



## Celestial Roots Workshop Preparation

**Tom Rothsey**

Thank you for booking into my vegetable fermentation workshop. Our aim is to become comfortable with fermentation of vegetables of all kinds so we can confidently and successfully produce high quality, probiotic rich functional foods for ourselves, our family, and friends. This short document tells you what you will need to bring to get the most out of the workshop.



## Equipment

More detail on equipment can be found in your workshop book starting on page 7. In a workshop setting, it's impractical to ferment in a crock and then transport the set crock home, so we will be concentrating on jars. That said, if you have a crock and want to use it, bring enough vegetable to fill it, and bring a sheet of the best quality food grade plastic (e.g. large ziplock bag) and a stout rubber band big enough to seal the crock with the plastic for transport home. For short ferments (e.g. kimchi, carrot and green mango) we can get away with standard, repurposed jars, but even then, airlock jars are preferable if you have them. Any jar with a 1 L or 1 kg capacity is ideal. In the equipment section of the book you will see these jars (and Ball brand type jars) can also be turned into airlock jars with a bit of quick DIY magic. An airlock may be purchased from a home brew supply shop, and a hole drilled in the lid, details in the book. For longer ferments (e.g. sauerkraut, sauerruben, cauliflower), some kind of airlock or pressure releasing sealed system is necessary. Our jars want to be capable of releasing the CO<sub>2</sub> that is a by-product of fermentation, while excluding oxygen. Oxygen leads to the formation of kahm yeast (harmless, but imparts a rank flavour if left unattended) and mould. Mould and mycotoxin exposure are issues we all should be concerned about, and this is discussed beginning on page 80 in the book. I have a blanket policy of zero mould consumption, so throw out anything that is mould affected. This is a personal choice, but a course I recommend to any who ask my opinion on the matter.

Three options for oxygen exclusion/CO<sub>2</sub> release are dedicated airlock jars, Fido jars (Italian made), or wide mouthed Fowlers Vacola preserving jars (Australian made). Fido jars may off-gas (release CO<sub>2</sub>), but not if the seal is a little tight, so these are the last choice (and not cheap Chinese versions, which contain lead which leaches from the glass). The Fowlers jars I use are the number 31 jar, 1 L capacity, straight sided, wide mouthed, with a stainless steel lid, rubber O-ring and clamp. The O-ring will compress under sufficient CO<sub>2</sub> pressure, but will close before any oxygen can enter. Below is the link to the company website shop. 6 No. 31 jars complete with lid, ring, and clamp sell for \$58.50, but many people have these in the shed or cupboard, so asking family members, or on sites such as 'Freecycle' (a Yahoo group), and local community buy/swap/sell pages on facebook can turn up jars at a fraction of the cost, or even free. I will also link you to Country Brewer in Toormina, who sell the whole range of Fowlers Vacola equipment, though some things may need to be ordered in, as they are a small, family-run affair.

<http://fowlersvacola.com.au/shop/preserving-accessories/preserving-jars>

<https://www.facebook.com/CountryBrewerToormina/>

Airlock jars, as mentioned above, can be made at home from any jar, but they may also be purchased readymade. Easiest to source in Australia are Weck jars (made in Germany). Tree of Life Compounding Chemist in Sawtell sell Weck airlock jars complete, or they may also be obtained from the Weck company website. Weck also sells lids for wide mouth Ball jars that have an airlock, so if you have a load of Ball jars but no airlocks, this is an option. Airlocks can be obtained either from Coffs Home Brewing (Max Murray Mall), or Country Brewer (Toormina). Matt at Country Brewer will do a new one litre jar, plus airlock and grommet for \$9.95, and he will even drill the hole for you if you wish. Links to all follow below.

<https://www.facebook.com/sawtelltreeoflife>

<http://www.weck.com.au/>

<http://www.coffshomebrew.com.au/>

<https://www.facebook.com/CountryBrewerToormina/>

Upon reading the equipment section of the book, you will see that some kind of food safe weights are required to keep the vegetables under the brine in airlock jars, and this is also recommended for closed system jars for short ferments. Weck sell good quality glass weights, I use a similar thing from another manufacturer (Kilner), but these have been discontinued. I also use good quality glass ramekins, egg cups, shot glasses, paperweights, votive candle holders, and ceramic items (no external paint of metallic leaf) such as saucers, plates, ramekins, bowls, etc. Smooth, non-porous, dense river stones may also be used, but these need to be well scrubbed and then boiled before use. Food safe hardwoods are also used, and purpose made ceramic weights are available from overseas suppliers, but to my knowledge, not from local suppliers. A local potter will be able to make some though, and some may already be doing so. Most of my weights were found in op shops, all I have to do is keep my eye out for things of the right size.

To buy a good sized (5 L capacity) crock for home fermentation, Kombu in Bellingen have a special on Durand crocks at the moment. From the Durand website, they are \$220 plus shipping, you can pick them up from Kombu for \$189.99. Links to both below. Country Brewer in Toormina also do Mad Millie brand crocks, 3 L capacity, for \$129. Link to their facebook page below.

