

**a Where Healthy Food Starts guide**

# K O M B U C H A



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**a Where Healthy Food Starts guide**

# **Kombucha**

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# INTRODUCTION to KOMBUCHA

## **INTRODUCTION to KOMBUCHA**

what you should know about this healthy fermented tea

## What is Kombucha?



Many people around the world have been drinking fermented tea for hundreds of years, calling it by various names and praising its probiotic benefits as well as its refreshing flavor.

But did you ever wonder what it is that makes this magical drink, and how it works?

You're probably familiar with that leathery pancake we call a [scooby](#). That stands for Symbiotic Culture Of Bacteria and Yeast. "Symbiotic" means that the bacteria and yeast strains live together in a complex, mutually supportive community, supporting and depending on each other. The scooby is sometimes called the mushroom, because it resembles the smooth, thick body of a mushroom.

The specific bacteria and yeast strains in the kombucha are what make it act the way it does, and they also produce the fizz and flavor we expect from kombucha. Not all kombucha cultures will contain the exact same strains, but generally, these are some that you might expect:

- **Acetobacter:** This is an aerobic (requiring oxygen) bacteria strain that produces acetic acid and gluconic acid. It is always found in kombucha. Acetobacter strains also build the scooby mushroom. *Acetobacter xylinoides* and *acetobacter ketogenum* are two strains that you might find in kombucha.

- **Saccharomyces:** This includes a number of yeast strains that produce alcohol, and are the most common types of yeast found in kombucha. They can be aerobic or anaerobic (requiring an oxygen-free environment). They include *Saccharomyces ludwigii*, *Saccharomyces apiculatus*, *Schizosaccharomyces pombe*, *Zygosaccharomyces*, and *Saccharomyces cerevisiae*.
- **Brettanomyces:** Another type of yeast strain, either aerobic or anaerobic, that is commonly found in kombucha and that produces alcohol or acetic acid.
- **Lactobacillus:** A type of aerobic bacteria that are sometimes, but not always, found in kombucha. They produce lactic acid and slime.
- **Pediococcus:** These anaerobic bacteria produce lactic acid and slime. They are sometimes, but not always, found in kombucha.
- **Gluconacetobacter Kombuchae** is an anaerobic strain of bacteria that is unique to kombucha. It feeds on nitrogen that is found in tea, and produces acetic acid and gluconic acid as well as building the scoby mushroom.
- **Zygosaccharomyces Kombuchaensis** is a yeast strain that is unique to kombucha. It produces alcohol and carbonation as well as contributing to the mushroom body.

Kombucha also contains a variety of other nutrients, particularly various acids and esters that give the drink its characteristic tang and fizz. Included in these components is gluconic acid, which is the primary difference between the makeup of kombucha and the makeup of apple cider vinegar!

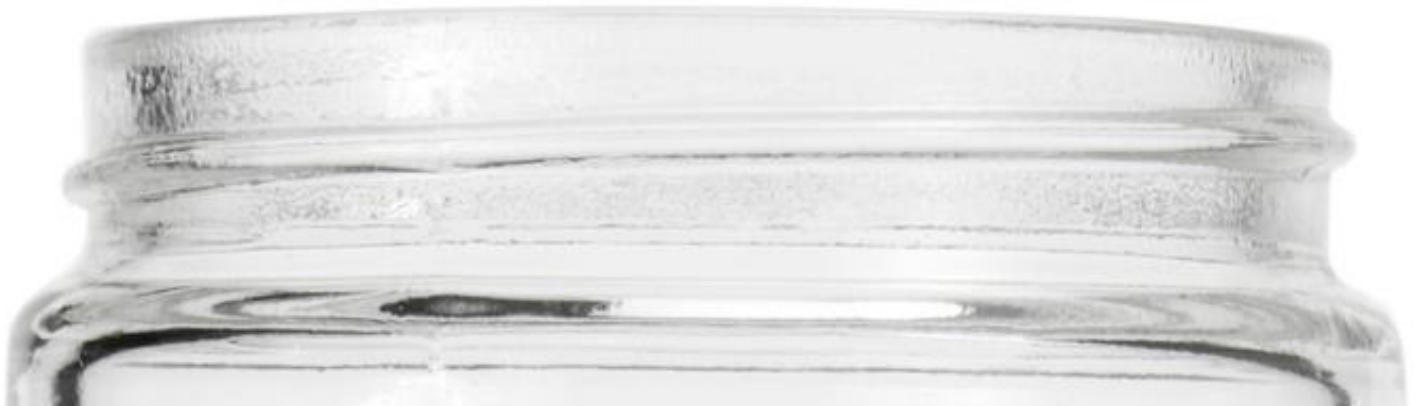
The actual bacteria, sugar, and acid content of kombucha depends on many factors, including the culture you begin with, the type of tea used, the type of sugar used, the strength of the tea, the type of water, the length of time brewing, the temperature at which it is cultured, and more.

