

CHRISTIAN WEIJ

# Verrat lekker

FERMENTING  
SIMPLE, GOOD & HEALTHY

**VOLLEDIG  
HERZIENE  
EDITIE &**

**2 EXTRA HOOFDSTUKKEN  
26 NIEUWE VERRAT  
SPANNENDE RECEPTEN**

**B  
L+**

# Foreword

## *A voyage of discovery in search of new and healthy fermented products*

The human race has known how to prepare fermented food and drink for many millennia. This is evident from archeological finds in Egypt (3000 BC) and Poland (5000 BC), among other places, where beer breweries and cheese producers appeared to have used these processes. Slowly but surely, craftsmen improved the fermentation process through trial and error, and passed on their knowledge to the next generations. At first, the main reason for using fermentation was to preserve food and drink. This practical reason is probably the explanation for the worldwide occurrence of fermentation to preserve foodstuffs. Only since the middle of the 19th century do we know that bacteria, yeasts, fungi and mould are responsible for the fermentation process. That is why we now consider fermenting as a process that requires a scientific understanding of microbiology, biochemistry, process engineering and enzymology, as well as craftsmanship. You really need to know what happens exactly when the raw materials are transformed into fermented products. Our current knowledge of the metabolism of microorganisms helps us understand why yoghurt contains more vitamin B11 (folic acid) than raw milk, why choosing the right yeasts determines the aromas of beer and bread, and why the vitamin C in sauerkraut is so stable. We also know much more about the function and activity of specific groups of microorganisms in our digestive tract, and we better understand how much these microorganisms can influence our health. Scientific research has proven that fermented foodstuffs constitute an important source of living microorganisms in our diet, and there is evidence that these microorganisms contribute to our intestinal health.

In the past 40 years, the knowledge of biological processes and microorganisms has increased spectacularly. This development can largely be attributed to the new technology that enables us to 'read' genetic material (DNA) and analyse this material (bioinformatics). This scientific development ties in with a renewed interest in fermented foodstuffs. Currently, science enables us to answer many questions concerning fermented food. For example, if fermented food has a positive effect on our health, and, if so, why this happens. We can also answer questions concerning the substances responsible for

the explosion of flavours and scents we find in fermented food, or about the reason for the increased nutritional value.

Christian Weij has wholeheartedly embraced the craft of fermenting, and has become one of the driving forces in The Netherlands of the budding interest in this unique method of preparing food. It started about 6 years ago, when he published his first book *Deliciously Rotten*, in which he clearly explains the basics of fermenting all kinds of raw materials (vegetables, fruit, meat, cereals, nuts and fish) and provides practical recipes for 'home-fermenters'. Not long after the *Deliciously Rotten* was published, Christian and I met for the first time, and we recognized our shared passion for fermentation. Very soon it became apparent that we complemented each other beautifully, when it came to stimulating enthusiasm for fermentation, both with the general public and the scientific community, and in education too. Our cooperation took shape when we gave public lectures and presentations together, and later on we conducted joint research into innovative fermented products. The central theme of this research was finding new combinations of fermenting microorganisms and substrates. Meanwhile, this research is perfectly aligned with the fermentation studies carried out at universities, within the framework of protein transition.

His gradually increasing experience with and insight into fermentation processes was reason for Christian Weij to write this reissue of *Deliciously Rotten*. In this new book you will find new recipes and interesting background information regarding fermentation processes and practical tricks. Christian is clearly not just satisfied with well worked out recipes, since his words and writings prove that he wants to know exactly how and why the steps in the process work. Christian is inspired by the enormous diversity in fermented products we find at all the peoples on earth, and he is curious about the unknown. In this book he continues on his voyage of discovery towards new, extremely tasty and healthy fermented products. Hereby we warmly invite you to join Christian on his travels through the amazing world of fermentation!

**Eddy Smid**

Professor of Food Technology, Wageningen University



## *Welcome to the fermentation revival!*

Fermented food and drink are older than written history, and are a substantial part of culinary tradition, almost everywhere in the world. Fermentation allows you to preserve food in an effective and safe way, which makes this method vital in climates with a limited growing season. There are no known instances of food poisoning caused by fermented vegetables, which indicates that food really becomes safer by fermenting it. Fermented food is also easier to digest, and nutrients are better absorbed into the body. Fermentation eliminates all sorts of poisonous substances from the food, and adds extra nutrients, some of which appear to have powerful medicinal effects. The live bacteria in products that are not heated after fermentation are probiotic and supplement and diversify our intestinal flora. Among other things, this improves digestion, the formation of nutrients, the immune system and mental health.