<http://durand.com.au/fermentation-crocks/5-litre-fermentation-crock.html>

<http://www.kombuwholefoods.com.au/>

<https://www.facebook.com/CountryBrewerToormina/>

All equipment needs to be clean and sterilised. Dry sterilisation in the oven is not recommended because glass is designed for wet heating. Dry heating of glass alters its structure, weakening it, and making it prone to developing hairline cracks, faults, weaknesses, and eventual failure, which under pressure may lead to flying glass shards. Not good. The final hot rinse cycle in a dishwasher is accepted by Food Standards ANZ as an adequate sterilisation method. Another method is placing the glassware in a water bath used for food preservation. This is a plastic or stainless steel tub with a heating element. Partially fill the vessel and your jars with water. Place the jars in the vessel, put the lid on, and turn on the power. Once boiling, leave for at least 10 minutes, by which time the combination of boiling water and steam will sterilise the glass. Finally, jars may be sterilised in a similar manner in a large stock pot or similar, but no aluminium please, only stainless steel. Lids, seals and weights are easily sterilised in a pot of boiling water on the stove, or included in the dishwasher. Lids and seals tend to fly everywhere in the dishwasher though, so a pot on the stove is often more convenient.

## **Ingredients**

We want to ferment (and eat) clean food as much as is possible. Links to local suppliers of guaranteed chemical free or organic/biodynamic produce appears at the end of this section. Residues of agricultural chemicals not only adhere to surfaces, but are incorporated into vegetative matter, and consumption of conventionally grown foods contributes to gut dybiosis. Glyphosate in fact was used as an antibacterial agent (and also as de-scaler) before it was used as broad-spectrum herbicide. In the book there is a section (page 24) that briefly discusses the problems with agricultural chemicals.

A list that summarises the ingredients discussed in this section appears at the end. Some ingredients are season dependent, others are fairly regularly available. Bear in mind that 1 kg of cabbage will fill two 750 ml – 1 L capacity jars allowing for headspace expansion, and weights, most often with a little room to spare. Vegetable fermentation produces CO<sub>2</sub>, and in a ferment like sauerkraut or kimchi, because we pack them tightly to remove excess oxygen, CO<sub>2</sub> becomes trapped and the level in the jar will rise. We will make sauerkraut, and if you would like to make two different kinds (which I recommend), bring either one big or two smaller cabbages. Different cabbage varieties have different nutrient and functional

food (medicinal) profiles, so if getting two cabbages, try a standard drum (white) cabbage, and either a red, savoy or sugarloaf as your second cabbage. A drum cabbage can commonly weigh in at 3 – 4 kg, so if you get a big one, make sure you have enough jars for it. Some suggestions for additions to sauerkraut appear in the list.

We will make a traditional kimchi, which relies on wombok (or Napa) cabbage, but any cabbage will do (including bok choy, which in the broad sense of the term, is also a cabbage). Try to get some wombok cabbage though, it makes the best kimchi. Using the ball park weight/capacity of 1 kg to 1.5 – 2 L capacity, bring enough cabbage for the jars of kimchi you wish to make. Kimchi also includes a sticky rice porridge (which I will make the night before, because it needs to be cool), and fish sauce. If you don't want either of these, merely leave them out when you put the kimchi together. Radish, carrot, ginger, spring onion, and garlic are also added to kimchi, as are chilli flakes (which I will bring, organic chilli flakes are hard to find).

As for the other ferments, in the list that follows, I make suggestions for ingredients which should be available over the season. Consult the recipes in the book and decide which ingredients sound good to you, and if you bring your favourite herbs and spices, we can brainstorm how to employ them, including Indian or Thai flavourings.

- Sauerkraut – cabbage, any variety/varieties. Common additions to kraut include: caraway seed, yellow mustard seed, juniper berry, dill leaf/seed, fennel, lemon myrtle (common in my home), carrot, beets, spring onion, horseradish, unsweetened cranberry, ginger, garlic, seaweed, and apple. Additions are small in size, sauerkraut is predominantly cabbage. Airlock jar needed.
- Kimchi – wombok (or other cabbage), 1 large or 2 small carrots, 1 large or a bunch of small radishes, 2 spring onions, ginger and garlic (to taste, kimchi can take a lot of spice), and whole chillies if you wish. This style of kimchi (tongbaechu kimchi) is predominantly cabbage.
- Beet kvass – 1 beet of medium size, some herbs and/or spices. Enough pure (chlorine and fluoride free) water to half fill your jar, which can be between 500 ml – 1 L.
- Carrot and green mango – 2 or 3 medium carrots, 1 small to medium green mango (or green papaya), a thumb of ginger, kaffir lime or lemon myrtle leaves.
- Sauerruben – turnips, kohlrabi, swede (rutabaga), or any combination of these, 4 good sized bulbs will fill a 1 L jar, which will want an airlock. They can be fermented

straight, or with dill leaf, caraway seed, horseradish, fennel (bulb and leaf), turmeric, black pepper, ginger, garlic, and any variety of European spices and herbs.