While different scobys may vary in their exact makeup, what is common to all kombuchas is gluconic acid, acetic acid, and fructose.

## Choosing Equipment for Brewing Kombucha Tea

If you want to make kombucha tea at home, there are a few supplies that you will need to gather: primarily a brewing vessel and a cover for the container. Beyond that everything else is optional.

### Kombucha Brewing Container



Choosing the vessel you use to brew your kombucha is perhaps one of the most important decisions you will make before the process can begin. While a number of options exist, some are clearly superior to others.

**Glass.** Glass is hands-down the best option for brewing kombucha. Glass won't react to the acidity of the brew. Unlike plastic, glass doesn't scratch easily (damage to the container can harbor foreign bacteria) nor does it generally contain chemicals such as BPA. Glass containers are also relatively easy and inexpensive to obtain. Good options include larger-size canning jars and glass storage jars (generally found in quart, half-gallon and gallon sizes). Larger glass jars with spigots for [continuous brew systems](#) are becoming quite popular. While these can be very handy, a word of caution: Be sure the spigot is made of plastic and not metal, which can damage the kombucha scoby.

**Plastic.** Although plastic can technically be used to brew kombucha, we do not recommend it for several reasons. First, plastic can be damaged and scratches in the plastic can harbor foreign bacteria. Second, plastic (even food-grade plastic) often contains undesirable

chemicals that can be harmful to the kombucha scoby. In short, using plastic to brew kombucha greatly decreases the odds of brewing a safe batch.

**Ceramic.** Do not use ceramic as most of the glazes used to coat ceramic contain lead.

**Porcelain.** Food-grade porcelain is generally safe for brewing kombucha. Avoid porcelain pieces such as vases or decorative pottery that are not food grade.

**Crystal.** Crystal contains lead. Do not use crystal to brew kombucha.

**Metal.** Metal is generally detrimental to kombucha and should not be used for a brewing vessel or for any item that will have contact with the scoby. The only possible exception is stainless steel. Because it is relatively inert, some brewers feel it is a reasonable alternative to glass. While we do not recommend using it, some people do have success doing so.

Besides the material from which the vessel is made, there are several other factors to consider when choosing a container for brewing kombucha.



**Size.** Kombucha can be brewed in any size container from a quart canning jar to a large wood barrel, provided the correct ingredient ratios are maintained. On a practical level, when choosing the size of your brewing container, consider how much kombucha you will consume as each batch of kombucha will take 7 to 30 days to brew. (Keep in mind that you will always want to make extra to use as starter tea for your next batch.) If you will be preparing your brew in one place (such as the kitchen) and letting it ferment in a different spot, it is also important to consider how heavy the container and brew will be and whether you will be able to move it safely. Also consider whether you will need to lift the jar to pour

out the finished brew once the kombucha fermentation process is complete. In addition to container weight, the kombucha tea will add about 8 pounds per gallon.

**Surface Area.** The surface area of the brew will influence the rate at which your kombucha brews. Kombucha brewed in a bowl with a 9” diameter opening will brew significantly faster than kombucha brewed in a jar with a 3” diameter opening. Faster isn’t necessarily better, however, as the kombucha can develop a strong vinegar taste in a relatively short period of time.