Besides, fermentation produces exciting flavours. These may be very strong flavours, and not everybody loves every flavour that results from the fermentation process. But you can learn to love it, and then nothing compares to it. Just take a look in a deli: what you see (and smell) are the products of fermentation. Most cheeses and cold cuts are fermented. Soy sauce, fish sauce, and the vinegar that is used in many other sauces are all fermented. Coffee, chocolate and vanilla are fermented. Olives and certain types of pickled vegetables are fermented. Bread is fermented, and so are wine and beer. Not only are fermented flavours an important element in western culinary tradition, but they are present all over the world. I have not yet discovered a culinary tradition that does not use fermentation. Fermented products are an important part of the daily diet, in many places. On third of our food has already been transformed by fermentation before we use it.

Fermented foodstuffs are regarded as a delicacy, celebrated as a sacrament, embraced as a daily meal, and prescribed as medication. Our contemporary culture would not exist without the contribution of microorganisms. Although, in spite of their enormous significance,

almost nobody produces these foodstuffs themselves. This is due to the mass production of foods and to people wanting ever more convenience. For a very long time we have taken it for granted that essential cultural information concerning the preparation and use of fermented food was passed on from one generation to another. Sadly, those days are gone. At the same time, we have been brainwashed by the 'war on bacteria', which has caused us to regard bacteria as dangerous. This goes to the point where many people think that fermented food is dangerous, especially if you produce it in your own kitchen. They project their fear of bacteria onto the process: 'How can I be sure that good bacteria are formed and not bad ones?'

In spite of these fears, an increasing number of people exhibit a renewed interest in the fermentation process. The products of fermentation have never become less popular, but we have become more aware of where our food comes from and how it is produced. We have become conscious of the price we pay for the centralised mass production of food, with regard to nutrition, environment and economy. That is why there is strong demand for practical information on how to ferment at home. This interest has further increased due to new scientific findings that underline the importance of bacteria to our health.

I am glad a new generation of fermentation experts has arisen that is writing new fermentation literature. Christian Weij is a Dutch chef who has experimented for years with fermenting foodstuffs, and shares his knowledge by organising workshops. The Netherlands have an impressive history regarding fermentation, but very few people still do it themselves. Christian takes the lead in the fermentation revival. In this book you will find all the information you need to become part of this revival yourself.

*Sandor Katz*



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# Introduction

I am no baker, beer brewer, butcher or sausage maker, but after having travelled across the country for six years, with my book and a jar of kimchi in my hands, I am confident to say that I can ferment any baker, butcher, miso maker, soft drinks brewer and briner under the table. But above all, I will always remain a curious foodie with an insatiable appetite for new flavours. This curiosity led me to the process of fermenting, twelve years ago: letting vegetables, fruit, meat, fish and dairy rot in a controlled way, in order to preserve it for longer periods of time, and also influence the flavours.

## *White cabbage magic*

Consider a white cabbage, for example. You could just let it rot, of course, but then you would need to chuck it away after about six weeks. Alternatively, you could let it rot in a controlled way: add salt, to ensure that the only survivors are the lactic acid bacteria. They transform the carbohydrates into lactic acid, and this produces sauerkraut. What applies to white cabbage, is true of most any other edible product as well: by fermenting them you can easily transform them into magical, tasty dishes.

Fermentation goes back to the days that people tried to preserve their food for leaner times. Our curious ancestors discovered – often accidentally – how to process foodstuffs in order to preserve them. They buried cabbages in the ground, let milk go sour, poured bubbling fruit juice into barrels, and discovered that you could preserve vegetables in seawater for much longer than in fresh water. They had no idea that all these processes were driven by microorganisms! But who cares? It worked: they managed to preserve their food much

longer. Driven by hunger, our ancestors were the first of mankind to explore the culinary opportunities. A journey of discovery that eventually resulted in brie, wine, tabasco, tempeh, our own Gouda cheese, and all these other wonderful products we now know. Note that fermenting not only affected the shelf life, but improved the flavours as well. Our ancestors invented tasty gherkins, sauerkraut, salted beans, beer, chutneys, wine, soy sauce, and many other things. And it turned out that these foodstuffs were also healthier. The sailing ships that carried sauerkraut on board, had healthier crews who suffered less from scurvy than the crews on ships without sauerkraut. That is because the lactic acid bacteria in sauerkraut produce lactic acid that preserves the vitamin C in the cabbage.

