

KEEPERS OF
CRAFT

Fermenting Foods

BECAUSE YOU NEED *ANOTHER* HOBBY IN THE END TIMES



fer·ment·ed food | (,)fər-'men-təd , 'füd

FERMENTED FOODS ARE DEFINED AS "FOODS MADE VIA CONTROLLED MICROBIAL GROWTH AND ENZYMATIC CONVERSIONS OF MAJOR AND MINOR FOOD COMPONENTS."

IN THE CONTEXT OF FOOD, FERMENTATION TYPICALLY INVOLVES NATURALLY OCCURRING BACTERIA SUCH AS LACTOBACILLUS.

PICKLING: SOME FOODS ARE FERMENTED AS PART OF THE PICKLING OR SOURING PROCESS, BUT MANY ARE SIMPLY PROCESSED WITH BRINE OR VINEGAR.

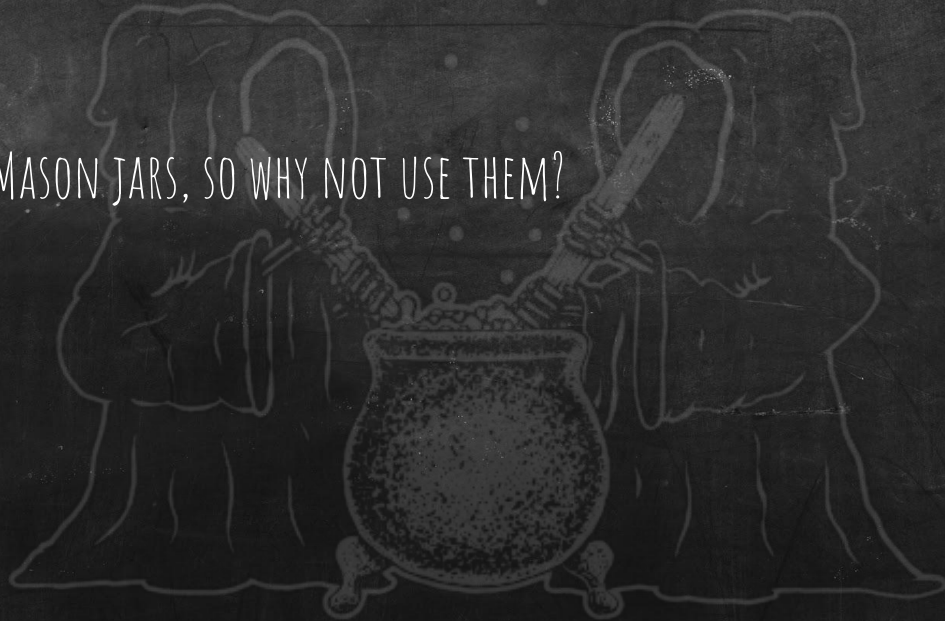
- BREAD
- CHOCOLATE (!)
- SAURKRAUT
- TOFU
- MISO

- TEMPEH
- HÁKARL
- YOGHURT
- VINEGAR (NOT FOOD, DON'T @ME)

WE WILL PRIMARILY BE TALKING ABOUT KIMCHI,
HOT SAUCE & VINEGAR DURING THIS PRESENTATION

Why ferment food?

- PRESERVES FOOD.
- USE PRODUCE CLOSE TO EXPIRY!
- NEW FLAVOURS!
- WHY TF NOT?
- PROBIOTICS!
- YOU ALREADY HAVE MASON JARS, SO WHY NOT USE THEM?



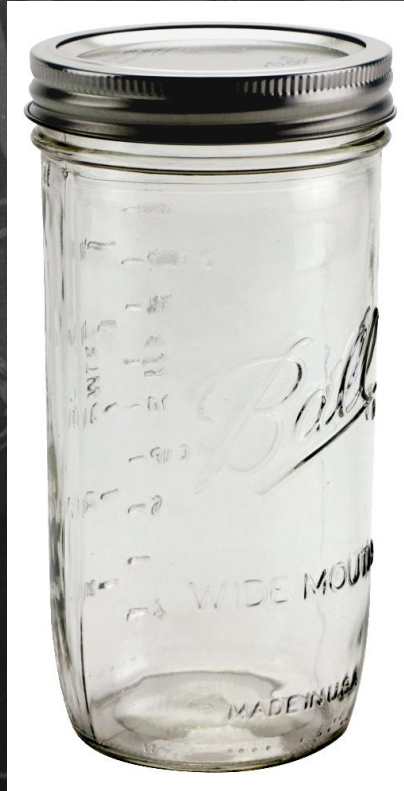
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Equipment