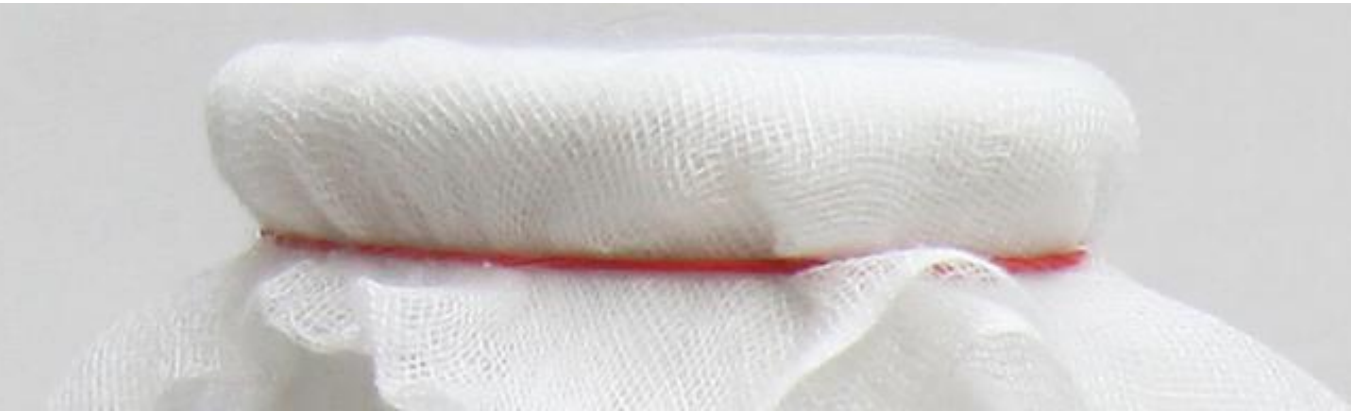


**Spigots.** Many brewers are now using containers with spigots located near the bottom of the jar for easy removal of the finished kombucha. While such containers are handy, be sure the part of the spigot inside the jar is plastic and not metal. Also make sure the spigot is sturdy as they sometimes will break off when the jar is being moved, resulting in a huge mess.

**Lids.** While a lid should not be used during the fermentation process, having a container with a lid to use for storing the kombucha after fermentation is complete and the culture removed can be quite handy. Alternatively, finished kombucha can be transferred to other storage jars or bottles.

**Utensils.** You will need a kettle to heat water in for brewing the tea, and a spoon for mixing the brewing solution. Any utensil that comes in contact with the scoby must be non-metal (i.e., plastic, wood, acrylic, etc.)

## Covering the Kombucha Brewing Container



It is important to employ an effective cover system for your kombucha brewing vessels. Bugs such as fruit flies or ants as well as transient yeasts and bacteria from the air can easily find their way into your kombucha and ruin the whole batch. An effective cover system should not be airtight but rather allow the mixture to breathe, as the process benefits from oxygen and will also result in gas that must be expelled. Effective coverings include tight-weave dish towels or fabric, multi-layered tight-weave cheese cloth (known as butter muslin), a paper towel, a paper coffee filter, etc. The cover should be secured with a tight rubber band so ants and fruit flies can't sneak under it. Do not use a tight lid. Doing so will inhibit airflow needed for effective fermentation and also allow gas to build which can make removing the cover dangerous. Undesirable covering options include loose-weave fabric or screens, which will not keep out tiny bugs or transient yeasts and bacteria.

## Additional Supplies for Brewing Kombucha

While only a vessel and covering are required for brewing kombucha, there are several additional items that are useful as well. Please note: it is critically important to the health of the scoby that it not come in contact with metal. This includes jewelry such as rings, measuring cups, utensils, strainers, etc. Glass, plastic, and wood kitchen items are far safer for the kombucha. As a side note, metal is only harmful if it comes in contact with the scoby itself. So you can, if you wish, use a metal tea ball or spoon when brewing your tea. Just be sure to remove the metal prior to adding the scoby.