## *Good ‘bugs’*

Organisms are a part of us, and of all living creatures on this planet. Your body alone is inhabited by more than one trillion (1.000.000.000.000!) microorganisms. Half of the cells in your body are your own, the others belong to all these microorganisms that help your body stay healthy. Which raises the question: who are you really? A human being or an apartment building that accommodates all these good ‘bugs’?

## *How to use this book*

The scientific basis of fermenting and fermenting techniques has already been described at length by various scientists. Above all, this book is a practical cook-and-do book, packed with recipes and tasty ideas, and a touch of clearly explained science here and there. The book will help you get started on your own with all these delicious and surprising fermentation recipes. Where necessary, I explain why certain actions are needed. At the back of the book you will find a glossary that contains the main elements and also some unknown

items. After having learned many new things in the past six years, I thought it was a good idea to revise all the content and recipes in this book, and update them according to the latest scientific findings. The icing on the cake consists of two new chapters. The 'Delicious and Rotten' chapter deals with my eternal quest for less (or never) travelled roads, and I added a very useful chapter with the most common fermentation methods and FAQs that go with them. These two chapters will let you transform any ingredient into a creative flavour bomb.

When you start fermenting, you will probably be a bit insecure regarding the way the process takes place, and wonder whether your product is edible. No worries, this happens to us all. My first sourdough experiment was about fifteen years ago and went straight into the bin: I was simply afraid to bake bread with this dough. The main advice I can give you is this: trust your sense of smell, because there is a good reason we have a nose.

The chances of making a mess of it are slim, if you work hygienically. This may be self-evident, but I like to mention it, nevertheless. Wash all the stuff you need to use in hot water with plenty of soap, and dry everything carefully. Do not use towels, tea towels and dish cloths for longer than a few hours and use a hot program when you wash them in the washing machine. Of course, you should also wash your hands regularly with water and soap when you are working. For example, if you have scratched your head when you were a bit desperate, or if you have touched something that was not too clean. You might also sterilise the pots, jars, bottles and buckets you use with boiling water, or put them in the oven (if possible) at 120°C. This will often not be necessary, because the product we put in these jars is much 'dirtier' than the jar – for instance, sliced cabbage.

A very important point of interest of any fermentation project is the planning. The recipes consist of multiple steps that each require their own time. A single step may take hours, days, weeks, or even months. That is why you need to keep track of what you did, and make sure you know when the time comes for the next step. Kombucha, kefir, sourdough and Herman starter need to be fed on a regular basis, for instance. If you do not pay attention for a short while, you may be a few days too late and your product will fail.

And if you really neglect things for a longer period, your good 'bugs' will die and nothing at all will happen. I myself kept track of the planning in my digital diary for years, but even then, I managed to forget an action or two on a regular basis. That is why I and my brother Berend developed an app you can use to record all your fermentation projects. You can download this app at [www.studiozoetekauw.nl/fermentor-tracking-app-for-fermentation-projects](http://www.studiozoetekauw.nl/fermentor-tracking-app-for-fermentation-projects).

Use the recipes in this book as a guideline, vary as much as you want, and create your own flavours, for example, by mixing different ingredients and adding herbs and spices. Remember that the time it takes a product to ferment also influences the flavour. In general, a longer period adds more acidity, but the savoury (umami) taste will increase as well. Another important element that influences the flavour is the temperature. The higher the temperature, the quicker the process will take place. This means that in the summertime, your sauerkraut will be ready sooner than in winter. Fermenting is not an exact science. Fermenting means experimenting, above all.

