



真野鶴
 守 和 乙

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OBATA SHUZO (OBATA SAKE BREWERY)

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SAKE
 酒

Tasting Guide
 to Make Sake Delicious

Sake & Food Marriage





Sake is

A alcoholic beverage which convert rice to sugar by mold called koji-kin, then fermented sugar with yeast

RICE



Ingredients of sake

Made from sakamai (sake-specific rice) which is less bigger than table rice, and have many gaps in the center of rice calls "Shinpaku" (white core)

Understanding the type of sake

種類

Sake can be largely divided into "Tokutei Meishoshu" (specially designated sake) and "Futsu-shu" (ordinary sake). "Tokutei Meishoshu" can further classify according to rice polishing ratio and ingredients as follows:



大吟醸酒
Daiginjo-shu

Ingredients:
Rice,Koji,
Jozo-alcohol
(Distilled alcohol)



吟醸酒
Ginjo-shu

Ingredients:
Rice,Koji,
Jozo-alcohol
(Distilled alcohol)



特別本醸造酒
Tokubetsu Honjozo-shu
(Special Honjozo-shu)

Ingredients:
Rice,Koji,
Jozo-alcohol
(Distilled alcohol)



本醸造酒
Honjozo-shu

Ingredients:
Rice,Koji,
Jozo-alcohol
(Distilled alcohol)



純米大吟醸酒
Junmai daiginjo-shu

Ingredients:
Rice,Koji



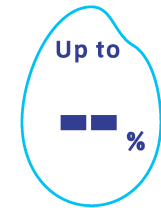
純米吟醸酒
Junmai ginjo-shu

Ingredients:
Rice,Koji



特別純米酒
Tokubetsu Junmai-shu
(Special Junmai-shu)

Ingredients:
Rice,Koji



純米酒
Junmai-shu

Ingredients:
Rice,Koji

special process
(need to explain)

special process
(need to explain)

Compositions which Affect the Taste of Sake

味わい

WATER

The main ingredient of sake is water. Water which contains higher levels of minerals, such as calcium (Ca) salt and magnesium (Mg) salt is hard water. Using hard water tend to make fermentation progress vigorously and have stronger taste; using soft water which contains less minerals tend to make fermentation progress softly and have elegant taste.

ALCOHOL

Usually, alcohol concentration is about 18 degree for just fermented sake, sometimes it can reach 22 degree. Therefore, sake has been said to be the highest alcohol concentration fermented alcoholic beverage in the world. Most of sake add water to dilute alcohol concentration to 15~16 degree before bottling. On the other hand, sake which doesn't dilute with water is labeled as Genshu (undiluted sake).

DISTILLED ALCOHOL

Distilled alcohol can be added during sake production. It can prevent corrosion caused by lactic bacteria which occur during sake production or storage. However, distilled alcohol gets more attention recently by the effect to enhance gorgeous aroma and lighten the taste.

Sugar

If sake contains more sugar, it will taste sweeter; the less sugar, it will taste dryer. In other words, "Karakuchi" (dry) refers to less sweet sake. If we express the specific gravity numerically, it calls Nihonshu-do (sake meter value). When the sake contains more sugar, the value increases in the minus (-) direction; on the other hand, when it contains more alcohol, the value increases in the plus (+) direction.

San-do , acidity

San-do represents the amount of organic acids contained in sake. About 80% of those organic acids are lactic acid, malic acid, and succinic acid. Lactic acid gives mild acidic taste, malic acid gives fresh acidic taste, and succinic acid gives distinctive body for sake. Furthermore, if the sake contains more amount of organic acids, it will be more difficult to taste the sweetness.

