VIROPHILIA

COOKBOOK FOR THE VIROPHILIA-ISTS
IN THE 22ND CENTURY

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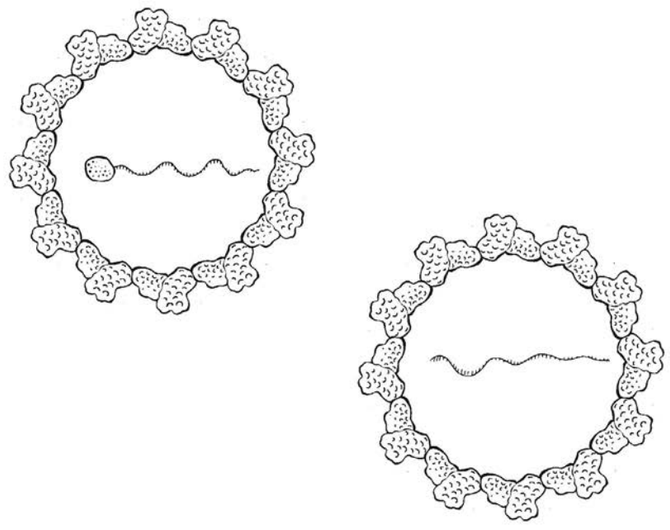
P.Y.L.

~ 2068 ~
Garden of Forking Paths



Pea Enation Mosaic Virus

Actually two viruses that cannot live without each other.

INDEX

FOREWORD

Virophilia is a cookbook written for the 22nd century human beings in consideration for incorporating the positive usage of viruses into our daily life.

It was in the 17th century when Leeuwenhoek first invented the microscope with a resolution high enough to see bacteria that human beings had the first concrete acknowledgement of their physical existence.

In the 19th century, the door of microbiology opened when many scientists such as Ferdinand Cohn, Louis Pasteur, and Robert Koch started to describe bacteria in detail, and developed methods for handling them. It was also at that time when we started to have the idea of ‘hygiene’ along with the discovery of antibiotics and antibiotic resistance.

Moving on to the 21st century, we have discovered the statement that ‘bacteria are directly and only correlated with dieases’ was problematic, hence the discussion around probiotics and microbiomes. Between the beginning of the study of microbiology and our turnover understanding of bacteria, there is a gap of approximately 200 years.

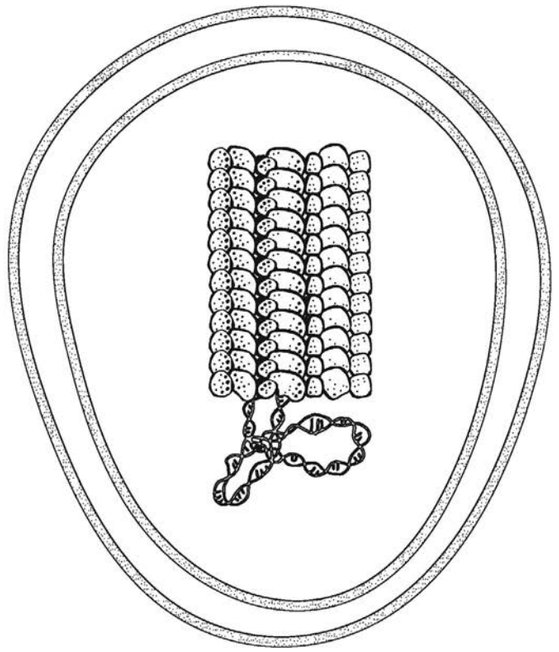
The ‘discovery’ of viruses, or more of how viruses finally enter the world we can observe, was at the beginning of the 20th century. Before that, scientists and the whole world considered viruses no different from bacteria. Only until the early 1920s that scientist were able to dissociate bacteria and ‘the filterable agents’ - a.k.a. viruses. And it was also when we started to identify diseases that are caused by viruses. Scientists of the 21st century in different fields are starting to research the benefits viruses could bring to their hosts, such as their abilities for plants to endure drought and to change insects behaviour.

The world has had a huge perspective shift since the late 21st century. The world has returned to consider human beings as a part of the whole ecosystem. This also motivates human beings to view other biological beings in different ways, which leads to a series of explorations around different possible usage of viruses. Although the medical use of viruses such as vaccines and vectors for genetic therapy was not something unexpected, the movement of using viruses for food and pleasure is a rather different turn as when it first appeared; the funding supporting non-medical research on viruses in the science field was comparatively scarce.

This cookbook is written to show the non-biased, intention-free relationship human beings can have with viruses which were not considered useful but are, in fact, fascinating.

P.Y.L.

June 2068, Amsterdam



Cotesia Congregata Bracovirus

A beneficial virus for wasps to suppress their host catepillar's immune system in order to incubate wasp eggs.

Chapter One

Simulating the Viral Experiences

ca. 2020

Simulation of viral ingredients with non-viral ingredients in order to expend our sensorial library towards viral agents.