I call it fermenting, but actually, this book is about my favourite pastime, dating back to my childhood: playing with food! Nothing beats buying great ingredients and watching them slowly transform into the ready-made products you would usually buy in the supermarket. You can do as you please with the recipes in this book: stroll around the markets to find wonderful vegetables, pick wild fruits, pull herbs from your garden, dig up your grandmother's Mason jars, let everything get mouldy with koji, chop your fish with its skin and bones, and ferment! Ferment as if your life depends on it. Maybe you are closer to the truth than you think. Because fermented food is not only deliciously rotten, it is also much healthier than the food produced by the food industry.

I hope you have as much fun reading this book as I had when I wrote and revised this book. Do not be afraid to experiment, and if you lose your nerve when tasting your experiments, just do this: close your eyes, open your mouth, take a bite and remember that I was the first person to taste a mouldy Roman snail, especially for you (see page 284). Cheers!

*Christian Weij*



*vegetables*

## White cabbage

*Almost all the cultures in the northern hemisphere use cabbage in some kind of fermented form. They all have their own methods, but these dishes have one thing in common: they are part of the superfoods family. White cabbage is packed with vitamin C, which you can preserve with lactic acid. Captain James Cook was the first person to find out about this useful characteristic. Because he stocked up on sauerkraut when he made his long voyages across the oceans, his crew members did not die of scurvy anymore. Apart from this, it is simply a very tasty dish. Fermented briefly, in a salad with some raisins, or fermented for about six weeks, to make a truly heart-warming mashed potato dish.*

### Classic Dutch sauerkraut

Almost everyone who ferments his own food, started out with sauerkraut. It is easy to make and typically Dutch. You can experiment as much as you want with herbs, spices, and other additives. Why don't you add some apples, onions or garlic to the fermented cabbage, or replace the herbs with red chili pepper and ginger, for an exotic twist.

1. Attach the rubber ring to the lid of the jar or crock.
2. Slice the cabbage as finely as possible, with a mandolin, a cabbage plane or a knife.
3. Mix the cabbage, the herbs and the salt, and knead it firmly, until it is quite moist.
4. Spoon the cabbage into the jar and press with a potato masher, a wine bottle, or simply with your fist. Do not pound it, because you will bruise the cabbage. There should not be any air left between the vegetables.
5. Make sure the jar is filled up to 3 cm below the rim, but not further.
6. Close the jar airtight, so it cannot get mouldy.
7. Place the pot or crock on the countertop and let the cabbage ferment at room temperature.
8. After about three days you will already have produced a nice sauerkraut to put in your cabbage salad. If you want to make a sauerkraut stew, you should wait at least 6 weeks. And for real Austrian sauerkraut, just leave it for a whole year.
9. Do you like the taste? Store the sauerkraut in the fridge or cellar to (virtually) stop the fermentation.

### Ingredients & necessities

**900 g white cabbage**  
**15 g fine sea salt**  
**3 bay leaves**  
**2 tsp juniper berries**  
**2 tsp black peppercorns**  
**1 tsp caraway seeds**  
**1 L Mason jar or crock**  
**Butter (and buttermilk)**





## Butter (and buttermilk)

*I have a confession to make: I not only love butter, I adore it. And not just butter, but other creamy products too, like whipped cream, crème fraîche, MonChou, ice cream, cream cheese, and mascarpone. I have been using butter for years, and have never believed that margarine would be better for us humans. And guess what? I was right all along. After three or four generations that were fed with margarine while growing up, scientists finally discovered that butter made from the milk of grass-eating cows is healthier than margarine.*

*Anyway, where did the idea come from that butter is bad for you? Well, I will tell you. In the last century, people thought that saturated fatty acids from animal products increased your cholesterol levels, and therefore increased the risk of cardiovascular disease. But in the meantime, many scientific studies have undermined this theory. Which is good news for butter addicts like me. Also, don't forget that there are other nutrients that are found in butter but not in margarine. In short: forget the margarine and use real butter that comes from real cows that eat real grass.*

*It is quite easy to make your own butter. You cannot compare the taste of homemade butter to the butter you buy in the supermarket. Because we let the butter ferment and churn it afterwards, it acquires much more taste than the factory-made butter from the supermarket.*

*Do you know what tastes really good with this butter? Mashed potatoes. Cook your potatoes in some water, make sure to steam them dry and mash them with (a lot of) butter, a pinch of salt and freshly grated nutmeg. Mash them until you have a nice creamy puree.*