Equipment needed

- (WIDE MOUTH MASON) JARS
- (WIDE MOUTH MASON) JAR LIDS
- SOMETHING TO RELEASE THE PRESSURE
- SOMETHING ELSE TO KEEP AIR OUT
- SANITISATION/STERILISATION
- FERMENTABLE MATERIAL: FRUIT/VEG/MEAT
- WATER
- SALT
- TONGS
- A POT
- KITCHEN SCALES (PREFERRED)
 - THE METRIC SYSTEM
- CHOPPING BOARD
- KITCHEN KNIFE



SOMETHING
TO KEEP AIR
OUT

MOULD IS NOT YOUR FRIEND, BUDDY

Weighing the fermentables down

ALL FERMENTABLES MUST BE COMPLETELY SUBMERGED

ANY PROTRUDING FROM THE LIQUID ARE AT RISK OF SPOILAGE



Pressure relief



CHEESE CLOTH

GLOVE



FERMENTATION LID



VACU-SEAL BAG



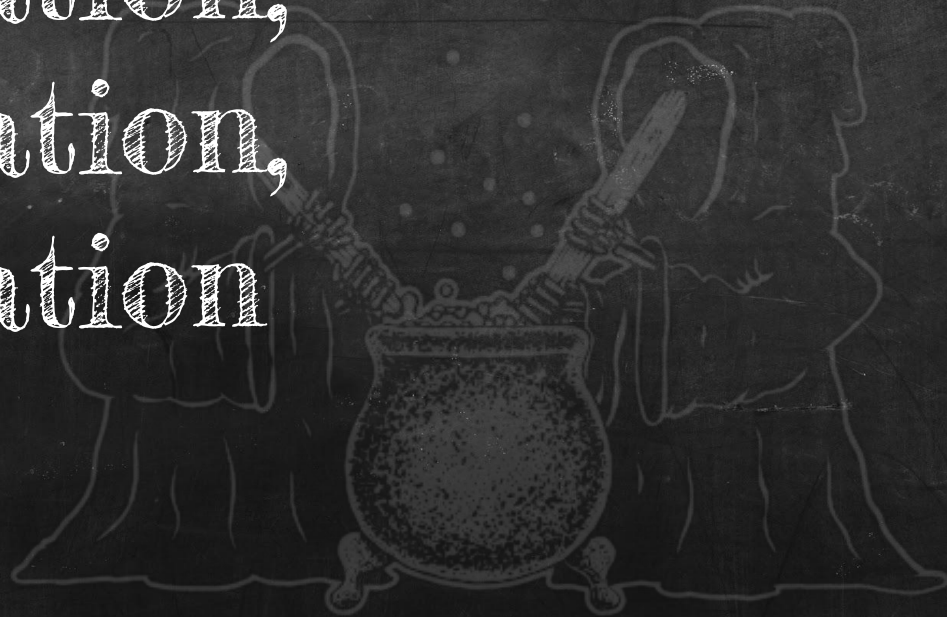
VACUUM FERMENTATION LID



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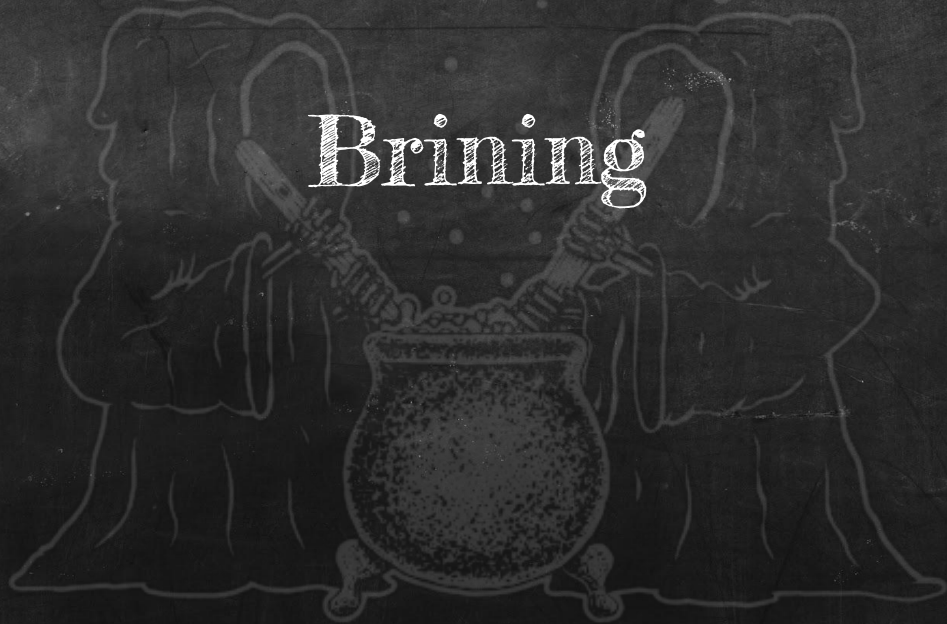
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Sanitation,
Sanitation,
Sanitation



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Brining



Time to get salty

SALT HAS BEEN USED HISTORICALLY TO PRESERVE FOOD

IT HAS A DEHYDRATING EFFECTS ON SOME BACTERIAL CELLS, WHICH KILLS THEM

LACTOBACILLUS IS MORE TOLERANT TO SALT

8-10% TOLERANCE HAS BEEN REPORTED

TYPICAL FERMENTATION SALINITY RANGE: (2)3-5%

SEA SALT OR PICKLING SALT RECOMMENDED

IODISED SALT SHOULD NOT BE USED FOR AESTHETIC & ANTIMICROBIAL PURPOSES

TABLE SALT CONTAINS ANTI-CAKING AGENT

How to salt

FOR BRINE FERMENTS:

TO MAKE A BRINE BETWEEN 2-5% (APPROX 4% IS FINE)

USING METRIC MEASUREMENTS: JUST USE % W/V, SO FOR 500ML OF A 4% BRINE, USE 20G SALT. EASY.

USING IMPERIAL MEASUREMENTS: 1 (LVL) TBSP ~19G, 1 PT = 473.176473 ML

$$19/473 = 4.01691331924\%$$

∴ 1 TBSP IN 1 PT GIVES 4% BRINE

FOR DRY FERMENTS (PEPPER MASH, SAUERKRAUT OR KIMCHI):

USE ~1.5-2 % OF TOTAL WEIGHT OF FRUIT/VEGETABLES

APPROX. 1 TBSP FOR EVERY 1 1/2 LBS OF VEGETABLES (2.8%), 2 TSP GIVES ~1.9% SALINITY

[HTTPS://MYFERMENTEDFOODS.COM/TOOLS/BRINE-CALCULATOR/](https://myfermentedfoods.com/tools/brine-calculator/)





Brine Recipes

	250 ml	500 ml	750 ml	1000 ml	2000 ml	3000 ml	4000 ml
2%	5 g	10 g	15 g	20 g	40 g	60 g	80 g
3.5%	9 g	18 g	26 g	35 g	70 g	105 g	140 g
5%	13 g	25 g	38 g	50 g	100 g	150 g	200 g
10%	25 g	50 g	75 g	100 g	200 g	300 g	400 g

	1 cup	2 cups	3 Cups	1 Quart	2 Quarts	3 Quarts	4 Quarts
2%	5 g	9 g	14 g	19 g	38 g	57 g	76 g
3.5%	8 g	17 g	25 g	33 g	66 g	99 g	132 g
5%	12 g	24 g	35 g	47 g	95 g	142 g	189 g
10%	24 g	47 g	71 g	95 g	189 g	284 g	379 g

2% ~ Onions, garlic, broccoli, cauliflower, carrots, beet kvass, horseradish, potatoes, green beans, etc.

3.5%-5% ~ Cucumbers and Peppers (mold easily)

10% ~ Pepper mash (molds very easily)

Self-Brining Vegetables (Beets & Cabbage):

Mix 5-6 grams of Himalayan Pink Salt to every pound of cleaned, prepared vegetables. Top off with 2% brine solution if necessary.

