

Rice that has the correct mould growing on it will act like malt and convert further rice (starch) to sugar. This is the principal of Sake making. We refer to this rice as MALT-RICE (correct terminology is Kome-Koji). Your Sake Kit contains 10 grams of mould seeds (Koji- Kin): this material contains the mould seeds that will grow on rice to make enzyme rich malt-rice (Kome-Koji) and create complex and interesting flavors similar to mould use in cheese making.

instructions for Basic Homebrew Sake (producing 3 liters)

Step One: Making malt-rice (Kome-Koji)

Materials: 400 grams of rice (medium or short grain): 0.5 teaspoon of Koji mould seeds (Koji-Kin)

Equipment: One colander, sieve or bamboo steamer to contain rice Cotton cloth to absorb water condensation from the saucepan lid (see additional notes) One large saucepan to contain sieve/colander/ bamboo steamer or a traditional 2 part steamer saucepan.

Procedure:

- 1.Wash 400g(0.9lb) of rice (medium or short grain) until the water clears, soak the rice for about one and a half hours and then put the rice in a basket or sieve for at least 20 mins to drain off any excess water.
- 2.Steam cook the rice. Steam cooked rice looks slightly transparent, not white. (N.B. make sure that the rice is not in direct contact with the boiling water, see Additional Notes.)
- 3.Cool down the cooked rice to 30°centigrade (86° F). Put the rice into an enamel or stainless steel container and add 1.5 grams (0.5 teaspoon)of mould-seeds (Koji-Kin), this can be mixed with a teaspoon of plain flour to help distribution. **Cover the container with moistened cheese or cotton cloth to prevent drying.** A very fine metal sieve /tea strainer is very useful for the distribution of seeds. The spore packet contents are unaffected by repeated openings.

Keep the inoculated rice in a warm place at 30 °centigrade (86° F). Stir the grains every 10 hours to distribute the mould evenly. Notice the rice becomes white after 15 hours accompanied by a strong cheese-like aroma. Maintain the rice at 30° centigrade (86° F) for 30 hours. Your rice will become covered with white soft fibers and should be firm and slightly sweet.The Malt-rice (kome-koji) is now able to convert regular steamed cooked rice to brewing sugars.

Step two: Brewing Combining malt-rice with regular steam cooked rice

Materials: (beginners are encouraged to use half these amounts for an easy start)

1500grams(3.3lb) rice (medium or short grain): 400grams(0.9lb)malt-rice (Kome-Koji): 5grams(0.18oz)citric (one teaspoon) or 4 gms of hops, 4 liters(0.9gal) of chilled chlorine/iron free water.

5grams (0.18oz): Yeast : Use wine/champagne yeasts (EC1118), and Lager yeasts produce a very pleasant flavor indeed. As starch is converted to sugar then alcohol in one instantaneous process, unusually high alcohol levels (18% alc/vol) can be created from low alcohol yeasts.

Equipment:

Basket or sieve to drain excess water, a 10litre (2.6gal) deep brewing container with a lid. This should be made from either enamel, stainless steel, glazed ceramic material or glass. Plastic containers are not recommended as they are difficult to sanitize. If you do use plastic make sure it is food grade and sterilize with boiling water.

Procedure:

1. Wash 1500g(3.3lb) rice until water clears and soak the rice for about one and a half hours.
2. Steam cook the rice (see additional notes for details)
3. After steaming, cool the rice to 30° centigrade (86° F).
4. Dissolve the citric acid with 4 liters(0.9gal) of water in the brewing container. Citric acid will prevent the contamination of bacteria and add a slight sour taste to your Sake. An alternative method is to flavor the water with **Hops**. To make a hops solution add 5 gms of hops pellets to a cup of boiling water and steep for 10 mins. Add small amounts of this solution to your water till it has a distinct noticeable bitter hops flavor (don't overdo it!) and a faint yellow color.

The flavor of hops will disappear by the end of the brewing process. Hops works very well preventing contamination and allows you to brew at a temperature of around 22°C or 70°F.

5. Add 400 grams malt-rice (Kome-Koji) to the water in the brewing container and mix well.
6. Add the cooled steam cooked rice to the brewing container and mix well.
7. Pitch in the yeast and place the lid on the container keeping it at room temperature. At first the rice will absorb all the water, however within 2 days the rice will break down to a white fermenting slurry. Lower fermenting temperatures will produce a better tasting brew. Around 18°C (66°F) is an ideal temperature.
8. Stir the mixture at least once a day. In two or three days you will notice a very pleasant Sake aroma.
9. In two weeks, fermentation will end. Filter the brew using a sterilized basket, fine sieve or cheese cloth or gauze or nylon straining bag. This may take up to 24 hours. This style of Sake is best served chilled. If you require crystal clear Sake separate the residue by decanting. (see additional notes for preservation details).

Additional information

Important: When you are making your malt-rice (Kome-Koji), you are growing a mould on rice. Providing you grow this mould and no other there are no health concerns. It is possible for the beginner to grow a strange exotic mould or bacteria in error and if used to make a brew, could be toxic and unpleasant to drink. Please use your common sense, if something is unpleasant smelling or tasting, don't consume it!. Below are a few tips to help you recognize and grow malt-rice (Kome-Koji).