1. Put the cream in a bowl or a jar, add the buttermilk and stir.
2. Seal it airtight.
3. Let the cream ferment for 2 to 5 days at room temperature.
4. Put the cream in the fridge for 4 hours, in order to allow the butterfat to harden.
5. Churn the cream by tightly closing the lid on the jar and shaking the jar quite firmly. The cream needs to slosh between the lid and the bottom of the jar. You can also use a kitchen mixer to churn the

Ingredients & necessities

**500 ml liquid whipping cream (not whipped)**  
**2 tbsp buttermilk**  
**Bowl or jar that can be closed with a lid**



cream at high speed. Due to the churning or mixing, the fat globules in the cream will break and they will clump together.

6. After a few minutes of churning or mixing, the buttermilk will separate and you will see a large chunk of butter floating in the buttermilk.
- 7 Drain the buttermilk and put the butter in a bowl. Put the bowl in the fridge, in order to harden the butter again.
- 8 Now you can drink the buttermilk, or save it in the fridge for later.
9. When the butter has hardened after an hour or two, you will need to rinse the remaining buttermilk out of the butter. If you do not do this, the butter will become rancid after 1 or 2 days.
10. Rinsing or washing the butter is done by kneading the butter under an ice cold tap, until the last remnants of buttermilk have disappeared.
11. Mix the butter with some salt, if you want, and save it in the fridge.



*rotten &  
exciting*

## *Fermenting for the more advanced*

Now you have learned quite a few fermentation techniques, and might have tried out one or two of these, it is time to relax and play around a bit. Unlike in the previous chapters, it is not about a single product group or fermentation technique. This is mainly an account of the beautiful things that kept me busy for the last few years. Besides, this chapter offers a glimpse into the Foodlab of the SmaakPark . In short, a brief explanation of our views and the way we handle microbes. Regarding flavour, umami has the upper hand in this chapter. Umami is the flavour that perfects all other flavours. If you do not yet know what umami is: think of beef broth, Parmesan cheese, soy sauce, tinned anchovies, or a jar of Ve-tsin. It is the flavour that opens your saliva glands and makes everything more savoury. In this chapter you will find useful fermentation lessons if you want to eat fewer animal products, or none at all.

Honestly, what would kale taste like without the sausage and bacon? How savoury would a goulash be without the beef? What does a grilled sandwich taste like without the ham and cheese?.... Well, it tastes like nothing at all! These typical comfort foods are a mere ghost of the original thing without their animal ingredients. Animal products satisfy you quicker than plant-based products. Among other things, this is caused by the protein breakdown products they contain, which are packed with umami. In this chapter I will present you with various options for bringing out this umami flavour in plant-based products too.

And I will conclude this chapter – and with it this revised edition of *Deliciously Rotten* – with an account of what I call ‘backslopping’. A fermentation technique and a great way to gather your own collection of microbes. You will never be without playmates in the kitchen if you have your own collection of tiny friends.



## *Exciting creatures*

In the past 10 years I have been allowed to play with many different types of microorganisms. Not every game was equally successful. Some microbes did not provide any potential for me, and I never used them again, but other microbes never ceased to surprise me. In the end, I embraced these microbes and consider them my best little friends ever.

My close-knit group of friends consists of various cheerful yeasts, a lot of tasty lactic acid bacteria, the busy little creatures in my sourdough hot tub, the inner circle of trustees in milk kefir, who are always prepared to do the heavy lifting – whether it is about cheese, pickles, or dry sausage, and the dark little rebels that are responsible for deliciously rotten fish sauces.

But my very, very best friends – and also the most exciting – are the edible fungi from the *Aspergillus* genus: *Aspergillus oryzae* and *Aspergillus awamori*. These hairy gluttons will never hide behind another microorganism. They are the first ones to take the plunge. They are super creative and will eat anything! Fats, proteins or carbohydrates: they grab them, start nibbling, and slowly turn them into all kinds of brilliant flavours. They transform soy beans and wheat into shoyu (soy sauce), they turn rice into saké, and soy beans and rice into miso. But it does not stop there. There is a never ending list of mainly Asian products that these fungi can create. Not so strange, if you think about it, since every edible product contains fats, proteins and/or carbohydrates in some way. Together with my SmaakPark colleagues, I have done a lot of experimenting with these hairy beasts throughout the years. Almost everything they (we) produced was super tasty – well, except for the great acorn experiment – and innovative, as well as packed with umami and often extremely fruity. And I am very happy to share the knowledge I acquired. I wish you lots of fun while restraining these greedy microbes.