Aminosan-do, amino acid value

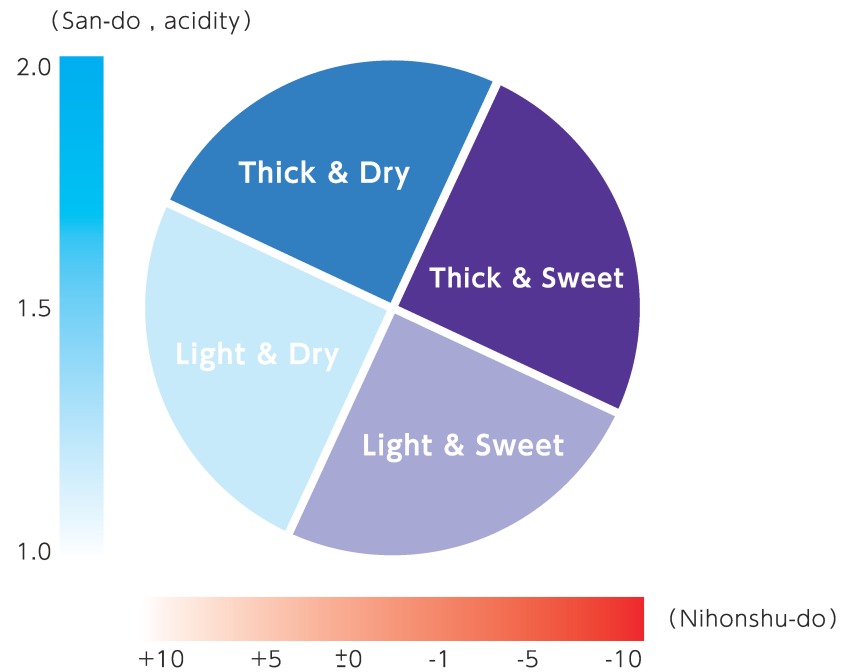
Amino acids contained in sake were produced by degradation of protein, which comes from rice, koji-mold, and yeast as ingredient of sake. Amino acids bring various flavors such as umami, sourness and bitter tastes. For this reason, smaller amino acid value means the sake taste more clear, bigger amino acid value means the sake taste thicker. In addition, if the amino acid value is too high, people might feel not consistent for the taste.



OTHERS

Sweet-dry is decided by the balance **バランス**

Depending on the balance of sweetness and sourness, the taste of sake changes. Therefore, it has been advocated that actual taste of sweetness should from the value of "Nihonshu-do"(sake meter value) and " San-do (acidity)." For example, for the sake which have same Nihonshu-do, it will taste light and sweet if San-do is 1.0, light and dry if San-do is 1.5, and thick and dry when San-do goes up to 2.0 which the flavor changes a lot.



乳酸 The function of lactic acid

There are various of schemes to prevent the contamination of bacteria for different kinds of brewing in the world. For example, for beer brewing we use hops to prevent contamination, for wine brewing we use sulfur-dioxide. For sake, lactic acid takes part in this role.

Compositions which 香り Affect the Aroma of Sake

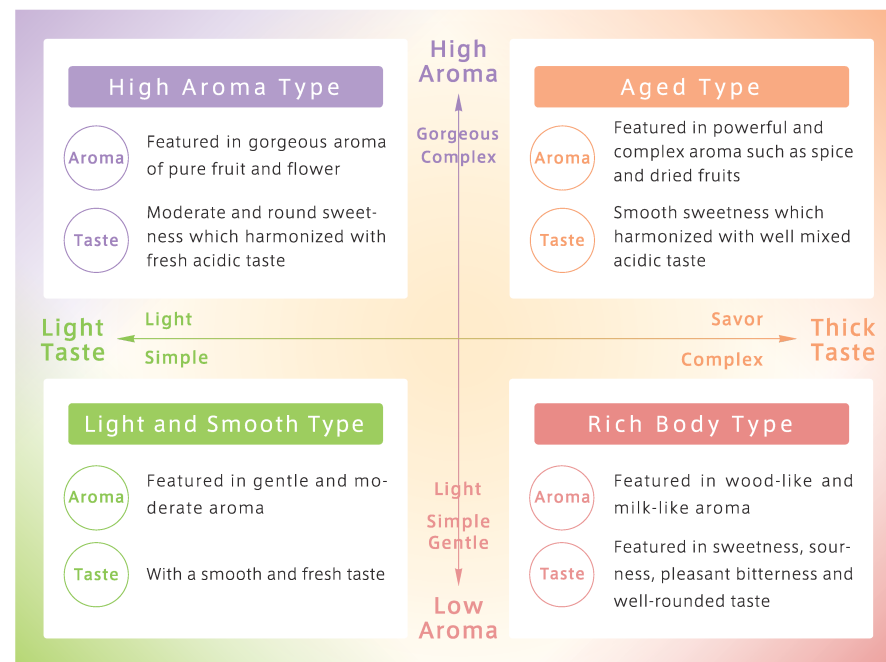
The aroma of sake comes from volatilization of its ingredients. Those aroma ingredients made from yeast, aging, and so on. Also, for aroma of sake, people can sniff Uwadachika (coming up fragrance) from the glass before drinking; Fukumika (hold in mouth fragrance) with the sake in the mouth; and the standing up fragrance after drinking as Kaerika (coming back fragrance.) Depends on the volatility & content of aroma components, the way to feel of fragrance and appearing time of fragrance changes.