Fermentation

SIGNS OF FERMENTATION SHOULD START WITHIN A DAY OR TWO

SLIGHT BUBBLES OBSERVED ON THE SURFACE OF THE FERMENTABLES

DON'T WORRY ABOUT CLOUDY BRINE

REMEMBER THE PRESSURE RELIEF METHODS?

PACKING LEVEL IS IMPORTANT - DON'T OVERFILL

TYPICALLY COMPLETE WITHIN A MONTH OR LESS

WARMER TEMPS ACCELERATE FERMENTATION

DOESN'T SEEM TO BE AS IMPORTANT AS SACC. FERMENTS

AGING ISN'T A DIRTY WORD



When is the fermentation finished?

FERMENTED PEPPERS ARE DONE WHEN THEY ARE SOFTER TO THE TOUCH AND HAVE A MORE SOUR FLAVOR.

TEST THE FERMENT REGULARLY (DAILY?) UNTIL IT HAS REACHED THE DESIRED FLAVOR AND CONSISTENCY.

LONGER FERMENTS WILL PRODUCE A MORE *FUNKY* FLAVOUR

FOR HOT SAUCE, WE WANT THE PEPPERS TO BE FAIRLY LIMP, AND FOR THE SALTINESS TO BE CONSIDERABLY REDUCED BEFORE BLENDING.

WHAT DOES FERMENTED HOT SAUCE TASTE LIKE?

FERMENTED HOT SAUCES HAVE A SLIGHTLY SOUR TASTE THAT IS CAUSED BY FERMENTATION OF SUGARS TO LACTIC ACID DURING THE FERMENTATION PROCESS.

FERMENTED HOT SAUCE SHOULD TASTE SLIGHTLY SOUR WITH AN OVERALL TANGY CHARACTER.

Mould or Kahm?

KAHM IS A WHITE FILM THAT OFTEN COVERS THE TOP OF YOUR FERMENTS

IF IT FORMS, SKIM THE KAHM YEAST OFF THE SURFACE. DON'T WORRY IF YOU CAN'T GET IT ALL. IT WON'T HURT YOU

THERE ARE A NUMBER OF FACTORS THAT CAN CAUSE KAHM YEAST TO FORM ON YOUR FERMENT, BUT THE MOST COMMON BEING:

- HIGHER TEMPERATURE

- OPEN-AIR FERMENTATION (NO CLOSED LID)

- FERMENTING SWEETER VEGETABLES, LIKE PEPPERS OR CARROTS

KAHM IS COMMON IN THE ATMOSPHERE AND TENDS TO THRIVE IN A FERMENTATION ENVIRONMENT

WHAT DOES KAHM LOOK LIKE?

- STRINGY, WRINKLED, WHITE TO OFF-WHITE FILM-LIKE

- NOT FUZZY, BUT MORE FLAT

- BUBBLES OF CARBON DIOXIDE OFTEN GET TRAPPED IN KAHM YEAST



Mould or Kahm?

MOULD?



WHAT DOES MOLD LOOK LIKE ON A FERMENT?

RAISED FROM THE SURFACE

USUALLY COLOURED (WHITE, BLACK, BROWN, GREY, BLUE, GREEN, YELLOW, PINK, PURPLE AND/OR ORANGE)