## *Aspergillus oryzae*

*Aspergillus oryzae* – also called koji or koji-kin – is a fungus that does not exist naturally in The Netherlands. Contrary to sauerkraut, pickles, or even raw cream cheese (page 236), you need to start a koji fermentation by adding the right fungal spores. You can buy various family members of this fungus. For example, you can get spores for making shoyu, miso, or barley-koji. But for aspiring koji-masters I recommend buying a packet of regular *Aspergillus oryzae* spores, and not an A. Shoyu or one of the other varieties. This regular starter is quite capable of handling all the recipes in this book. Have you mastered working with koji, and do you want to specialise in making shoyu, for example? Then the time is right to experiment with other strains of the *Aspergillus* family.

The *Aspergillus oryzae* fungus is capable of breaking down proteins, fats, and carbohydrates. It does this at temperatures between 10 and 60°C, but it prefers to grow in temperatures between 25 and 35°C. Like any other fungus, it needs oxygen. Without oxygen it cannot produce cells and it will not grow.

There are several ways of putting our hairy friend to work. You can apply the spores directly to the product that needs fermenting (for instance, the mouldy steak on page 287), but we usually start an *Aspergillus* fermentation by allowing a starchy product to become mouldy. We call this mouldy product koji (see page 267 for the recipe).

The past 3 years, I have cooperated with the Wageningen University and dairy producer Arla in researching this beautiful fungus. I provided the creative ideas and Prof. Dr. Eddy Smid and Alexander Dank managed the research activities (at the back of this book you will find the link to this study). Thanks to this study, we now know much more about making the most of this fungus.

Some of the study results are directly opposed to the artisanal, traditional Asian recipes. For example, now we know that you should

not add more than 8% salt, in order to make the tastiest miso or shoyu. If you use more than 8% salt, the enzymes that break down the fat will become less active, and without the fat breaking down you will have no – or fewer – ketones and fatty acids, and esters (flavour molecules) cannot be formed. An interesting fact is that stirring your miso or shoyu every day will feed the fungus with fresh oxygen, which will make it produce even more fruitiness. That is why we stir our miso every day for a bit, contrary to what the Japanese do – they cover the miso almost airtight by putting a board with heavy stones on top of it.

#### These are the most interesting results of the study:

- **6 to 8% salt produces the most intricate flavour (umami, fruity, sweet and not too salty) (see page 296).**
- **A little fat (5 to 20%) in your miso produces even more fruitiness, and together with certain – mainly animal – fats it will also add cheesy flavours.**
- **At 6% salt, the fermentation will be as good as finished after 40 days, and afterwards, the fruity flavours will even start to break down (see page 296).**
- **The more salt, the slower the proteins will break down.**
- **In a miso with 6% salt, an alcohol percentage of 1.8% may arise.**
- **The higher the percentage of fat, the lower the alcohol percentage will be in the miso, because the fat and the alcohol together are transformed into all kinds of esters (mostly fruity aromas). The more glycerol, propionic acid and butyric acid are created, the more exuberant the taste will be.**
- **During fermentation, pyruvic acid, acetic acid, butyric acid, glycerol and propionic acid are formed, among others.**
- **The higher the percentage of salt, the fewer butyrate, glycerol and propionate are produced.**
- **A moister miso will increase the chance of lactic acid fermentation occurring.**



Through this research, we were able to optimise the fermentation of miso and shoyu, among other things. This means the following recipes will differ from the recipes in my 'Verrot Gezond' book, and also from the recipes in many other fermentation books that describe the *Aspergillus* fungi.