1. Malt-rice (Kome-Koji), is always white or slightly tan colored.
2. The smell of malt-rice (Kome-Koji) is a cheesy strong smell (not a mouldy smell), perhaps not a lovely smell but not an unpleasant "off" smell.
3. Small white fibers are seen to be growing from the rice in the later stages. If you grow fibers that are not white in color, do not use this batch as you are growing another mould as well as Koji.
4. To grow a mono culture of only Koji, distribute your Koji-Kin (seeds) very evenly and liberally using a fine metal sieve (tea strainer), making sure you thoroughly mix the rice and seeds.

Making malt-rice (Kome-Koji) : An electric frying pan with a high lid can be used to help keep the rice warm in the making malt-rice (Kome-Koji) stage, however care must be taken not to overheat the rice. Overheated rice will kill your fungus growth. Note that the growth of the mould (koji) will generate temperatures above 30°C(86°F), however as long as the environment around the rice is around 30°C(86°F) your growth will be healthy. Any warm dark spot, that will keep your rice away from light and around 30° centigrade (86°F) is perfect for making malt-rice(Kome-Koji). Close up image of ripe malt rice grain (kome-koji)

Steaming Rice: Making good enzyme rich malt-rice (Kome-Koji) depends firstly on the quality of the steam rice. When steaming rice, make sure the rice has been soaked for 1.5 hours and has been drained for 20 minutes of excessive water. The rice can be wrapped in a slightly damp cotton cloth to help distribute any excessive moisture.

Place the rice into a colander and then into a saucepan with an adequate amount of water and make sure the rice is not in contact with the boiling water. Place a thick cloth over the rice to prevent water

(condensation) dripping from the lid of the saucepan onto the rice. Steam with the lid on for one hour (checking the water level occasionally). When cooked, the rice should be very slightly sticky, easy to separate and rubbery when tested between the front teeth. Great care must be taken to get the correct texture. It is best to use medium or short grain rice.

Traditional Simple Method of making malt-rice (kome-koji): If you are having trouble finding or creating a warm spot, a 2 litre plastic bottle/container of warm water (50 ° C, 152°F) will act as a heater and remain warm for 12 hours when wrapped in a thick blanket with your container of inoculated rice. A plastic take away container with the lid on (to prevent drying) is perfect for this job. The rice needs to be wrapped in a slightly damp cotton cloth to help distribute any excessive moisture.

Mix the rice by hand every 12 hours. This is a good time to refill the bottle with warm water. Although the temperature fluctuates, very good results can be obtained. Once the koji starts growing the rice will become exothermic (after about 16 hours) and will generate heat, the temperature may reach as high as 40C; at this stage it is not necessary to use the warm water bottle just let the koji rice run it's course and continue wrapping it a thick blanket. When finished each grain of rice should be covered with a fine growth of white fibers. Store the Malt rice in the freezer or dry it in a tray in a warm room.

A bamboo steamer is very suitable for steaming rice. Wrap the soaked rice in a slightly damp cotton cloth to help distribute any excessive moisture and place in the steamer. Now put the steamer over a saucepan or wok making sure the rice gets full exposure to the steam. Steam for one hour. Make sure the lid is on the steamer. There will be no dripping condensation problem as the lid is made from bamboo.

Warm spots: devices used for creating warm spots for malt-rice production include, electric frying pans, hot water bottles in a polystyrene box, electric blankets, electric bulbs in boxes (shield rice from the light) etc. Any object that radiates some heat can be used with a cardboard or polystyrene box. A thermometer is indeed very useful .

Brewing Tips: Particular attention should be paid to the amounts of water used at the brewing stage. Too much water will result in a very poor quality drink indeed. Good quality water is essential, use chlorine/iron free commercial or boiled water. Brewing at temperatures above 18 ° centigrade (66° F) are not recommended. The brewing process can be stopped at any time by straining the brew and pasteurizing.

Brewing Adjustments: Your brew can be sweetened by adding more steamed rice, perhaps in 250 grams lots (preferably 200gms rice+50gms kome-koji), at the end of fermentation. This will start a second fermentation that will increase the alcohol level: when the yeast can longer survive in the higher alcohol levels (approx 18% alc/vol) the remaining steam rice will be converted to sugars increasing the sweetness of the brew. Sugar and citric acid can also be used to obtain a sweet or dry effect. This homebrew style of Sake is called "Doburoku" and is traditionally drunk with a cloudy milky color as the most delicious flavors are found in the white residue. If you are experiencing overly acidic (sour) sake you can stop the brewing process early (perhaps 5-6 days) while it is still sweet by pasteurizing at 60°C (140°F).

Brewing containers and bottles should be sterilized by washing with Sodium Metabisulphate. Please use caution when using this product and be sure to read the manufacturers instructions carefully. Household bleach can also be used for sterilizing, again follow manufacturers instructions.

Pasteurizing: Sake that is stored with yeasts still alive in the bottle may be unstable and not preserve well. Sake can be stabilized by pasteurizing, this process requires GENTLY heating the strained brew in a saucepan for 5 mins at 60 degrees centigrade(140° F), this will slightly change the character of the drink. Allow the sake to cool before bottling. This bottle will be now good for a maximum of 1 year while it remains unopened. Generally sake will improve for the first few months after bottling. Any sterile sealed bottle will work well for storing Sake. Store in a dark place as light does not agree with Sake. One can choose not to pasteurize, however be sure to keep the Sake refrigerated at all times to preserve it well.

An extremely pleasant tasting drink, approximately 14% to 18% alc/vol, can be produced by following the above instructions. This particular style of Sake is best served chilled and drunk traditionally with neighbors while still fresh. Fish and cheese are very suitable Sake companions.