FUZZY APPEARANCE RATHER THAN FLAT

SPOTTY AT THE BEGINNING, EVENTUALLY COMING TOGETHER TO FORM A LAYER



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Fermenting Hot Sauce



Ingredients

WATER

SALT

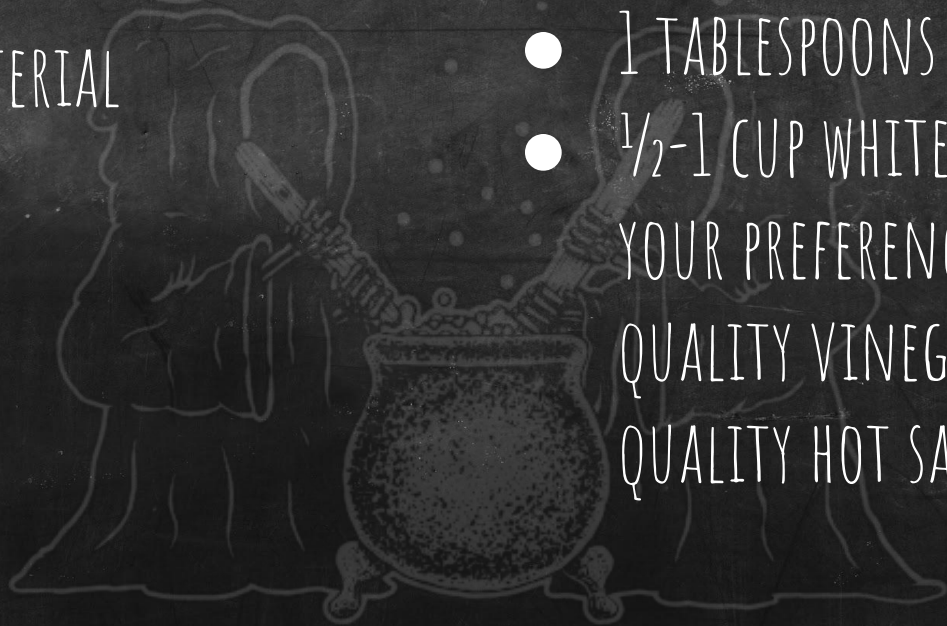
FERMENTABLE MATERIAL

(VINEGAR)

SPICES

(SUGAR)

- 1 POUND CHILI PEPPERS
- 1 QUART UNCHLORINATED WATER
- 1 TABLESPOONS SALT
- 1/2-1 CUP WHITE WINE VINEGAR TO YOUR PREFERENCE (USE A GOOD QUALITY VINEGAR FOR BETTER QUALITY HOT SAUCE)



Preparation of Produce

WASH DIRT OFF THE BODY. THERE MAY BE HARMFUL CONTAMINANTS (BACTERIAL, CHEMICAL)

DON'T SCRUB OR TREAT TOO HARD

WE WANT TO UTILISE THE NATURALLY OCCURRING LACTOBACILLUS!

SANITISE PREPARATION SURFACE, KNIVES ETC.

REMOVE ANY OBVIOUSLY SPOILED VEG, OR CUT AWAY AFFECTED AREAS

CHOP INTO SLICES (>JULIENNE, <QUARTER) OR SMALL CUBES.

TO SEED, OR NOT TO SEED PEPPERS?

REMOVING SEEDS WILL GIVE A SMOOTHER SAUCE, VERY LITTLE DIFFERENCE IN FLAVOUR (OR HEAT) REPORTED

Packing the jar

~80% FULL

FILL TO THE SHOULDER

TIP: ALWAYS PUT THE SMALLER ITEMS FIRST, AS THEY HAVE A TENDENCY TO FLOAT.

OVERFILLING? BE PREPARED TO MOP UP BRINE!



After fermentation

SEPARATE PEPPERS FROM BRINE.

SEPERATE YOUR FERMENTED PEPPERS FROM THE BRINE
(DECANT OR USE A STRAINER)

RETAIN THE BRINE.

THIS WILL BE USED TO THIN OUT YOUR HOT
SAUCE TO THE DESIRED CONSISTENCY.

OR A STARTER FOR ANOTHER FERMENT!

USE IN SAUCES/GRAVIES

BLENDING.

ADD THE SOLIDS TO A BLENDER, AND ADD A SMALL
AMOUNT OF THE RETAINED BRINE TO START.

DON'T ADD TOO MUCH, AS THIS WILL THIN THE
SAUCE TOO MUCH

KEEP ADDING BRINE UNTIL THE SAUCE IS JUST
THIN ENOUGH.

OPTIONAL: ADD APPLE CIDER VINEGAR IN ADDITION
TO BRINE TO HAVE A MORE ACIDIC FLAVOR, AND TO
KEEP THE HOT SAUCE FOR LONGER.

Final Steps

ADDING FRUIT?

RECOMMEND TO ADD AFTER FERMENTATION IS
COMPLETE

FRUIT FLAVOUR CAN BE LOST DURING FERMENT

ADD TO BLENDER TO TASTE

BOIL THE SAUCE TO KILL LACTO

WE DON'T WANT THE FERMENTATION TO
CONTINUE IN THE BOTTLE!