Dishes can be designed to evoke a non-prolonged physical and psychological reactions on human bodies.

It is a gesture to understand the viral others at the physical level.

INFLUENZA SIM.

APPETIZER
MUCUS AEROSOL

This is gellan gum with ginger in the form of aerosol, eaten by breathing in.

Extract ginger juice from fresh ginger.

Mix with gellan gum and alcohol to create a slightly viscous liquid.

Load the ginger liquid into the ultrasonic fog generator and let the fog disperse in the space.

MAIN
GINGER DUCK SOUP IN FLAMES

Cut the ginger in half.

Fry the ginger with sesame oil.

Cut the duck into pieces. Blanch the duck.

Stew the duck with ginger and rice alcohol for 1 hour.

The soup is served in bowls. Add 10ml of alcohol and light it on fire (on the table) when serving.

DEEP FRIED CHILLI DUMPLING IN ICY FOAM

The foam is made with whipped 3% sodium alginate milk solution at 0°C.

The chilli dumplings are made of round, glutenous rice dough with cayenne pepper flakes and oil filling. Deep Fry at 230°C using canola oil.

DESSERT
CANDIED GINGER AND CHILI

Slice the ginger.

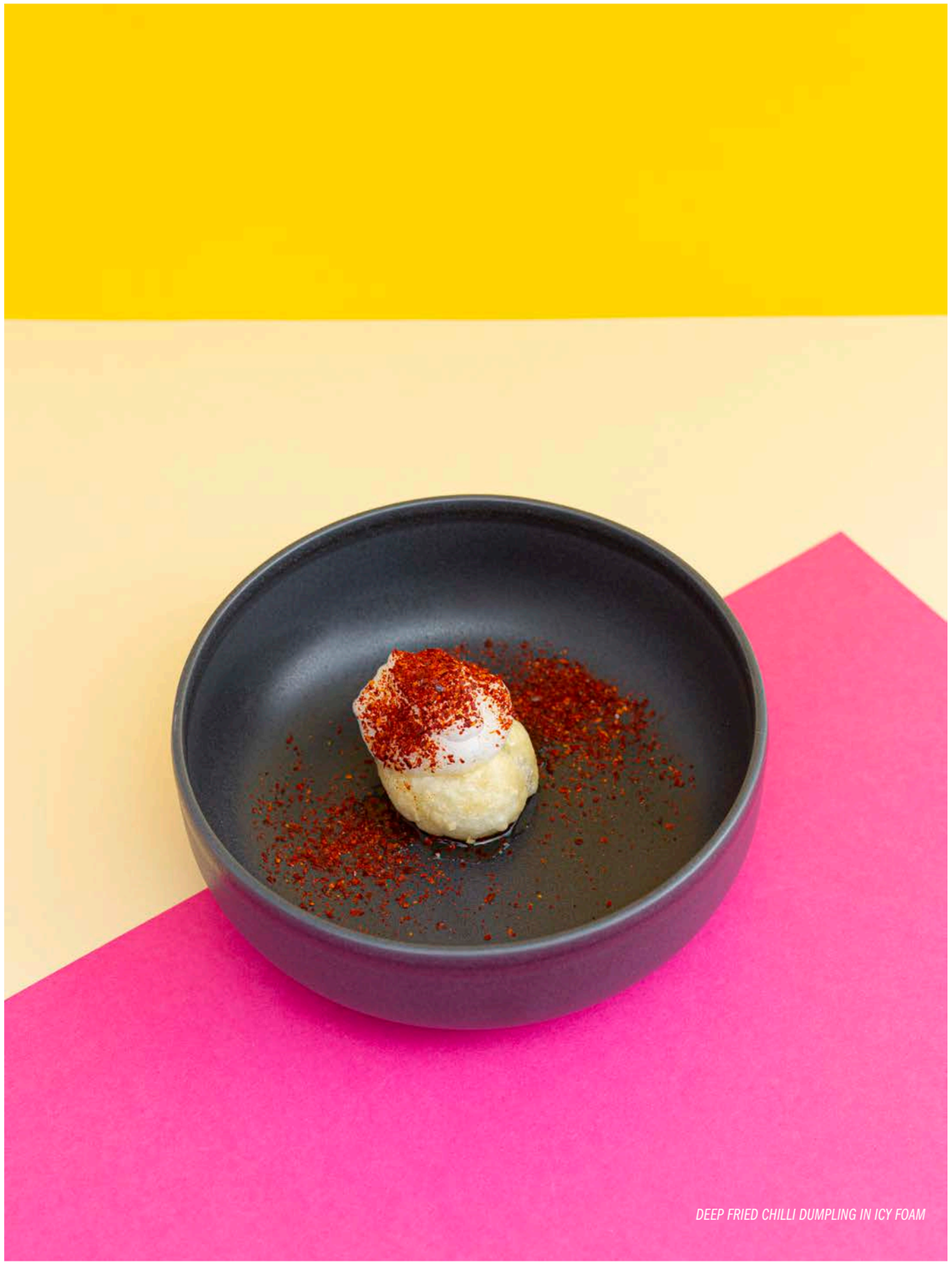
Heat up 100 ml of water until it boils, and add 400g of sugar.