#### *Aspergillus awamori* (or *A. luchuensis*)

The *Aspergillus awamori* is the dark brother of *A. oryzae*. Where *A. oryzae* produces yellow spores, *Aspergillus awamori* produces black spores. But that is not the only difference. The *awamori* fungus produces very fine citrus aromas. That is why in Asia, this fungus is mainly used for the production of spirits, such as *awamori* and *shōchū*. The fungus breaks down the starch in the rice into fermentable sugars, and afterwards it can be fermented to alcohol.

Although the fungus does not need to be used for spirits only. It will also work very well in all the recipes where we normally use *A. oryzae*. Simply replace the original fungus spores in these recipes with the *awamori* spores, and do not change the rest of the recipe. You will find that after fermentation, a completely different flavour will have arisen. To help you get started, here are a few great recipes in which you can use this black tastemaker.

## Mandarins

*For a while now, I have been growing my own mandarins, in my back yard. Few people know that many types of citrus can do very well in our colder climate. With a bit of sun and some luck they will also carry tasty fruits. My own tree is of the Citrus Calamondin variety. It produces lovely sweet and sour mandarins that are edible with skin and all. They are also great for fermenting, for example, in a cranberry chutney. If you want to make this chutney, use the recipe on page 109 and replace the mango with mandarins and dried cranberries.*

### Mandarin-cardamom shrub

The drink called 'shrub' dates back to colonial times in North America. In the last couple of years, it has become popular as a healthy alternative for soft drinks. The basis consists of vinegar, sugar and juice or herbal tea. You can make shrubs out of many types of fruits and herbs. The basic recipe is quite easy to remember. The ratio of juice, vinegar and sugar is approximately 2:1:1. Once the shrub is finished, you mix 1 part shrub with around 4 parts (carbonated) mineral water for a refreshing drink. Or use the shrub as a salad dressing, instead of plain vinegar.

1. Put the rubber ring on the lid of the (Mason) jar.
2. Grate the mandarins (orange parts only) and juice them.
3. Crush the cardamom pods, so they pop open.
4. Mix the juice with the sugar, the cardamom and the salt.
5. Scoop everything in the jar and close it airtight.
6. Let the shrub ferment for 3 days at room temperature.
7. Mix the vinegar with the shrub and sieve the shrub through cheesecloth or a fine sieve.
8. Store the shrub in the fridge.

Preparation

Ingredients &amp; necessities

**1 kg organic mandarins**  
**300 g cane sugar**  
**4 cardamom pods**  
**15 g salt**  
**300 ml white wine vinegar (living)**  
**1 L Mason jar**

## Koji fermented fries

*One of the truly surprising top hits from the first version of Deliciously Rotten, is the recipe for fermented and roasted potatoes (see page 23). I have received lots of positive reactions to this recipe – through the Deliciously Rotten community on Facebook, among others. Everyone loves the recipe, which could lead you to believe that the recipe cannot be improved. But actually, I managed to do that, after 6 years of tinkering! By using some koji in the marinade, the potatoes become more savoury. They are so good that you don't need to add any mayonnaise or ketchup. A knob of butter will do, to make it creamier. Awesome!*

*This time, we will deep-fry the fries, but you can also bake them in the oven. If you want to use the oven, you need to add some oil to the fries and bake them in an oven for about 30 minutes, at 200°C.*

1. Put the rubber ring on the lid of the (Mason) jar.
2. Put the koji with the water and the salt in a measuring cup or high cup, and make a fine puree with a hand blender.
3. Wash the potatoes and cut them – without peeling them – into thick French fries.
4. Mix the fries with the marinade, scoop them into the Mason jar and close the lid airtight.
5. Let the fries ferment for 3 days, at room temperature.
6. Remove the fries from the marinade and pat them dry.
7. Heat the frying oil to 150°C and gently fry the fries until they are a golden yellow. Depending on the thickness of the fries, this will take approximately 8 minutes.
8. Drain the fries on paper towels and let them cool completely.
9. Now heat the frying oil to 190°C and fry the potatoes for about 5 minutes, until they are lightly browned.
10. Drain the fries on paper towels once more, and serve them. You do not need salt, because the salt from the marinade has already soaked into the potatoes.

Preparation

Ingredients &amp; necessities

**125 g koji**  
**600 g water**  
**25 g salt**  
**1 kg unpeeled organic potatoes**  
**2 L Mason jar**  
**measuring cup**  
**hand blender**  
**frying pan and oil**