



How to prepare NUKADOKO and NUKAZUKE at home

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1. How to prepare NUKADOKO and NUKAZUKE

3.1 Guidelines to make your good and healthy “NUKA”

Firstly before starting preparing your Nukadoko you have to collect all the ingredients that you'll need for the preparation. In order to make fermented Nukadoko, you need to go through a phase called *Sutezuke* pickling.

Sutezuke pickling lasts for the first 3 weeks after the preparation, and during this period you must pickle leftover vegetables and mix the rice bran everyday to feed and grow the lactic acid bacteria inside. Once you have the fermented Nukadoko, you can start making *Nukazuke* pickles. By putting ingredients inside the Nukadoko for 8-12 hours, you will get Nukazuke ready to eat.

3.2 List of ingredients

The amounts indicated in the following recipe are to prepare a good rice bran bad for 2-3 people.

1. 1 kg of raw rice bran
2. 1 liter of water (same as rice bran)
3. 130 g of salt (about 13% of rice bran)
4. 3 pieces of 5 cm square of Kombu/3 dried tomatoes
5. 2 dried chili peppers
6. 8 g of Katsuobushi
7. About 5 dried shiitake mushrooms/dried porcini mushrooms
8. Leftovers of vegetables (carrots, turnip skins and leaves, broccoli cores) or 4 leaves of cabbage



Step 1 - Preparation of Rice Bran bed (Nukadoko)

Place the rice bran in the container, add the salt first and mix briefly. Then add your water (leave about 50-100 ml of water) at this point, mix and stir from the bottom in order to combine perfectly rice bran, salt and water.



The bran can cause a little allergic reaction to your hands, if this is the case use the *Hacko Spatula* to do actions in which you have to directly touch the bran.



As a guideline for the right amount of water roll the bran into a table tennis size ball and squeeze it tightly in your hand. If the amount is right the water will gradually come out from between your fingers. If it's not, add the water left in the step before.

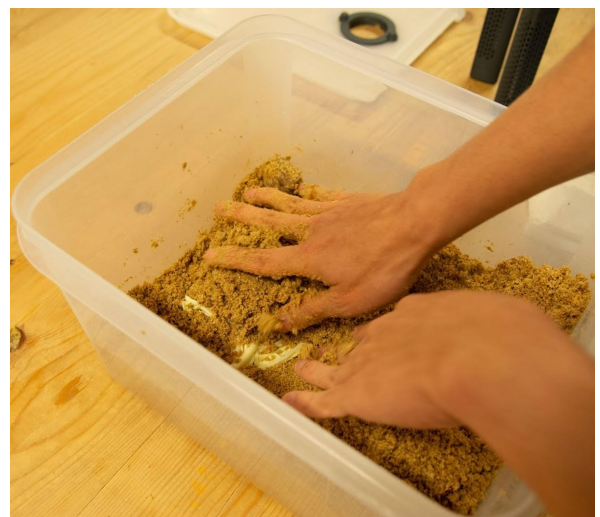


Step 2 - Add the flavoring ingredients

Add gradually all the ingredients (dried chili peppers, Katsuobushi, dried shiitake mushrooms/dried porcini). Be sure to mix all the ingredients well inside your rice bran bed. The ingredients such as Katsuobushi, and Shiitake mushrooms are a big umami source. The adding of these ingredients will bring a lot of taste to the vegetables that will be pickled inside your Nuka.

On the other side the chili peppers will bring a refreshing aroma but mainly they have the function to protect your Nuka from the insects.

Step 3 - Add the pickled vegetables or cabbage leaves for Sutezuke



Add the leftovers of vegetables or 4 leaves of cabbage and cover them with the rice bran. The vegetables are useful for replenishing nutrients and moisture for fermenting the rice bran bed.

Step 4 - Add the Kombu/dried tomatoes

Add the Kombu/dried tomatoes and cover them with the rice bran.



The Kombu is added at the end since it's very sharp and can cause some wounds during the mixing processes. After squeezing the surface with the *Hacko Spatula* to remove the air inside. This step is important since lactic acid bacteria like an environment with few oxygen.

Then add the *Hacko draining pipes* depending which model you decide to use:

- System 1: it's recommended to place them at the corners or in the middle of the rice bran bed.
- System 2: place it in the middle of the rice bran bed to divide it in 2 sections in which you'll be able to pickle ingredients with different water content without influencing the fermentation of each other.

Finally clean the surface of the container with the *Hacko Spatula* and use clean cloth to wipe out the extra bran stuck on the surface.