When the sugar is fully dissolved, add the ginger and chili.

Cook the ginger and chili for 3 mins. Drain the liquid, and leave the ginger and chili to cool and dry.

MUCUS AEROSOL

GINGER DUCK SOUP IN FLAMES



DEEP FRIED CHILLI DUMPLING IN ICY FOAM

CANDIED GINGER AND CHILI

NORWALK SIM.

APPETIZER
OYSTER BEFORE STORM

Chili Oil and Sesame Oil Caviar Oyster with Ipecac Sauce and Watermelon Chops.

Prepare 1% sodium alginate solution and 0.5% sodium lactate solution.
Mix 1 cup of chili oil with sodium alginate. Use a syringe to make drops of the solution into 0.5% sodium lactate solution. A thing layer of film will form around the droplet, creating caviar-like bubbles.
Mix 1 cup of sesame oil with sodium alginate. Repeat the same steps above to make the sesame oil caviar.
Chop the watermelon into small square pieces.
Prepare fresh oysters on the plate, and dress the oysters with chili oil caviar, sesame oil caviar and watermelon chops.
Pour 1/8 teaspoon of Ipecac sauce on top of each oyster.

SALAD
CRUNCHY LEAFY GREENS DRESSED WITH CASTER OIL

Wash iceberg lettuces, lotus roots, and white radishes thoroughly.
Chop the lettuces, lotus roots and white radishes. Mix together.
Dress the salad with caster oil.

MAIN
TUNA SASHIMI WITH ELECTRICAL STIMULATION ON ABDOMEN

Fresh tuna meat is served in pieces of 10cm x 5cm with a very sharp knife.

An electrical massage machine is served along with the dish.

Put one of the massage machine electrodes right above the belly button and the other right below.

Massage machine sends out electrical pulses whenever the tuna is being cut by the knife.

DESSERT
RASPBERRY SORBET

Use a blender to blend water, sugar and raspberries together.

Freeze overnight.

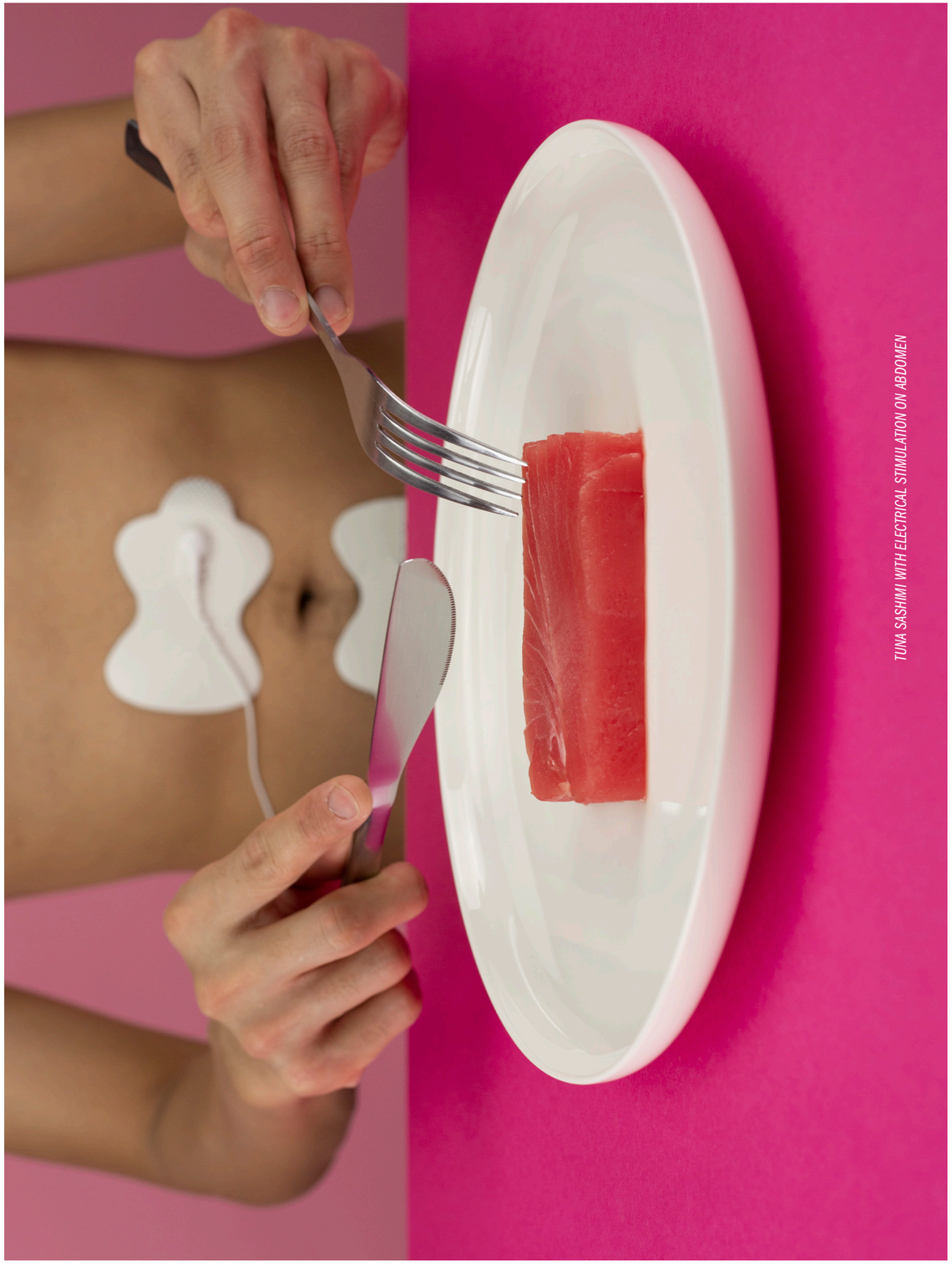
Put the juice into the/an ice-cream machine for 10 mins.

