of Food and Nutrition, 2001

◆ Beta-glucan in fermented yeast

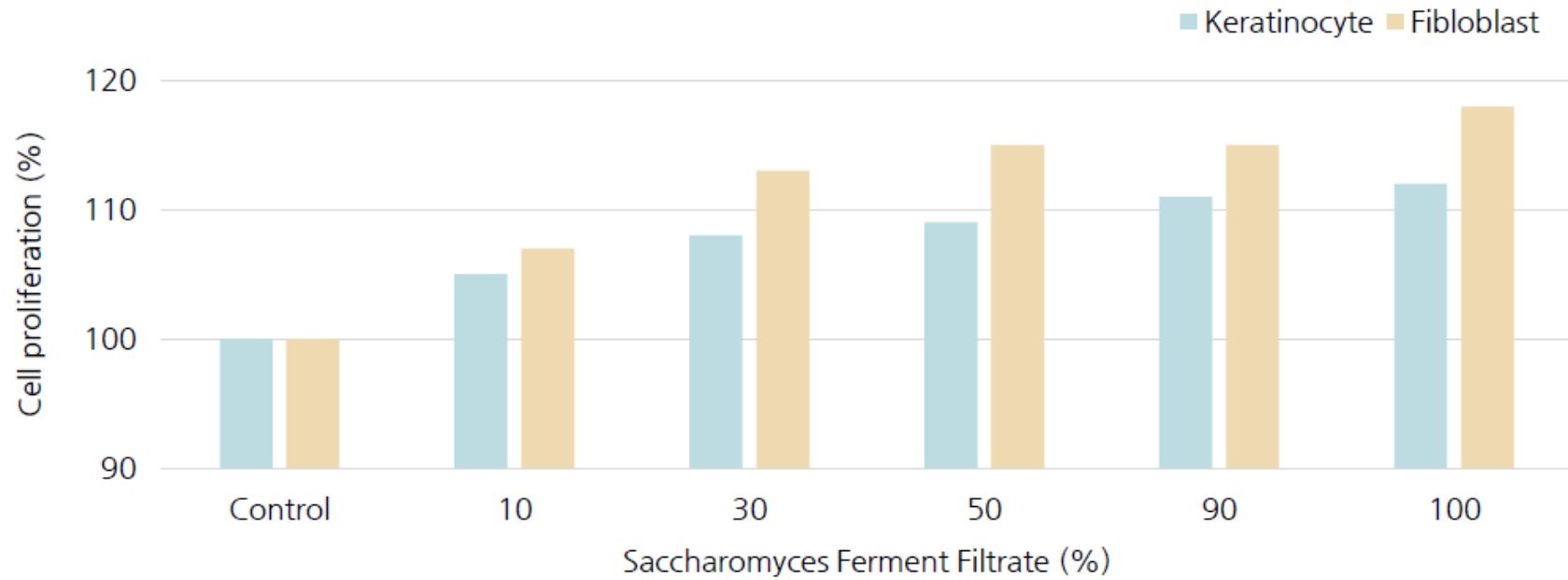
Beta-glucan is a substance found naturally in yeast.

	Skin moisture Index		
	Before	120 min After	Δ Index
Distillated Water	34.76	20.93	-3.83
Beta-glucan from yeast	39.64	45.71	6.07

We evaluate moisture index before treat and after 120minutres by Corneometer.
It showed moisturizing effect.

◆ Cell proliferation Effect

-Incubation time : 48h



During 48hours, Saccharomyces Ferment Filtrate shows proliferation 12% in Keratinocyte, 18% in Fibroblast

◆ Specification

INCI name	Chinese INCI Name
Saccharomyces Ferment Filtrate	酵母菌发酵产物滤液
Oryza Sativa (Rice) Lees Extract	稻 (ORYZA SATIVA) 糟提取物

Analytical Tests	Test Method	Specifications
Appearance	Visual Test	Colorless to Pale Yellow Liquid
Odor	Sensory Test	Typical
Specific Gravity	KFCC	0.980 - 1.100
pH	KFCC	4.00 - 7.00
Heavy Metal	KFCC	≤ 20 ppm
Arsenic (As)	KFCC	≤ 2 ppm

Expiration Date
2 year in sealed original packing, stored in due conditions.

◆ Sustainable beauty come from nature

It is a project for sustainability

1. Production : using eco-friendly raw materials such as organic plants
2. Up-cycling : making natural fertilizer with waste generated during the production process
3. Up-cycling : development using waste produced during plant cultivation or food manufacturing

◆ Market product developed by Re-cycling & Up-cycling project



“Waste up-cycling project in *Innisfree* brand (Amorepacific)”

- Up-cycling, is the process of transforming by-products, waste materials, useless products into new materials or products of better quality and environmental value.
- *Innisfree*'s “Up-cycling project” was finally commercialized on 2019. Launched active ingredients using beer and coffee waste.



Thank You!

GSI **Creos**
Produce the Future

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