3.1 How to ferment the Nukadoko during the Sutezuke pickling period

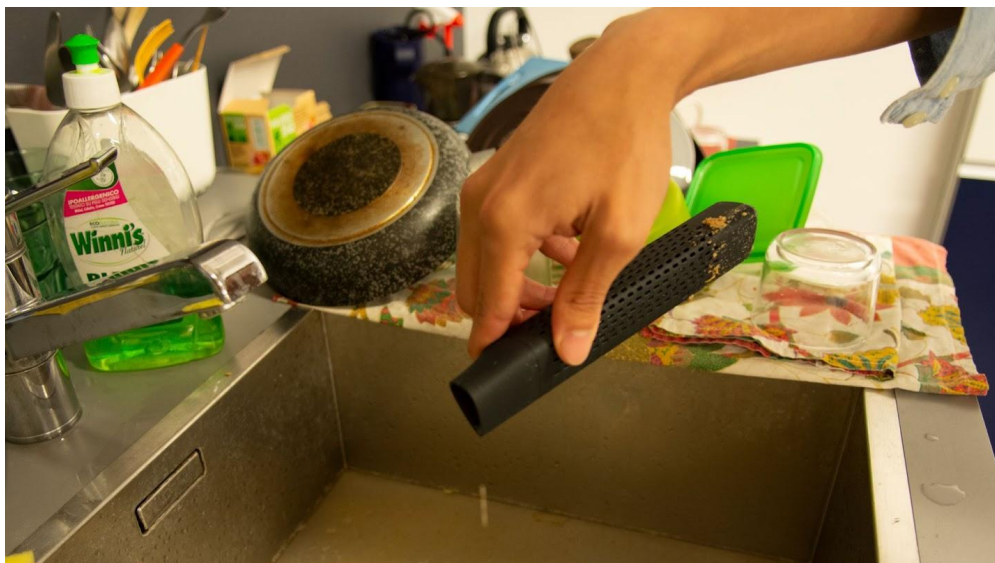
Step 1 - Mount the *Hacko* controller device

When the preparation of the Nukadoko is done, mount the *Hacko* controller device in the specific slot that you created on the box lid. During this step be sure that the sensor pins touch the rice bran bed.



Step 2 - Daily maintenance of the Nukadoko

Before starting mixing remove the extra water collected by the *Hacko* draining pipes.



Mix thoroughly from the bottom twice a day for the first 10 days, then reduce to once a day for the next 10-20 days .



The leftovers of vegetables/cabbage leaves have to be replaced after 4/5 days.



When you are changing the vegetables, remove as much rice bran as possible (from the vegetables) then squeeze out the juice from the vegetables, and add it back to the Nukadoko. Be sure to squeeze the vegetables well as the juice brings a lot of flavor to the Nukadoko.

Then add again your new vegetables leftovers/cabbage leaves. This step has to be repeated 3 times for a total Sutezuke pickling period of 20 days.

After this processes, place back your *Hacko draining pipes*.



After the Sutezuke period, throw away your cabbage leaves.

3.2 How to monitor the conditions for the fermentation

Thanks to the *Hacko controller device* you will be able to monitor three fundamentals parameters:

- Temperature: has to be between 20 - 25°C
- Humidity: has to be between 59 - 63%
- Salinity: has to be kept stable with the initial amount

To control the state of the Nuka you will have two ways:

- *Telegram Hacko chat Bot*: in this chat you will find updates of the abovementioned parameters
- *Button on Hacko controller device*: to see how your Nuka is doing without opening the telegram chat you have the possibility to have visual info from the *Hacko controller device*. To do so you will have to touch the button on top of the tool. In base of the conditions of the Nuka you will have 3 different lights colors:
 - White: everything is fine in your Nukadoko.
 - Red: there is a problem with your Nukadoko. In this case please go to the *Hacko telegram chatbot* to see specifically what's wrong and to have some hints on how to recover the situation.
 - Green: indicate that it is time to start placing food inside the Nukadoko. After the first time you will see the green light will substitute the white one.

If the rice bran bed is over 30°C, the bacteria in the rice bran bed may ferment abnormally, so it is recommended to put it in the refrigerator during the hot summer months.

3.3 How to pickle and make Nukazuke inside the Nukadoko

Firstly the most recommended foods to pickle are:

- Cucumber
- Carrot
- Radish
- Eggplant
- Mozzarella (control very well the water amount inside the Nukadoko)



The ingredients before pickling should be washed with water, lightly rubbed with salt and then covered inside the rice bran bed.



The ingredients should stay inside the Nukadoko from 8 to 12 hours, you can adapt the time based on your taste. If you cut the ingredients the pickling time will be less as more surface is exposed to the Nukadoko.



During the pickling period you can check the fermentation parameters with *Hacko controller* device.

If you pickle more the flavor and the saltiness get stronger otherwise it could be lighter flavor and lighter saltiness. Remember to keep under control the Nukadoko parameters and to mix at least once in 2 days to keep the fermentation alive.

2. Credits Hacko

Hacko is a project publicly released and made available in open source mode according to the Creative Common License (CCBY) and promoted by Distributed Design Platform with the related documentation. The authors of Hacko are by Kentaro Sohara, Giovanni Bruno, Gaia Rubino, Luca Grosso, Andrea Somenzi, Federico Denni, Martina Comola, Valerio Libardo.

Hacko is a project developed with the collaboration of Polifactory within the Distributed Design Platform project co-funded by the Creative Europe Programme of the European Union.

3. Downloadable files

Hacko files can be download at [Polifactory](#)

4. Contacts

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