Serve cold.

NOTE: Chili and sesame induce low fever. Ipecac induces vomiting. Caster oil induces diarrhoea. Electrical stimulation on abdomen triggers abdomen muscle contractions. Sorbet increases intestine discomfort.

OYSTER BEFORE STORM

CRUNCHY LEAFY GREENS DRESSED WITH CASTER OIL



TUNA SASHIMI WITH ELECTRICAL STIMULATION ON ABDOMEN

RASPBERRY SORBET

Chapter Two

Viral Fermentation

ca. 2037

Fermentation does not exclusively take place in cellular organisms but also other semi-living beings.

Viruses can be used either as probiotics or as the key role in fermentation.

Precise control on virus strains is needed.

Virus-Host interactions provide advantages to either the texture, taste, or morphologies of the ingredients.

NORO-FERMENTATION

Noro-fermentation uses Norovirus as an in-body fermentation on animals while alive. The infection of norovirus changes the morphology of the intestine of infected animals. (Here we do not say ‘sick’ since it is intentional). The intestine becomes more smooth, losing its intestinal villi. Although normal intestines are famous for their crunchiness, sometimes the villi can result in rough surfaces, which are not always preferable. The smoothened intestine has a much more delicate texture that is loved by many people.

FARMING METODS

Noro-fermentation farms always keep a good eye on the survival of Norovirus so that they will never run out of Norovirus.

Animal bodies gain immunity through infection. During the process Norovirus will go through the cycle of replication, infection, and elimination. The farmers must transfer / inoculate a new ‘clean’ animal before the previous animal wipe out all the viruses in its body. An animal with replicating Norovirus is usually at its best stage for harvesting because it is most likely to have the symptoms such as smoothened intestines.

The farms will keep enough numbers of animals for serial inoculation. Each ‘unit’ takes 4 days, and depending on the market demand, the farmer decides how many animals each unit will contain. However, each unit must be harvested/slaughtered every 4 days due to the cycle of Norovirus. If waiting for longer, the farmer will risk to lose his current Norovirus strain.

Monitoring the mutation/micromutation of the virus is also important. Therefore, the farmers will closely observe the well-being of the animals. If severe symptoms appear, the animal will enter quarantine immediately, and the whole farm will be sanitised immediately so the mutated strain won’t spread out of control.

It is also crucial for the farmers that the animals do not die due to infection. As soon

FERMENTED PIG INTESTINE DISPLAYING A SMOOTHER SURFACE AND TEXTURE

as the animal dies, the meat starts to rot. It is better if the animals are slaughtered while alive.

The farmers tend to grow Norovirus strains that keep the animal infected for longer but milder just enough for the animal to puke / shit out everything in the body. The specific strain is also selected for its ability to cause optimal morphological change of the animal’s intestine while keeping it less contagious than the epidemic strains for ease of handling within the farm.

Some people also prefer Norovirus-infected animals since they are more ‘clean’ - in the sense that the animals ‘self-cleansed’ themselves before being slaughtered.