BOTTLE AND REFRIGERATE.

ALL FERMENTED FOODS MUST BE REFRIGERATED.

REFRIGERATED HOT SAUCE WILL LAST FOR MONTHS IN A
SEALED CONTAINER.

BUY 5OZ *WOOZY* BOTTLES, TYPICALLY <\$1 EACH

REUSE, RECYCLE ETC.

USE THE ORIGINAL MASON JAR

REFRIGERATE

Pepper mash

PEPPER MASH IS A COLLECTION OF CHILI PEPPERS THAT HAVE BEEN MASHED TOGETHER WITH SALT THEN FERMENTED. PEPPERS SHOULD BE PREPARED IN A FOOD PROCESSOR OR USE A PESTLE & MORTAR OR SIMPLY FINELY CHOP THEM IF YOU PREFER A MORE HANDS-ON APPROACH.

USE 1 TEASPOON SALT PER POUND OF PEPPERS. 1 POUND OF PEPPERS SHOULD PROCESS DOWN TO ABOUT 1 CUP. SO, 1 TEASPOON OF SALT PER CUP OF MASH IS ROUGHLY 2.3% SALT BY WEIGHT.

THE PEPPERS WILL BEGIN TO RELEASE THEIR MOISTURE RIGHT AWAY.

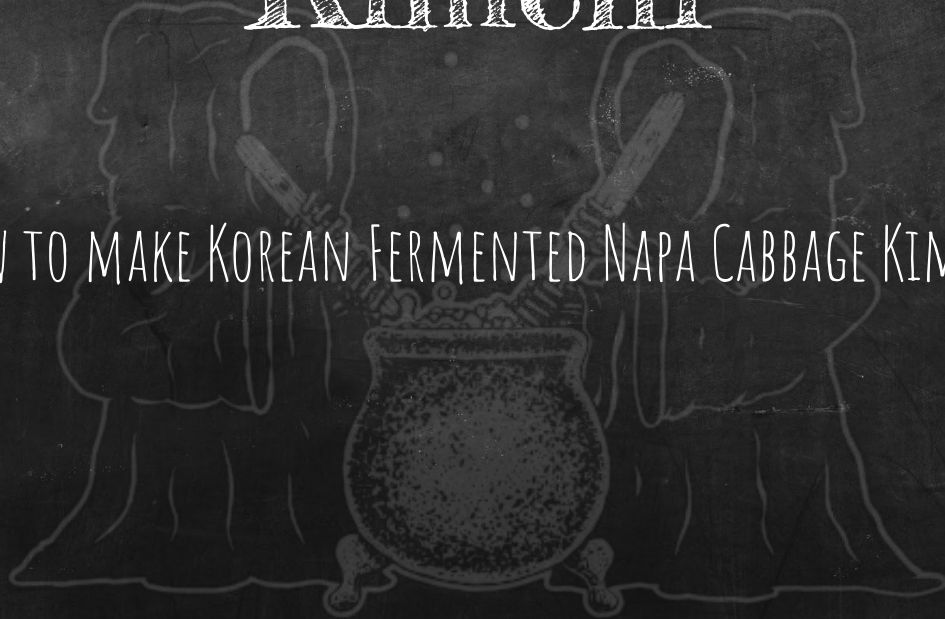
WATER CAN BE ADDED (SPARINGLY) TO KEEP THE PEPPER SOLIDS SUBMERGED

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Kimchi

HOW TO MAKE KOREAN FERMENTED NAPA CABBAGE KIMCHI



What is Kimchi?



- TRADITIONAL KOREAN SIDE DISH
- CAN BE MADE WITH JUST ABOUT ANY VEGETABLE
- SALTED AND FERMENTED WITH ENDLESS SEASONING OPTIONS
- TRADITIONALLY STORED UNDER GROUND IN LARGE POTS TO MODERATE TEMPERATURE
- IN KOREAN IT TRANSLATES TO "SUBMERGED VEGETABLE"

