

What is Sake?

Sake is a Japanese word used to describe alcoholic beverages in general. In English, sake refers to the specific alcoholic beverage known in Japan as **nihonshu**.

There are only four ingredients in sake:

Rice: Sakamai

Water: Miyamizu (shrine water) of Nada which flows from the mountainous region of Rokko, Nada is the largest brewing region in Japan.

Koji: mold spores

Yeast: converts sugar to alcohol

HISTORY OF SAKE

The brewing of rice first started in China, along the Yangtze River around 4800 BC and was subsequently exported to Japan. Another theory traces sake brewing back to 3rd Century Japan with the advent of wet rice cultivation. The combination of water and rice lying around together would have resulted in molds and fermentation. This "first" sake was called **kuchikami no sake** or "rice chewing sake," and was made by people chewing rice, chestnuts, millet, acorn and spitting the mixture into a tub. The enzymes from the saliva allowed the starches to convert to sugar, then this sweet mixture was combined with freshly cooked grain and allowed to ferment, naturally. This early form of sake was likely low in alcohol and consumed like porridge.

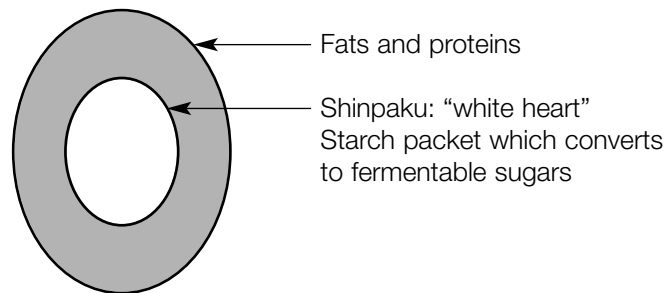
Centuries later, chewing was rendered unnecessary by the discovery of **koji-kin** (*aspergillus oryzae*), a mold whose enzymes convert the starch in the rice to sugar, which is also used to make miso, and soy sauce. A yeast mash is then added to convert the sugars to ethanol. This development can greatly increase sake's alcohol content (18%-25% by vol.); as starch is converted to sugar by koji, sugars are converted to alcohol by yeast in one instantaneous process. Koji-kin was discovered most likely by accident. Koji spores and yeast floating in the air would land in a soupy rice-water mixture left outside. The resulting fermentation would create a sake porridge not unlike the kuchikami no sake but without the hassle of needing a whole village to chew the rice. This porridge was probably not the best tasting but the intoxication was enough to keep people interested in making it. Some of this mash would be kept as a starter for the next batch.

Over time, the quality and techniques used in brewing sake steadily improved. Eventually, brewers were able to isolate koji and were able to control the process. During the 20th century, sake-brewing technology grew by leaps and bounds. The Japanese government opened the sake-brewing research institute in 1904, and in 1907 the very first government-run sake tasting/competition was held. Yeast strains specifically selected for their brewing properties were isolated and enamel-coated steel tanks were used instead of cedar.

HOW IS SAKE MADE?

Milling

While sake quality depends first and foremost on the quality of its two basic ingredients, water and rice, the degree that the rice is milled also affects the sake's quality. Milling removes the unwanted outer layers of vitamins, proteins, and fats from the grains, so the more the rice is milled, the higher the grade or quality of sake. The milling rate (**seimai-buai**) indicates the percentage of the original kernel remaining after milling (i.e. rice with a seimai-buai of 60% has had the outer 40% polished away).



Washing and Soaking

The white powder (**nuka**) left on the rice after polishing is then washed away improving the final quality of the steamed rice. Following that, it is soaked to attain a certain water content deemed optimum for steaming that particular rice. The seimai-buai determines what its pre-steaming water content should be: the more a rice has been polished, the faster it absorbs water and the shorter the soaking time. Often it is done for as little as a stopwatch-measured minute, sometimes it is done overnight.

Steaming

The rice is then steamed: steam is brought up through the bottom of the steaming vat (**koshiki**) to work its way through the rice. This gives a firmer consistency and slightly harder outside surface and softer center. Generally, a batch of steamed rice is divided up, with some going to have koji mold sprinkled over it, and some going directly to the fermentation vat.

Koji Making (Seigiku)

Koji is sprinkled on the now cooled steamed rice. It is then taken to a special temperature and humidity controlled room where, over the next 36 to 45 hours, the developing koji is checked, mixed and re-arranged constantly. The final product looks like rice grains with a slight frosting on them, and smells faintly of sweet chestnuts. Koji is used at least four times throughout the process, and is always made fresh and used immediately. Any one batch goes through this process at least four times.

Yeast starter (shubo or moto)

A yeast starter, or seed mash of sorts, is created by mixing finished koji and plain steamed white rice from the above steps, water and a concentration of pure yeast cells. Over the next two weeks, a concentration of yeast cells can reach 100 million cells in one teaspoon of the starter.