FRIED FERMENTED PIG INTESTINES

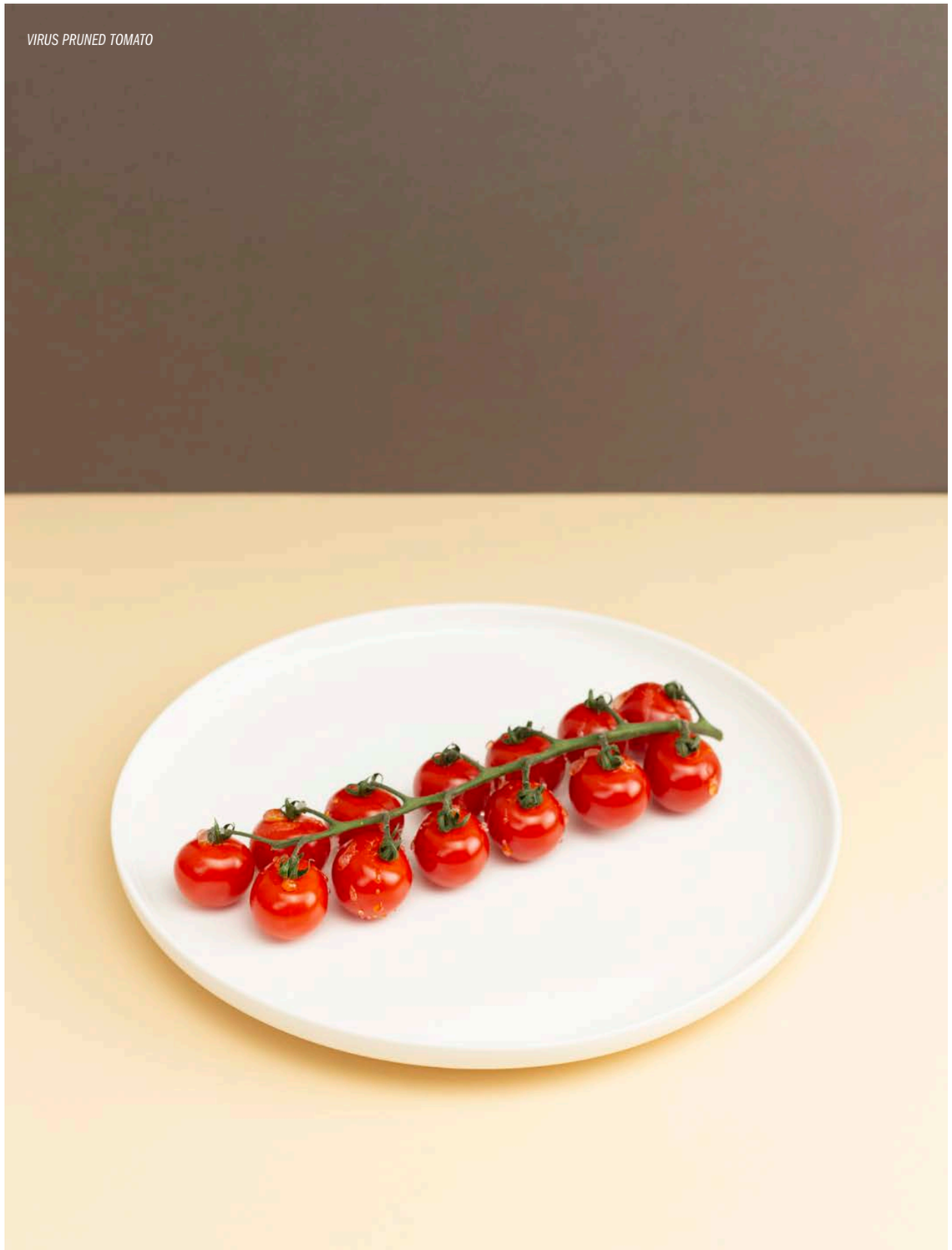
PRUNING IN THE DROUGHT

Throughout the years, it is been wildly known that some viruses make plants more resistant to drought. This knowledge has changed the whole plant growing culture: from giving plants a most ideal, stress free environment, towards an environment that's stressful enough but not enough for them to die, in order to reach a higher sweetness of fruit bearing.

This phenomenon usually happens within a purposefully built, densely packed farm. The new plants coming in are 'clean' plants, meaning free from the viruses grown in the farm. Farmers will rub the desired viruses on the leaves of the plants using a sponge to inoculate the plants. All the farmers entering the greenhouses will be dressed in Hazmat suits. The greenhouses are controlled with double doors to prevent uncontrolled entries.

The viruses will be living on the plants as the plants accommodate to them. The foliages will start to appear in different colours and patterns. With the viruses' presence, the farmers are able to give much less water to the plants to allow the plants to grow with less water. Although this slows down the growing speed and yielding of the fruit, the dryness also makes the sugar content higher in the fruits.

Such unexpected sweetness of fruit creates fascinating tastes. Some people describe the tomatoes grown in company with a selective Pepino Mosaic Virus as 'almost like tomato candite' on the skin of which sugar crystals literally forms when they are dried, just like how Asian people dry persimmon. Other plants using the same farming method include oranges, berries, and peppers.


VIRUS PRUNED TOMATO

Chapter Three

Viruses as Active Ingredients

ca. 2042

Active ingredients in food include not only chemical molecules but also active biological components. It is crucial to consider the biological interaction between the 'food' and the physical body.

Viruses can be used as probiotics, vaccines, or spices.

Emphasis on the extended bodily experiences through virus-host interaction is needed.