**Tea Ball.** If you are using loose tea, [tea balls](#) are quite handy for ensuring pieces of stray tea do not end up in your brew. Stray pieces of tea can get caught in the forming scoby and attract mold.



**Strainer.** Once your kombucha is finished brewing and the scoby has been removed, it is helpful to strain the batch through a fine mesh strainer to catch any stringy yeast particles that may be floating in the brew. While not harmful if consumed, the texture tends to be undesirable. We recommend using a [plastic fine-mesh strainer](#) for this task. Please note: if the finished kombucha sits in a storage container for a period of time, it may be useful to re-strain the kombucha prior to consuming to catch any yeast particles or immature scobys that may have formed during the period the kombucha is stored.

**Grolsch-style Glass Bottles.** Flip-top airtight bottles make the perfect containers for storing your finished kombucha tea. They are available [on our website](#) or from your local beer- and wine-making supply store. The bottles come in several sizes from a pint to a liter or more and are available in several colors. Keep in mind that dark colors (brown, green, and blue) are most effective in ensuring light doesn't degrade the kombucha. Avoid clear bottles when possible.

**Funnel.** Plastic funnels are very handy for transferring finished kombucha into bottles.

**pH Meter or pH Strips.** While not required, a method for testing the pH level of your finished kombucha is handy for determining whether the batch is acidic enough to be considered safe to drink. Finished kombucha generally should have a pH level between 2.5 and 4.0. pH strips can be found [on our website](#) or at many pharmacies. pH meters are often available from local beer- and wine-making supply stores.



## Choosing Ingredients for Making Kombucha

**Making kombucha tea requires five Ingredients water, tea, sugar, starter tea or vinegar, and a kombucha scoby (also known as a starter culture, mother, mushroom, etc.).** The type of water, tea, and sugar used are important. Creating a safe batch of kombucha requires maintaining a proper level of acid from the start until the scoby begins to produce its own acids. The acid serves a critical purpose by warding off mold and invading bacteria as well as providing a proper fermentation environment for the scoby. Maintaining a proper level of acidity is dependent on the ingredients used and the health of the scoby. While a number of water, tea, and sugar options exist, some provide a healthier environment for the scoby and a consistent pH level and therefore are more likely to yield a consistently safe brew. The brew should start with a pH of no more than 4.6, and the finished brew should have a pH level between 2.5 and 4.0 prior to consumption.

### Water for Kombucha



While tap water can be used, we recommend instead using filtered water free of as many contaminants as possible. Contaminants such as chlorine, chloramines, and fluoride can be detrimental to a batch of kombucha and the health of the scoby. Distilled water and reverse osmosis water can also be used to brew kombucha. Do not use alkaline water (processed through a water ionizer) to brew kombucha: it may kill the culture.

## Tea for Kombucha



Brewing kombucha does require real tea (*camellia sinensis*) for both minerals and nitrogen. A number of varieties are available including black, green, white, pekoe, oolong, Darjeeling and more. We do recommend using organic tea whenever possible to avoid exposing the scoby to pesticides. The type of tea you choose to use to brew kombucha can affect the health of the scoby as well as the taste of your finished brew.

**Black Tea.** Black tea consists of fully fermented tea leaves and has traditionally been used to brew kombucha. Black tea is most nutritious for the scoby and will promote the most ideal brewing conditions and maintain the most consistent pH level, all of which contribute favorably to the health of the scoby. Black teas such as Ceylon, English Breakfast, and Darjeeling make a traditional amber-colored, bold-tasting kombucha. The taste profile is most commonly described as apple-like or fruity, reminiscent of cider. Depending on the specific variety of tea used, it is also possible for kombucha made with black tea to taste woody, earthy, or smoky. Please note: it is important to avoid black teas that contain oils such as Earl Grey tea, chai tea, flavored Ceylon teas, etc. While flavored teas are popular among some kombucha brewers, be aware that the oils contained in such teas are not only hard on the scoby but can also become rancid during the brewing process.