The mash (moromi)

After being moved to a larger tank, more rice, more koji and more water are added in three successive stages over four days, roughly doubling the size of the batch each time. This is the main mash, and as it ferments over the next 18 to 32 days, its temperature and other factors are measured and adjusted to create precisely the flavour profile being sought.

Unique to the making of sake, is the process of parallel fermentation where the conversion of starch to sugar, and the conversion of sugar to alcohol happens at the same time. In other brewing processes, like that of beer, fermentation occurs in different, serial steps.

Pressing (joso)

Through one of several methods, the white lees (called kasu) and unfermented solids are pressed away, and the clear sake runs off. This is most often done by machine, although the older methods involving putting the moromi in canvas bags and squeezing the fresh sake out, or letting the sake drip out of the bags, are still used.

Filtration (roka)

After sitting for a few days to let more solids settle out, the sake is usually charcoal filtered to adjust flavour and colour. This is done to different degrees at different breweries dictating the style of sake produced.

Pasteurization

Most sake is then pasteurized once. This is done by heating it quickly by passing it through a pipe immersed in hot water. This process kills off bacteria and deactivates enzymes that would likely adverse flavour and colour.

CATEGORIES AND GRADING OF SAKE

There are two categories of sake: **junmai** where no alcohol has been added and **honjozo** where alcohol has been added. Sake usually sits anywhere from 14% to 16% alcohol by volume. Sometimes sake requires the addition of alcohol to pull more flavours from the mash as well as to bring up the overall alcohol content.

There are three grades of sake:

- Futsu:**
 - 30% or more of the rice kernel is milled away
 - often served warm or piping hot to mask imperfections
 - no special ingredients or changes to the processing of the rice
 - inexpensive

- Ginjo:**
 - 40% or more of the rice kernel is milled away
 - extra care is taken not to crack the rice grain during milling
 - fermentation takes place at lower temperatures for longer periods of time
 - often hand-pressed
 - best served chilled

- Daiginjo:**
 - 50% or more of the rice kernel is milled away
 - extra care is taken not to crack the rice grain during milling
 - fermentation takes place at lower temperatures for even longer periods of time
 - often hand-pressed
 - not enjoyed by everyone—sometimes considered too light
 - best served chilled

STYLES OF SAKE

- Nigori:**
 - cloudy sake.
 - roughly filtered, the sake is passed through a very loose weave to separate it from the mash. It is of course not filtered thereafter and there is much rice sediment in the bottle. Before serving, the bottle is shaken to mix the sediment and turn the sake white or cloudy.

- Nama:**
 - unpasteurized sake

- Genshu:** • undiluted junmai sake, around 18-20% alcohol by volume. Most genshu is honjozo-shu to make it more economical, however, the method of sake brewing is growing in popularity among premium brands as well.
- Koshu:** • aged sake. Most sake does not age well but this specially made type can age for decades, turning the sake yellow and giving it a honeyed flavor.
• expensive
- Infused:** • flavoured (Asian pear, raspberry, hazelnut)

SERVICE OF SAKE:

Never pour your own glass of sake, but always pour your neighbour's

References:

Training manual from Ki Modern Japanese Restaurant, Sang Kim.

www.esake.com

www.sake-world.com

www.jotosake.com

www.riceandzen.com

Hot and Cold on Sake

By Michael Pataran
Photography by Dan J. Couto



Fermented rice beverages date back thousands of years, but the super-premium versions we enjoy today are relatively modern inventions. **Just don't call them rice wines**

Ki stocks a wonderful assortment of premium sakes.



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Ask the question "what is sake?" and nine out of 10 times you'll get the response, "Japanese rice wine!" Which is sort of like describing real wine as crushed grapes poured into an expensive glass.

The thing is that, as third- or fourth-generation Canadians, most of our heritage is connected to Europe, hence the desire to explain sake within the context of wine. Not too many cups of sake in Tuscany, Lisbon or Lyon.

Sake was first made in China around 3000 B.C., but it was the Japanese who turned it into a popular drink, some time after the brewing art first came to Japan around 300 B.C. In China sake was only made for the upper class—and in small quantities. It was the Japanese who began to mass produce it in the 1300s. When the feudal system collapsed in the late 1500s, the samurai found themselves with a fair amount of time on their hands so they got heavily into sake. To this day, many of the sake-producing families are from noble samurai bloodlines.

The basic process of making sake involves polishing or "milling" a special type of brown rice. There are about 60 varieties used for only

this purpose. The rice is then cooked in clean water and made into a mash. The task was originally performed by young female "virgins," who would chew on rice and nuts and then spit the mixture into a large open vat. This sake was called "kuchikami" for "chewing the mouth." The enzymes in saliva activated the necessary fermentation. Luckily this practice was discontinued when koji (a mould enzyme on rice) and yeast were added to the rice to ferment it.