Cuisines can be not only 'food-food' but living food.

INFLUENZA BALUT

Influenza viruses by its nature are capable of inducing/causing high fever, sore throat, coughing, abdomen pain, and potentially drowsiness along with hallucinations. Physical reactions include higher body temperatures, chills, shivering, and potentially hallucinations when the fever has reached to a certain temperature.

A suitable influenza virus strain for culinary use has been selectively ‘bred’ from the more virulent strains and was a byproduct of influenza vaccines: unlike the vaccines in medicine that aim to bring no physical reactions, the culinary influenza still triggers temperate physical reactions in the human body.

There are many different culinary strains available on the market. However, for each person, each strain is ‘active’ only once in a lifetime due to the effect of the immune system. Although there are some measles products that wipe out your immune memories, it is not recommend to use too often for the side effects of wiping out other useful immunity memories.

Sometimes this recipe is used for those who are afraid of needles for seasonal flu (influenza) protection as well.

Similar to the infamous South Asian dish Balut, industrial influenza chicken eggs are 10-11 days old fertilised chicken eggs in which the chicken embryo has already formed.

In a comparatively dark room, shine the light through the egg. You can see the air cell light up.
Turn on the light, put the air cell side up. Carefully open the shell on the air cell side with a spoon.
Now you can see the membrane. Open a small hole of the membrane, pour and collect the egg whites.
Put the egg onto an egg stand. Steam the egg for 10 mins.
Open the egg, and you will now see the cooked, half-formed chicken embryo. Leave to chill.

Mix the embryo with the egg whites. Season with salt.
Ready to eat.

The dish shall taste juicy and slightly gamy, with a follow-up of feverish symptoms within 4 days. Therefore, this dish is usually combined with a dining experience lasting more than 4 days.

INFLUENZA BALUT

BREWING PROCESS OF VIRAL SAKE

SM BREWERY

The very first viral drink using viral agents - although not as typical of a ‘drink’ as it may seem. This is a recipe but also a ritual. The main ingredient is a weakened, controlled strain of Epstein-Barr Virus. Unlike other attenuated viruses developed for vaccines, this is developed only for pleasure.

It is designed for improving the old traditional sake brewing process by including viral agents.

The whole brewing process takes about a week. One the first day, cook two cups of rice until done. Mix in the Epstein-Barr Virus into the rice. Put one spoon of rice in the mouth, chew the rice thoroughly, and then spit into a jar. Repeat this process until all the rice is chewed and broken down by the saliva.

Cover the jar with a cheese cloth. Let stand for at least 5 days in a dark, cool place. The jar should start to bubble after a day with slightly alcoholic smell.

On the 7th day, invite the guests and drink the wine together.

The wine will create a tingling sensation on muscles or slightly more severe body aches. Although it might sound dangerous, this specific strain of Epstein-Barr Virus will only remain active for 12 hours. As all the guests are enjoying the tipsy-achy experience, more rice is provided for the guests to chew when drinking to brew the next batch of wine.

INFLUENZA EGG ON RICE

Prepare and steam the rice. Once done, scoop the hot steaming rice into a bowl.

Carefully open an egg containing food grade influenza virus which also known as a form of vaccine. It is usually distributed by vaccine production companies and can be bought from the pharmacy. Separate the egg white and the egg yolk using dry, clean utensil. Spoon is usually handy in this case.

Put the egg white in an extremely clean and dry metal bowl, use a beater to whip the egg white until it forms a sturdy foam.

Put the foam in the centre of the steamed rice.

Put the egg yolk on top.

Season with soy sauce and spice.

This dish will induce slight tingling sensation in the throat along with low fever that lasts for 12 hours. It can be experienced once every year when the new predicted strain of influenza vaccine is being produced.

INFLUENZA EGG ON RICE

Cauliflower Mosaic Virus

First plant virus with genome sequenced, a common tool for GMO plants.

Chapter Four

Dynamic Cuisine

ca. 2051

Viruses can be used as collections of strains instead of separate individual virus strains. The design of virus 'sets' is based on the principles of seeing a collection of different species as one 'host' and taking the duration of time into consideration. It is similar to orchestrating a mini symphony within a dish.

TEMPORAL COCKTAIL

Temporal cocktail has become extremely popular since its first appearance in the late 2040's. There is a huge variation of temporal cocktail recipes available both commercially and for DIY home brewing.

Temporal cocktail basically consists of two parts: the drink, and the activator. The drink is always a bacterial/yeast fermented drink: beer, wine, kefir, water kefir, or kombucha. The more complex the microbes composition is, the more fascinating the drink becomes. The activator is a group of viruses, which usually can be ordered from a food-grade virus supplier. They can react to different microbes in the drink, either killing the microbes or providing new abilities to the microbes at different times.