Prepare the Napa Cabbage

- CUT THE ROOT END OF THE CABBAGE IN A CROSS, JUST ENOUGH SO THAT YOU CAN PULL THEM APART AND RIP THEM THE REST OF THE WAY
- TAKE THE 4 QUARTERS OF CABBAGE AND SALT GENEROUSLY (1/2 CUP) MAKING SURE SALT GETS IN BETWEEN THE LEAVES
- PUT IN A LARGE BOWL AND COVER WITH WATER AND LEAVE FOR 6-8 HOURS
- DRAIN AND WASH THEM THEN CUT OR RIP THEM INTO SMALL PIECES

THE PICTURE IS ACTUALLY BOK CHOY



Gather your other ingredients

THIS VERSION IS VEGAN SO DAVID COULD ENJOY IT AS WELL

- 3/4 CUP - KOREAN RED PEPPER FLAKES OR POWDER (NOT ITALIAN RED PEPPER FLAKES)
- 1/4 CUP - HONEY
- 3 TABLESPOONS - GARLIC, MINCED
- 1 TEASPOON - GINGER, GRATED
- 3 - GREEN ONIONS, CUT INTO 2 INCH PIECES
- 1/4 CUP - ONION, FINELY DICED OR GRATED
- 1/2 CUP - SWEET RICE PASTE (HALF WATER, HALF SWEET RICE FLOUR)

I JUST USE A 2 BALL JAR THAT CAN HANDLE SOME PRESSURE, BUT DON'T SCREW THE LID ON VERY TIGHT



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Add and Mix

ADD



MIX



Jar



- ADD TO JARS LEAVING ABOUT 20% OF THE VOLUME AT THE TOP
- A NATURAL BRINE FORM
- LIGHTLY CLOSE LID (OR GET BURPING LID)
- LEAVE AT ROOM TEMPERATURE FOR 2 DAYS TO FERMENT THEN REFRIGERATE
- WILL BE GOOD FOR A FEW WEEKS

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Vinegar



Introduction to Vinegar

VINEGAR IS A SOUR LIQUID PRODUCED FROM THE FERMENTATION OF DILUTED ALCOHOL PRODUCTS.

ETHANOL IS OXIDISED TO ORGANIC COMPOUND ACETIC ACID

USED IN MANY CULTURES AS A CONDIMENT AND PRESERVATIVE, VINEGAR CAN BE MADE FROM A VARIETY OF LIQUIDS, INCLUDING MALTED BARLEY, RICE, AND CIDER; HOWEVER, AS ITS NAME SUGGESTS, IT WAS PROBABLY FIRST MADE FROM WINE.

THE WORD VINEGAR DERIVES FROM THE OLD FRENCH VINAIGRE, MEANING "SOUR WINE."

IT'S A GREAT WAY TO USE LEFTOVERS!



What does one need to make vinegar?

ALCOHOLIC BEVERAGE (BEER/CIDER/WINE)

TIME

A MOTHER.

What is a "Mother"?

A 'MOTHER' IS A SUBSTANCE COMPOSED OF A FORM OF CELLULOSE AND ACETIC ACID BACTERIA THAT DEVELOPS ON FERMENTING ALCOHOLIC LIQUIDS

OFTEN APPEARS AS A GELATINOUS DISC (CF SCOBY FOR KOMBUCHA)

USING A SCOBY FOR VINEGAR? @~1% ACIDITY THE YEAST DIE (LACTIC ACID BACTERIA DIE OFF AT HIGHER ACIDITY) LEAVING ONLY MOTHER OF VINEGAR CONTAINING ONE TYPE OF ORGANISM (ACETIC ACID BACTERIA) TO FEED ON ALCOHOL.



Where do I find a mother?

1. BUY ONE

Homebrew Stores

Healthfood Stores

Online

Vinegar 'with the mother'

2. BORROW ONE

Use a SCOBY or a Mother from a friend?

3. MAKE ONE

Warm red wine vinegar over a low heat for 10-15 minutes.

Allow to cool slightly before adding mix equal volumes of red wine

Cover & keep in a warm place for 2-4 weeks.