**Oolong Tea.** For a bit softer taste, try oolong tea, which consists of partially fermented tea leaves (and can be categorized as either a black or green tea). Oolong tea provides an amber-colored kombucha with a somewhat fruity, somewhat grassy taste. Oolong tea is a favorite for kombucha brewing here at Cultures for Health.

**Green Teas.** Green teas are commonly mixed with black teas for brewing kombucha but can also be used alone. While not quite as ideal as black tea for fermenting kombucha, green tea provides most of the necessary nutrients and can be used in combination with black or herbal teas. Green teas tend to brew a little faster than black tea, and yield a lighter-color, softer-tasting kombucha. Jasmine green tea makes a particularly tasty kombucha.

**Red Teas.** Many kombucha brewers enjoy using Red Roobios. We do recommend using it in combination with black tea (at least 25% black tea).

**White Teas.** White teas tend to make a very flowery and delicate kombucha. For the health of the scoby, it is best to use white teas in combination with black, oolong, or green teas.

**Herbal Teas.** Herbal teas do not contain the necessary nutrients to nourish the scoby and should be used in combination with black tea (at least 25% black tea) to prevent problems for the batch and the scoby. While herbal tea alone will technically brew a batch of kombucha, it is much more difficult to control the pH level of the brew and the scoby will suffer nutritionally, both of which can result in an unsafe beverage. Beware of herbal teas containing oils! They should not be used. (Examples include peppermint, chamomile, ginger, etc.)

Keep in mind that essential oils (also known as volatile oils) are often added to teas, are generally harmful to the scoby, and can become rancid during the brewing process. We recommend avoiding all teas and herbs containing these oils when brewing kombucha. In addition, teas that are smoked can be harmful to the scoby. If an oil-containing tea or a smoked tea is used, be sure to monitor the batch carefully for mold, test the pH level of the brew prior to consumption, and plan to discard the scoby after a batch or two. (In addition we recommend not using any new baby scobys resulting from these batches to make future batches.)

**Caffeine.** If caffeine is a concern, try using decaffeinated tea or use this method to bypass most of the caffeine: Prepare a cup of hot water along with your container of water for making kombucha. Allow your tea to steep in the cup of hot water for 30 to 60 seconds. Discard the cup of water. Then use those tea bags to make the tea for your kombucha. Approximately 80% to 90% of the caffeine is released in that first minute of steeping.

## Sugar for Kombucha



While it can be tempting to try to find ways not to use sugar in recipes, sugar is required for the fermentation process and cannot be bypassed or substituted. During fermentation, the scoby breaks down the sugar and transforms it into acids, vitamins, minerals, enzymes, and carbon dioxide (which accounts for the fizzy nature kombucha is known for). Do not be tempted to use less sugar than called for. Upsetting the ratios will disrupt the fermentation process and potentially result in a beverage that is unsafe to drink. Keep in mind that at the conclusion of the fermentation process, kombucha contains only 1 to 2 grams of sugar or less per cup. Compare that to apple juice which contains 28 grams of sugar per cup. Longer kombucha fermentations periods may result in even less sugar so there is truly no reason to skimp on the sugar and risk creating a dangerous brew. If you are particularly concerned about the sugar levels in your finished kombucha, a hydrometer can be purchased from your local beer- and wine-making supply store, or you can use a residual sugar test kit.

**Plain White Cane Sugar.** Plain white sugar (the type you find at every conventional grocery store) is the easiest variety for the scoby to digest during the fermentation process, thereby creating a brew with the most consistent pH level. Unfortunately plain white sugar is not generally organic and may contain pesticides or be produced from genetically modified crops, which may be detrimental to the health of the scoby.

**Organic Evaporated Cane Crystals.** The organic equivalent of plain white sugar, OECC is a bit less processed and therefore not quite as digestible for the scoby, but still creates a brew with a relatively consistent pH level. Since it does not contain pesticides, GMOs, etc. it is very popular among kombucha brewers and is the sugar of choice here at Cultures for

Health both for production of the [kombucha scobys available on our website](#) as well as for our own personal brewing projects.