The very first temporal cocktail was a commercial one. After the kombucha hype in Europe, a bio-tech company originally producing kombucha for mass production designed a set of virus called 'kombucha mate'. Kombucha mate consists of three different viruses: KomYeastA, KomBacA, and KomYeastD. KomYeastA accelerates the alcohol production of yeast at a very short period of time, making the kombucha beer-like within 10 minutes. KomYeastD targets at the yeast in kombucha, giving the kombucha a meaty taste. Then, KomBacA accelerates the production of acetic acid in bacteria. The meaty alcoholic kombucha then turns into a 'kombucha vinegar'.

The kombucha + kombucha mate is served in a 2 litre jar with a tap. Kombucha mate will be added to kombucha as soon as the jar is brought to the table. As people drink, the taste changes from kombucha to beer-like kombucha, meaty beer, and then vinegar kombucha. Guests can pour the kombucha from the tap to their own cup filled with ice to enjoy.

Later, the temporal cocktail idea was extended to other drinks. As food-grade virus companies flourish, the technology has become easily accessible for home-brewing. Ordinary individuals can order their self-designed virus collection from the companies. Nowadays there are colour-changing beer, texture changing wine and viscosity changing kefir just to name a few. They are all extremely popular on the market.

ALGAE COCKTAIL THROUGHOUT TIME

ALGAE COCKTAIL

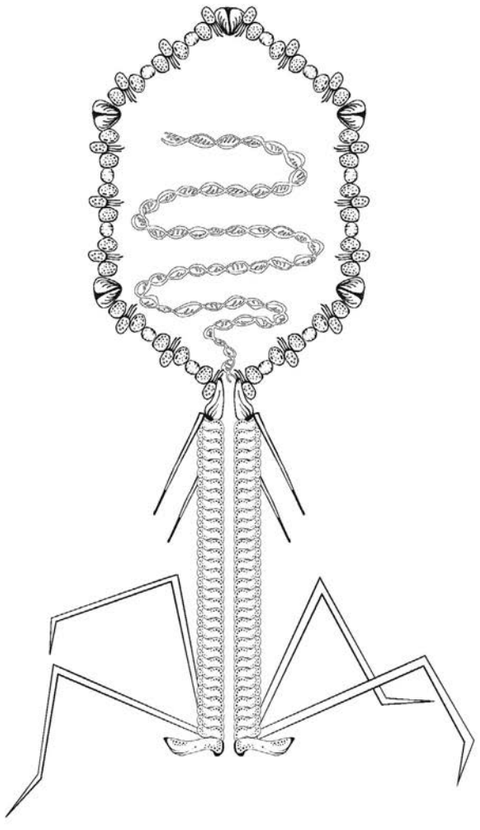
SOUR-SWEET-DOUGH

This recipe originates from the old sourdough fermentation method as a viral extension. Sourdough is known to be fermented by a microbial community consisting of lactobacilli and yeast. The microbes are harvested from the wild by growing a flour culture with a juice starter and adding flour and water every 12 hours, every day, for a week. This allows the wild lactobacilli and yeast to become dominant in this flour-based ‘sourdough starter’. Sourdough tastes very different from one to another due to different microbial communities during cultivation. The sophisticated taste of sour-dough is being loved by many.

Sour-sweet-dough is the viral version of sourdough. By adding viruses for the microbial community of the sourdough and adding more stages in the fermentation, tastes that were previously impossible to generate by the microbiome itself can be created.

The sour-sweet-dough starter can be ordered from companies that produces food-grade viruses. The starter contains two different viruses which become dominant under different environmental conditions. The first virus is SouDPhoto, which carries a gene for photosynthesis. It infects the lactobacilli and gives lactobacilli the ability to perform oxygenic photosynthesis that combines CO_2 with water to make sugar. It allows the sourdough starter to be fermented in an air-tight container with normal day-night cycles. In the day time the sourdough starter goes through photosynthesis generating oxygen and sugar, and during the night the sourdough starter uses the oxygen produced in the day time to conduct fermentation. This makes the sourdough sweeter and last longer. The second virus, SouDCillus, becomes active when the yeasts in the dough start to create alco-hol. It converts the alcohol into cellulose, forming (an) interesting texture in the dough.

The sour-sweet-dough is used most often for bouncy pastry with a texture between bread and mochi.



Enterobacteria Phage T4

Easy to grow in *E. coli*, used as a model for molecular evolution, and potential use for delivering nanoparticles to target tissues.

Chapter Five

Ecosystem Cuisine

ca. 2065

Ecosystem cuisine is targeted for the whole ecosystem to enjoy. All agents which possess the ability to digest and replicate are the guests, whether they are microbes, animals, humans, or even semi-living viruses.

The motto of ecosystem cuisine is 'no one gets left behind, everyone is included'. The highest goal of an ecosystem cuisine chef is to have all parties within the system satisfied and entertained. Who gets eaten and how many of them get eaten would depend on the definition of 'survival' of each individual.

Balance is the ultimate guideline. Only when death/survival is well-balanced will there be enjoyment on food.