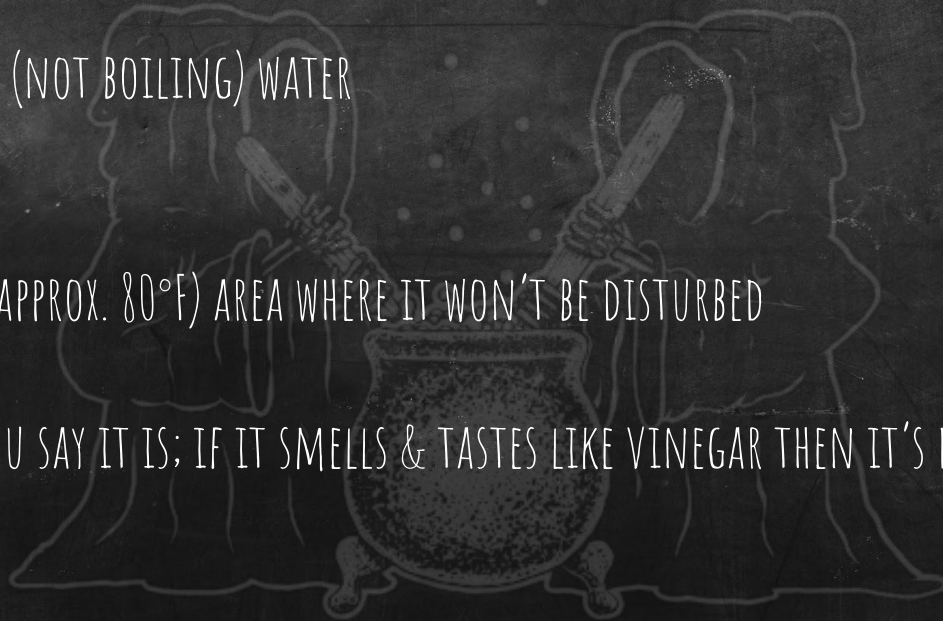
Making Vinegar

1. CHOOSE THE ALCOHOLIC BEVERAGE (BEER, WINE, CIDER, MEAD)

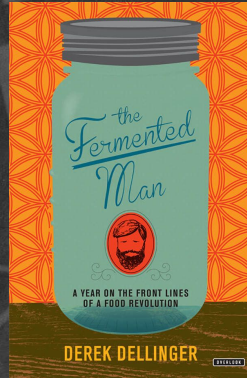
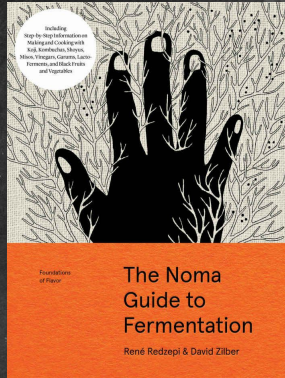
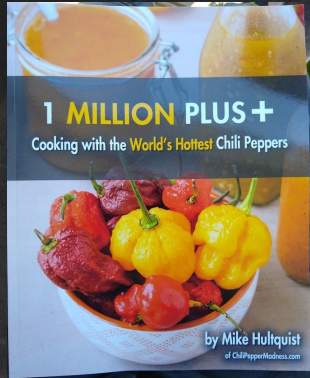
SULPHITE FREE

LOW IBU

2. SANITISE WITH HOT (NOT BOILING) WATER
3. ADD THE MOTHER
4. COVER LOOSELY
5. MOVE TO A (WARM APPROX. 80°F) AREA WHERE IT WON'T BE DISTURBED
6. WAIT
7. IT'S DONE WHEN YOU SAY IT IS; IF IT SMELLS & TASTES LIKE VINEGAR THEN IT'S DONE.



Resources



[HTTPS://WWW.CHILIPEPPERMADNESS.COM/](https://www.chilipeppermadness.com/)

[HTTP://INSANEINTHEBRINE.COM/](http://insaneinthebrine.com/) UNRELATED FB PAGE @

[HTTPS://WWW.FACEBOOK.COM/GROUPS/2085548908329490/](https://www.facebook.com/groups/2085548908329490/)

FERMENTED HOT SAUCE SOCIETY: [HTTPS://WWW.FACEBOOK.COM/GROUPS/2186993828252093/](https://www.facebook.com/groups/2186993828252093/)

REDDIT: [HTTPS://WWW.REDDIT.COM/R/HOTSAUCERECIPES/](https://www.reddit.com/r/hotsaucerecipes/)

[HTTPS://WWW.REDDIT.COM/R/FERMENTATION/](https://www.reddit.com/r/fermentation/)