**Brown Sugar, Rapadura, Sucanat, Turbinado, Raw Sugar, Molasses.** Sugars containing molasses (unrefined sugars) can be used to brew kombucha but are much more difficult for the scoby to digest and therefore may result in a less consistent fermentation process and resulting level of acidity. A poorly formed new scoby and excessive yeast sediment are common side effects. Please note: sugars containing molasses also yield a much less pleasant-tasting kombucha. We do not recommend using sugars containing molasses when brewing kombucha, but if you choose to use them, try boiling the sugared tea for 10 minutes prior to allowing the mixture to cool completely and using it to make kombucha. The boiling process is purported to break down the sugar, which allows the scoby to better utilize the sugar for fermentation. While not ideal, it may help a bit. If you use one of these sugar types, we recommend obtaining and using a reliable pH meter or pH testing strips to ensure the pH level of your kombucha is between 2.5 and 4.0 prior to consumption.

**Honey.** Pasteurized honey may be used. Raw honey may successfully brew kombucha, but we do not recommend it for a number of reasons. Raw honey contains its own bacterial profile, and may disrupt the balance of yeast and bacteria in the scoby. Additionally, raw honey may include other organic material that might disturb the scoby or attract mold. Keep in mind that such disruption isn't always obvious and may result in an unsafe batch the first time or several batches later.

**Agave.** Agave can be used but it yields a sour-tasting kombucha and is problematic for the long-term health of the scoby. We do not recommend using agave.

**Maple Syrup, Coconut Sugars, Rice Syrup, etc.** While it may be possible to use these sugars when making kombucha, we recommend exercising caution as good data does not currently exist as to their safety in either the short or long term. If you decide to experiment using one of these alternative sugars, we urge you watch your batch carefully for any signs of mold or breakdown of the scoby. You should also obtain and use a reliable pH meter or pH testing strips to ensure the pH level of your kombucha is between 2.5 and 4.0 prior to consumption.

**DO NOT USE:** Corn syrup (or high-fructose corn syrup), lactose, Sucralose, Aspartame, acesulfame potassium, Splenda, saccharin, Neotame, xylitol, erythritol, or stevia. None of



these sweeteners can be utilized as food by the scoby and will be detrimental to the batch and harmful to the scoby, and will produce a beverage that is unsafe to consume.

## Starter Tea and Vinegar



Creating a safe batch of kombucha is dependent upon maintaining a proper level of acid, which wards off mold and invading bacteria as well as allowing the finished brew to reach a pH level between 2.5 and 4.0. While the type of tea and sugar used to brew the batch play important roles, the addition of an acidic liquid is also critical to the health of the scoby and the safety of the batch of kombucha. The most desirable acidic liquid to use when brewing a batch of kombucha is properly brewed kombucha tea from a previous batch. Ideally, approximately 1/8 of your batch of kombucha should be made up of acidic kombucha tea from a previous batch (1/2 cup per quart or 2 cups per gallon). If you are new to brewing kombucha or your supply is running low, there are two options. The first is to use a bottle of raw kombucha tea (preferably unflavored) from your local natural food store. The second is to use vinegar, specifically distilled white vinegar. Vinegar can make up all or part (used in combination with kombucha tea) of the acidic liquid needed to brew a batch of kombucha.

Keep in mind that vinegar can produce a harsher-flavored brew, so we recommend making only a small batch of kombucha using vinegar, then using that batch as a starter tea for your next batch.

## Kombucha Scoby

Also known as a starter culture, mother, mushroom, etc., the kombucha scoby is a collection of yeast and bacteria existing in a symbiotic relationship. A scoby looks like a slimy pancake or the top of a mushroom and is a necessary component to brewing kombucha.