Main aroma composition and image

Ethyl alcohol / Alcohol spice	Isobutyl acetate / Pear-like aroma
Hexanol / Greenleaf-like aroma	B-phenethyl / Rose-like aroma
Acetaldehyde / Wood aroma	Phenethyl acetate / Rose-like aroma
Isoamyl acetate / Banana aroma	Sotolon / Aged fragrance, burnt fragrance
Ethyl caproate / Pear, ripe apple aroma	

Main taste composition and image

Succinic acid / Acidic taste with body
Lactic acid / Yogurt, mild acidic taste
Malic acid / Apple, fresh acidic taste



* from the chart "Sake 4 types Taxonomy" of Japan Sake and Shochu Makers Association

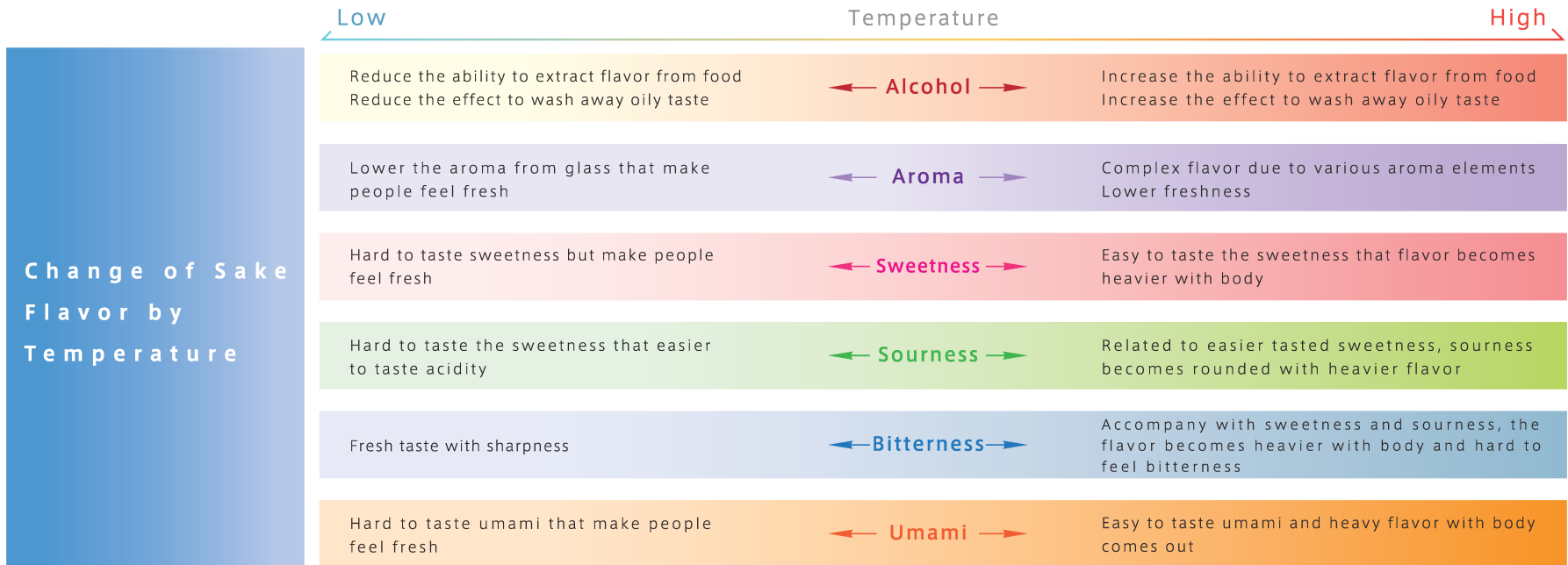
Flavor of Sake Categorized 味と香り by Taste and Aroma

