Types of sake and their features

Learning outcomes

• Knowledge of sake classification based on rice polishing ratio and addition of alcohol
• Knowledge of flavor and characteristics of premium sake, such as ginjo, daiginjo, junmai

Japan’s Liquor Tax Act defines the ingredients and the manufacturing process that must be used for sake production. The Act states that sake must be made from rice, koji and water, as described in Chapter 2, or from these ingredients plus neutral alcohol (ethyl alcohol of agricultural origin, called jozo-alcohol) or sugars and certain other ingredients. It also provides special designations (called tokutei-meisho) for sake that has a superior flavor and appearance and is produced in accordance with certain criteria pertaining to the ingredients and polishing. Special designations include ginjo, daiginjo, junmai ginjo, junmai daiginjo, junmai and honjozo. These currently account for around 30% of total sake production and can be considered premium sake (Fig. 3.1).

Premium sake labels include the special designation combined with other descriptions, depending on the manufacturing process.

Labeling examples:
- Junmai
- Junmai nama genshu
- Ginjo koshu

This chapter explains the definitions and flavor characteristics of specially designated sake and sake made using other manufacturing processes. It should be noted, however, that the flavor descriptions presented here are of a general nature, as each brand has its own subtle characteristics.

3.1 Specially designated sake and characteristics of each type

The rice used to make specially designated sake must undergo inspection to ensure that it complies with required standards. For each designation, there are also standards regarding the polishing ratio and amount of neutral alcohol used. Furthermore, the amount of koji-mai used in the production of koji rice must be equal to at least 15% of the total weight of polished rice used (Table 7.1).

3.1.1 Ginjo

Ginjo-shu is made with rice grains from which more than 40% of the outer layer has been removed by milling. Fermentation occurs at lower temperatures and takes longer (Sec. 8.5). Jozo-alcohol equivalent to up to 10% of the weight of the polished rice may be added.

It has a fruity fragrance, called ginjo-ka, with a light, non-acidic taste. “Light” does not simply mean “mild” or “diluted.” The sake should also have a smooth texture (mouthfeel) and a good aftertaste.

The specific characteristics of ginjo-shu vary by brewers, with the more fragrant varieties designed to highlight ginjo-ka and others designed with more emphasis on flavor and less on ginjo-ka.
### 3.1 Types of sake and their features

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>3.1.2 Daiginjo</strong></td>
<td>Daiginjo-shu is a form of ginjo-shu made with even more highly polished rice from which at least 50% of the outer layer of the grain has been removed. It has an even more refined taste and stronger ginjo-ka than ginjo-shu.</td>
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<td><strong>3.1.3 Junmai, tokubetsu junmai</strong></td>
<td>Junmai-shu and tokubetsu junmai-shu are made only from rice, koji, and water, highlighting the flavor of the rice and koji more than other varieties. There are no requirements regarding polishing ratio. Junmai-shu is typically high in acidity and umami, with relatively little sweetness.</td>
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<tr>
<td><strong>3.1.4 Junmai ginjo</strong></td>
<td>Because ginjo brewing techniques are used in making junmai ginjo-shu, the acidity and umami are toned down and there is a clear ginjo-ka.</td>
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<td><strong>3.1.5 Junmai daiginjo</strong></td>
<td>Junmai daiginjo-shu is regarded as the highest-grade sake. The best products in this class deliver a good blend of refined taste with acidity and umami.</td>
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<tr>
<td><strong>3.1.6 Honjozo</strong></td>
<td>In honjozo-shu, the emphasis is on flavor and there is little ginjo-ka or aging-induced aroma. It has a reasonable level of acidity and umami and rather than asserting the aroma and taste of the sake itself, it helps to bring out the taste of food.</td>
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#### 3.2 Futsu-shu (ordinary or non-premium sake) and its characteristics

The bulk of the sake produced in Japan is classified as futsu-shu. The rice used to make futsu-shu is polished to an average of around 70% and the amount of jozo-alcohol used is equivalent to around 20% of the weight of the polished rice. The aroma of futsu-shu is less pronounced than in specially designated sake. At most, it can be said to have a faint caramel aroma, a result of aging. The taste profiles of futsu-shu also reflect regional taste preferences to a greater extent than premium sake (Sec. 8.10).