In the 1300s, mass-produced sake became Japan's most popular drink. In later years production methods were improved and sake breweries began producing higher quality stuff, superior to the cloudy and unfiltered spirits of the early days. It was a lone unknown worker who thought to use ashes to purify and filter the liquid, producing the clear nectar of today.

During Japan's Industrial Revolution in the 1900s, special machinery was designed to polish the sake rice kernel without breaking it open and releasing all the fats and protein. It's the starch at the centre of the grain that makes pure, clean tasting sake and that's what the

SAKE GLOSSARY

DAI-GINJO-SHU

Super-premium sake, polished to about 50 per cent of its original grain size. The best dai-ginjo is polished until only about 30 per cent of the grain is left. These sakes are light, super clean, complex and very fragrant.

FUTSU-SHU

Normal sake, with no special designations.

GINJO-SHU

Sake in which the rice has been polished to no more than 60 per cent of its original grain size and is fermented at colder temperatures for longer periods of time, making it light, fruity and refined.

GEN-SHU

Undiluted sake. All other sake has distilled water added to reduce the alcohol content. Genshu sake is sweeter and richer, with an alcohol content of 18 - 25 per cent (as opposed to 12 - 16 per cent).

HONJOZU-SHU

Made with rice, water, koji and brewer's alcohol to help mine bouquet and flavour. Easy quaffing on its own. Nice and light.

JUNMAI-SHU

Made with only rice, yeast, water and koji mould. The rice must be polished to at least 70 per cent original grain size. Full-forward flavour with big body, yet clean and poised. When used as a prefix in front of all sake types, this indicates no alcohol has been added, and that only the four main ingredients were used.

NIGORI

Unfiltered "cloudy sake," meaning it has not been pressed fully from the rice solids. Nigori is sweeter, with a creamy texture that is cloyed by the kasu, making it a non-serious sake lover's choice.

“The super-clean refined sake of today produces amazingly rich, intense and powerful aromas as well as soft, delicate flavours on the palate. ”

brewmaster is after. During the Second World War, when rice was in short supply, pure alcohol and glucose were added to the mash to increase production. This process continues today but the best stuff is still only made with rice, water, yeast and koji. Made this way, sake is among the purest forms of alcohol, which helps explain why hangovers are rare even after several bottles (individual results may vary; past experiences are not indicative of future results).

The super-clean refined sake of today produces amazingly rich, intense and powerful aromas as well as soft, delicate flavours on the palate. Flavours of tropical fruit like banana, pineapple and guava are common, as are vanilla, coconut and bubblegum.

It is said that wine has 1000 characteristics whereas sake has 2000. The differences don't stop there. Wine is made by the single fermentation of grapes. Sake is made from special rice by a process called multiple parallel fermentation, during which the rice mould (koji) converts rice starch to sugar, and yeast in turn converts the sugar into alcohol. In sake, saccharification and alcohol fermentation occur at the same exact time.

Another key point is that sake is meant to

be consumed young, when it is lively and fruity. Don't let it sit more than 18 months as its flavours and aroma can become cloying, dank and off-putting.

All high-quality sake is to be enjoyed slightly chilled. Originally it was served at room temp, or heated for consumption in cooler regions. The whole hot "thing" took off during the Second World War when American soldiers in the South Pacific and those occupying Japan were cut off from American supplies and had to resort to drinking what was, at that time, an inferior sake product, due to the fact that most rice was going to feed the troops. The locals taught American troops to heat their sake to mask the harshness (while launching them into an extreme drunken state). This practice seems to have stuck around in North America, even though today's premium sakes are fragrant, delicate and subtle—like great wines, they benefit from just the slightest chill. Heat just kills them. **CB**

Michael Pataran's sake passion began in 1998, and blossomed with his travels to Asia and the South Pacific. He has helmed the stoves at Monsoon, Rain and Taboo's Culinary Theatre.

WHERE TO DRINK IT

A few places in Toronto are offering a variety of better sakes. These ones also do a good job of explaining what you're drinking, either with helpful menu guides or with servers who know what they're talking about.

SUSHI KAJI 860 The Queensway, Etobicoke, 416-252-2166, sushikaji.com + **HIRO SUSHI** 171 King St. E., 416-304-0550 + **KAISEKI YU-ZEN HASHIMOTO** 6435 Dixie Rd., Unit 10, Mississauga, 905-670-5559, www.kaiseki.ca + **KI** 181 Bay St. (BCE Place), 416-308-5888, kijapanese.com + **BLOWFISH RESTAURANT + SAKE BAR** 668 King St. W., 416-860-0606, blowfishrestaurant.com + **IZAKAYA** 69 Front St. E., 416-703-8658, izakaya.ca