The flavor of sake varies with the balance of alcohol, sugar, acid (organic acid), amino acid, and aroma. It is expressed comprehensively as the figure below, which can be categorized as High Aroma Type, Aged Type, Light and Smooth Type, and Rich Body Type.

Flavor of Sake which Varies with Temperature



Sake can be enjoyed at various temperature as “cold” and “warm” which is unusual for fermented alcoholic beverages in the world. Even same sake, flavor changes at different temperature. When the temperature is low, it is hard for people to taste the sweetness; therefore, it tends to taste acidic easily. Comparatively, when the temperature is slightly higher than body temperature, it becomes easier to taste sweetness and umami. In other words, depending on the type of sake, there is a temperature that can maximize its flavor; people can furthermore adjust to the most favorable temperature depending on their preference and the pairing food.



Change of Sake Flavor by Temperature

Pairing Sake with Food

There are good and bad matchings for sake with food that can be summarized as follows.

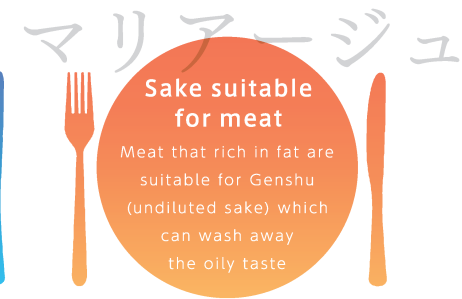


- Increase the flavor for both food and sake, or increase the flavor for either one
- Extract the hiding flavor and mix with original flavor to create new flavor
- Erase the odor of food ingredients by sake to stand out the flavor of food
- Wash away the oily taste by sake and refresh palate



- × Cause aversion in the flavor of each other, emphasize the bitterness and astringent taste
- × Emphasize and extract the weak part of food or/and sake
- × Erase the pleasant flavor for both food and sake, or either one

料理



Hint for Food Pairing

For good matching, it is the basic concept to pair sake with food in harmony flavor or in complement flavor. Harmony flavor means food and sake have many flavors in common that will enhance the taste when they pairing with each other. Complement flavor means food and sake have some flavors in contrast that will balance the element of taste for pairing. Also, although alcohol is not a component of flavor, it has the effect to wash away the oily taste of food.

Imaging the Flavor of Sake by Color

色どり



To predict the pairing result for food and sake, we need to consider each flavor element and their compatibility. However, it might be difficult due to multiple flavor elements will interact with each other. Therefore, we recommend to image the pairing result by "color".

People get message from the color. The relationship between color and message may be different depending on the culture that recipient grew up. For example, in Japan, it is common image that blue means "coolness" and red means "warmth."

Messages that flavor of food and sake deliver to people are depending on the combination of flavor elements. Therefore, people can image the color from the flavor of food and sake.

In other words, as we consider the compatibility of those colors which image from the flavor of food and sake, we can predict the compatibility of them.

Colors have several combinations such as "complementary colors" that colors are in a relationship to complete each other, "similar colors" that colors are in a harmonious relationship, and so on.

It is known that the color that people image for sake tends to be in specific direction. For example, Kimoto and high amino acid sake tends to image as warm colors such as red, orange, and so on; low amino acid sake tends to image as cold colors such as blue, light blue, and so on. Also, it is expected that people will image Namazake (unpasteurized sake) and fresh sake in blue and green color; high ginjo aroma sake with pear and banana aroma in yellow color; and aged sake with burnt fragrance in brown color.

By deriving the food pairing with color image, we can also expand the way to enjoy sake.