#### 3.3 Characteristics of sake made using other manufacturing processes

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>3.3.1 Nigorizake (cloudy sake)</strong></td>
<td>Nigorizake has a cloudy appearance caused by yeast and fine particles of steamed rice. It has a pronounced taste of rice. Normally, when the moromi (main mash) is filtered, it is placed in a cloth bag, so the filtered sake is almost clear and contains just traces of sediment. However, for nigorizake a coarse meshed cloth or a net is used, and so some yeast and fine particles of steamed rice remain as sediment in the filtered sake.</td>
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<td><strong>3.3.2 Namazake (unpasteurized sake) and nama-chozo-shu (sake unpasteurized at storage)</strong></td>
<td>Namazake and nama-chozo-shu are varieties of sake with the flavor of freshly brewed sake. Normally, sake is pasteurized twice before being bottled. The purpose of first pasteurization is not only to sterilize it but also to stabilize quality by halting the action of enzymes. Sake is pasteurized a second time at the bottling stage for sterilization. Namazake is not pasteurized at all.Nama-chozo-shu is sake that is stored (chozo) at low temperature at the brewery in unpasteurized form and only pasteurized at the bottling stage.</td>
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<td><strong>3.3.3 Koshu (aged sake)</strong></td>
<td>The color of koshu ranges from yellow to amber. It has little ginjo-ka, but has a caramel aroma (with hints of honey, dried fruits, molasses and soy sauce), similar to sherry and madeira, as well as an aroma suggestive of nuts and spices. It has a slightly bitter taste and a long finish. Bitterness is not normally considered a desirable trait in sake, but it is one of the characteristics of long-aged sake. Sake is usually allowed to age in storage for about six months to a year before shipment. With koshu, the aging process lasts at least three years, during which time the color and flavor change due to the Maillard reaction between the sugars and amino acids present in the sake.</td>
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<td><strong>3.3.4 Genshu (undiluted sake)</strong></td>
<td>Because no water is added after production, genshu has a high alcohol content in the 17%-20% range. It normally has a strong taste.</td>
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3.3.5 Taruzake (cask sake)
Taruzake is stored for a time in casks made of Japanese cedar, giving it a pleasant cedar aroma.

Until the beginning of the 20th century, sake was normally transported in casks. The sake retailer would transfer the sake from the cask to an earthenware vessel for sale. These days, nearly all sake is bottled, but some Japanese-style pubs or soba restaurants still mainly serve taruzake. Taruzake is also used at opening ceremonies and celebrations in a ritual called kagami-biraki in which the cask’s round lid (which resembles a traditional mirror or kagami) is opened using a wooden mallet and the sake served to all of the guests.

3.3.6 Sparkling sake
There are sparkling varieties in which the sake is carbonated by trapping carbon dioxide produced from second yeast fermentation, or by injecting carbon dioxide. These range widely from sweet products with an alcohol content in the 6%–8% range to those with a high alcohol content and dry taste. They also vary in appearance from clear brews to cloudy nigorizake.

Figure 3.2 Classification of sake based on differences in production techniques

- Production techniques
  - Mash filtration
  - Pasteurization
  - Maturation
  - Dilution
- Cloudy sake Nigorizake
- Aged sake Koshu
- Undiluted sake Genshu
- Unpasteurized sake Namazake
- Sake pasteurized once at bottling Nama-chozo-shu

Methods of tasting sake

4.1 Vessels used for sake tasting, temperature of sake
Japanese breweries and analysis laboratories use a special vessel called a kikichoko, but it is also possible to use a wine glass (Bordeaux style). When using a glass, it is recommended to cover the table with a white cloth to enable the color of the sake to be seen more easily.

The serving temperature for tasting should be 18°–20°C, as this is best for appreciating the product's subtle characteristics and is least likely to cause taste fatigue.

【Kikichoko】The cup used to taste sake at breweries and analysis laboratories is called a kikichoko. This is a 180 ml white porcelain vessel with two concentric cobalt blue circles on the inside bottom. The white color highlights differences in sake color. If there is turbidity, the edges of the two blue concentric circles become blurred, enabling detection of slight differences in turbidity. Breweries and analysis laboratories look very carefully for turbidity in sake while it is in storage, as this can indicate either inadequate filtration or contamination by lactic acid bacilli.

4.2 Procedure
Sake tasting involves the following sequence of steps. The procedure is basically the same as for wine tasting.

1. Observe the appearance, including color and clarity.
2. Evaluate the uwadachika (orthonasal aroma) by bringing the vessel up to the nose and smelling the aroma given off directly by the sake.
3. Take about 5 ml of sake into the mouth, spread it around on the tongue, breathe in air through the mouth and mix it with the sake.
4. Evaluate the fukumika (retronasal aroma), which is the aroma that reaches the nose via the mouth.
5. Slowly evaluate the taste on the tongue.
6. After expectorating the sake, quietly sip more sake and allow it to pass down the throat in order to evaluate the aftertaste.

It is important to evaluate both the orthonasal aroma, which is the aroma sensed when the vessel is brought near the nose before tasting, and the retronasal aroma, which is the aroma sensed while the sake is in the mouth. The entire tongue should be used to evaluate the taste. This is because the tip of the tongue is sensitive to all tastes, and the back of the tongue is sensitive to acidity, bitterness and umami, but the middle part of the tongue has less ability to sense taste.

Learning outcomes
• Knowledge of vessels and procedures used for tasting sake
• Knowledge of evaluation criteria, such as appearance, aroma, taste and mouthfeel
• How to recognize off-flavors