- Cauliflower – eyeball your cauliflower to determine how many jars you will need. This a brined ferment (as opposed to ‘self-brining’ ferments like kraut, kimchi or thin sauerbraten) so enough clean water to half-fill your jars will be needed. Cauliflowers goes well just on its own, with European spices, or with Indian spices. If wanting an Indian flavour, bring some fresh turmeric root, and some black pepper corns as well as your favourite spices.
- Dilly beans – if you have some green beans, we can make this. The recipe is not in the book, but we need beans, garlic, and dill leaf, also optionally celery seed, mustard seed, horseradish, jalapeno pepper, chives, and a bay, grape or horseradish leaf. Enough water to half fill the jars, and enough jars to contain your beans, which are best if left long, and stood upright in the jar. These may ferment from 1 – 6 weeks, no airlock needed for short ferments.
- Chillies – if you have a lot of chillies, we can ferment those too. Whole chillies in salted sweet white wine are one option, or the chillies can be chopped. With chopped chillies, think of extras like herbs and spices, garlic, tomato, apple cider vinegar, and fish sauce. Capsicums may also be used.
- Any other vegetables, herbs and spices you have to hand. If you have a garden, bring what you have, a little of each, and we’ll see how can use it. Ginger, turmeric and garlic are so useful and versatile, at the very least make sure you have some of these. Small Italian or Spanish garlic is best, Russian garlic, though easy to peel, has nowhere near the natural healing power of true garlic.
- Salt – No table salt please, and granulated salt is required (no rocks!). I use either Himalayan salt, or Australian sea salt, but any good quality salt rich in minerals and free of anti-caking agents and other impurities is fine. 200 g will be plenty.
- Water – water that contains chloride and fluoride will retard fermentation because these substances kill bacteria. Filtered rain or tap water are best, bottled water will do if these aren’t available. Amounts dependant on how many brine based ferments you think you’ll do, and the size of your jars.
- Dill pickles – if you have small cucumbers or Mexican cukemelons we can brine ferment with dill leaf/flower/seed, yellow mustard seed, garlic, and a bay/grape/horseradish leaf.

## **Kitchen equipment**

You will need: a chopping board; a large, sharp knife; a smaller paring or serrated knife if you have one; a grater; a peeler (just in case your roots are not chemical free); some

spoons; a mandolin slicer if you have one (and can use it without chopping the ends of your fingers off); lots of tea towels; lots of bowls, as big as you have, preferably stainless steel or ceramic. One bowl will be sat all through the workshop with salted cabbage softening for the kimchi; you will need other bowls for mixing your sauerkrauts and other ferments in prior to packing in jars. Anything else you can think of. As far as jars and bowls go, it is far better to have too many than too few.

### **Where to get clean food**

I suggest touching base with these suppliers to ensure you can get your hands on the ingredients you want for the workshop. They will all put things aside for you.

Your Healthy Living and Lifestyle Store (aka Me-Healthy Farm). Samantha Mihelffy has had her stall at Coffs Grower's Market for years, and now has the shop in Coramba. This is the best place on the Coffs Coast to get local chemical free and organic produce.

<https://www.facebook.com/Your-Healthy-Living-and-Lifestyle-Store-817450348327289/>

Kombu Wholefoods, Bellingen, has been a reliable source for organic, biodynamic and chemical free food for a long time, and they just go from strength to strength. Everything you need will most likely be in this one store.

<https://www.facebook.com/KombuWholefoods/>

Bello Food Box delivers boxes of organic food in the Bellingen and Coffs Coast region.

<https://www.facebook.com/bellofoodbox/>

Jack and Christine at the Thursday Growers Market in Coffs Harbour have a good range at their stall, including cabbages, womboks, radishes and turnips. They are happy to honestly tell you which food is chemical free, which has had natural treatment (e.g. Dipel), and which is conventional. Jack and Christine have the corner stall, just before you head into the arcade that leads to Woolies. Other stallholders also offer some chemical free foods, including Me-Healthy Farm.

<https://www.facebook.com/CoffsCoastGrowers/>

Dorrigo Wholefoods are up the hill, but as well as clean produce, they also stock the region's largest range of organic herbs and spices, including Szechuan pepper!

<https://www.facebook.com/dorrigowholefoods/>

Synchronicity Farm is halfway between Coramba and Nana Glen, clean food grown using biodynamic and permaculture principles, check for availability first if you aren't close by.

<https://www.facebook.com/SynchronicityFarm/>

The supermarkets are also another option. IGA at Coffs Jetty usually has organic produce, and with a more limited selection, there is Woolworths and Coles.

Thanks for your patience and attention, if there is anything I haven't made clear, or any questions at all, please contact me.

All the best!

Tom Rothsey

[tom@celestialroots.com](mailto:tom@celestialroots.com)

<https://www.facebook.com/celestialroots/>

0403 578 244