The definitions of 'eating' and 'food' have to be carefully defined each time.

ECOSYSTEM ZERO BREAKFAST

The breakfast is served in a backyard with rich black soil and plenty of herbs and vegetables right at the moment the sun dawns. Rainwater containing viruses living both in plants and human saliva glands is served in jars, where each of the human guests takes a jar of rain water and slowly pours the rainwater into the soil. Smell of rain raises from the soil as the Actinomycetes bacteria release their spores. Human guests then touch the herbs softly with their hands. As the hands move through the plants, the smell of basil and tomato mix with the smell of rain. The part of the garden treated by rainwater mixed with mycoviruses the previous night already has mushrooms growing. Water initiates a series of reactions in the soil, activating the mycelium and triggering the forming of fruiting bodies. As the fruiting bodies absorb the nutrients in the soil, the mycoviruses containing blue bioluminescence genes enter the mushrooms. The mushrooms sprout during the night, shining in dim blue.

As the sun dawns, chop the wood into medium pieces. Roll out the charcoal grill. Stack up the fire starter with wood chips, and light it up. Let the wood burn until it starts to turn grey. Now it is ready for barbecue. It will take about 20 mins to heat up.

Harvest the mushrooms, tomatoes and other desired herbs. Because the sun has just dawned, it is still comparatively dark. The mushrooms are still shining with a blueish tint.

Thread the vegetables on the skewers, and barbecue on the grill. As the vegetables start to brown and their skins become wrinkled, sprinkle the herbs on the vegetables.

As human guests feast on the grilled vegetables, the plant viruses in the raw part of the vegetables find their habitat on human saliva glands. The viruses enter the glands and replicate. As humans eat the vegetables from the skewers, the replicated viruses also attach themselves onto the skewers. As the viruses replicate, they also trick the saliva glands to produce protein molecules that are released along with viruses, creating a very sophisticated taste.

The skewers are then reused back in the garden as supporting structures for the plants, further infecting the plants in the garden. The wood ashes are used as soil fertilisers, while some other ashes are used to pasteurise the straws for mycelium cultivation.

LATE LUNCH OFFSHORE

Human guests are gathered and sailed off the coast on a yacht towards an algae bloom offshore where boats await. Upon arrival, human guests embark the smaller boats that can roll freely within the blooming area. Each boat has a crew member who is at the same time a fisherman and a cook. Carrying bottles of marine viruses in hand, the human guests pour the viruses into the ocean which onsets the whole banquet.

The viruses would be the first to enjoy the meal. By infecting the planktons and marine bacteria, the viruses first replicate within the planktons and bacteria and later lysis open these hosts, releasing tiny molecules of DOM (dissolved organic matters) into the water. These molecules are the invitation sending out to other organisms like fish, shrimps, and birds, across the deep, wide ocean.

As the DOM travel through waves and wind, then enter the nostrils of different animals, it is like a bell announcing the presence of an abundant meal. First comes the sardine. The sardine arrive in a shoal, constantly rotating like a tornado underneath the water. The sardine hunt on the floating planktons while the planktons are busy killing themselves to interrupt virus replications. Virus replication is a chain reaction, each bursted plankton releases millions of viruses which infects more planktons. While viruses are occupied with propagation, the happy sardines also come along and swallowing lumps of planktons each time.

Surrounded by the underwater shoals of sardine, the fisherman-cook starts to release funnel fishnets deep within the shoals and catching a handful of sardine. The fished sardines are cleaned and either marinate or lightly fried using a pan with a pinch of salt and pepper, served with herbs to the human guests.

While the sardines are eating and being eaten, other guests arrive. First the small fishes then the larger ones. Dolphins, seals, sharks, sailfish, devil rays... It all depends on the geographical location where the banquet has been held, the attendance varies. Birds, particularly sea birds, also join. As they arrive, the banquet welcomes its highest point.

Meanwhile, the algae start to ‘ferment’. Foams appears as each sea wave hitting the boat. Finally, with the dosage perceivable to the human, the scent of rich protein rises from the ocean. It is the sign of algae death —what we called ‘the smell of the ocean’. This aroma adds to the atmosphere of diners on the boat while witnessing what is happening underneath.

20 meters down under, the larger animals start their hunting dance. Dolphins, seals, and tuna glide in and out of the sardine shoal while eating, causing the shoal change shapes. Sea birds shoot into water like a bullet and grab a mouth full of fish. Whales sometimes come last, swim towards the family of sardines with their mouth wide open, sieving through the water and swallowing a lump of fishes.

Human guests, as cunning as they always are, of course fish the other larger animals as well, tuna to be one of them. As the human guests finished eating, the leftovers are fed to the birds.

At last, after 4 hours of feasting and digesting, the human guests jump into the ocean half naked, contributing a part of themselves for the ocean bacteria — for the bacteria to dine on their skin. And sometimes, the daring ones will also gift the microbes a bit of watery nitrogen source.

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