**Source.** Be sure to obtain your scoby from a reputable source. Friends and family are a great place to start if you have any current kombucha brewers among your acquaintances. If not, the other options including [purchasing a scoby](#) or growing one from a bottle of commercial raw kombucha. [Click here for more information on obtaining or growing a scoby.](#)

**Size.** The size of the scoby is not particularly important. A small scoby can brew a relatively large batch of kombucha.

**Holes in the scoby.** Do not be concerned with holes in the scoby (which are common when the baby scoby fuses to the mother scoby during the fermentation process and must be torn apart). Also, using pieces of a larger scoby is acceptable as long as metal wasn't used to remove the pieces from the larger scoby.



**Coloring.** The scoby should be primarily off-white in color or sometimes more tan. Blobs of brown or stringy brown particles clinging to the scoby are normal byproducts of the yeast. Do not use a scoby that has signs of mold (black, orange, green, or very white spots) or a scoby that has turned black (a sign the culture has died).

## Straying from the Recipe

After you have been making kombucha for a while you may be tempted to stray from the guidelines presented here. Maybe you want to try making an herbal tea kombucha or brewing with molasses? If you choose to do so, we urge you to use good safety practices including:

- Watching your batch very carefully for signs of mold or changes to the scoby.
- Not reusing mother scobys or new baby scobys from experimental batches.
- Obtaining and using a reliable pH meter or pH testing strips to ensure that your brew has a pH level between 2.5 and 4.0 prior to consumption.
- Using good judgment and never consuming any kombucha that looks, smells, or tastes unpleasant.

## Safety First!

Please note: these ingredient recommendations are presented as suggestions only and do not substitute for using good judgment. No matter what ingredients or ratios you choose to use, regardless of whether mold is present or not, and regardless of the pH level of the finished brew, we implore you to always use your best judgment when brewing and consuming kombucha and to never consume any kombucha that looks, tastes, or smells unpleasant.



## Choosing a Water Source



Many fermented foods make use of water in the culturing process. The water can do a variety of important things:

- Water is a carrier for trace minerals that are sometimes important in culturing.
- Sometimes moisture is necessary to the culturing process, and the moisture is provided by water.
- Bacteria, swimming in water, are able to contact the material being fermented.
- Water with other ingredients (sugar, tea) can become the liquid that is fermented to make the final product.
- The material being fermented is protected from oxygen by staying underwater, which prevents the development of pathogenic bacteria or molds.

No matter what you are culturing, it is vitally important that the water you use be clean and free of pathogens or toxins. Beyond that, certain types of cultures have different requirements for water that you should be aware of to get the best results.

Municipal water quality varies around the country, and so does the quality of spring water and well water. Most cultures are pretty forgiving of water quality as long as the water is drinkable.

## Water Sources

The water you use for culturing will most likely come from one of four sources:

**Well Water.** Water that comes from your own well, or a well you share with some neighbors. Some municipalities also get their water from wells.

If your water is from a municipal well, there is chlorine, and possibly fluoride, in the water, as well as any other treatment chemicals the utility chooses to add. Private wells are required to be tested for microbial contamination at the time the well is installed, but not thereafter. Well owners should test their water annually for microbial contamination and chemical contamination from nitrates/nitrites, arsenic, petroleum byproducts, radon, or pesticides.

Well water is typically high in minerals, which is good for water kefir, not so good for kombucha, and really hard on your laundry. If the water is particularly acid (pH 7.0 or lower), it can cause leaching of metals from plumbing. If well water is discolored or has an odor, there may be an overly high mineral content from ground contamination or from decayed vegetation.

**Spring Water.** Similar to well water, spring water comes out of the ground and is used close to the source, or bottled for commercial sale. The main difference between spring water and well water is that spring water is collected at the surface of the earth, while well water is collected considerably below the surface. A natural spring is the result of water in an underground source seeping through the ground or rock and bubbling out through the surface.

Spring water is also typically high in minerals.

As a result of having been filtered through earth or rock, spring water is usually considered relatively free of contaminants. However, if the ground it's being filtered through is contaminated, the water itself can be contaminated too. It can also become contaminated in its journey from the spring, through plumbing, to your faucet. Most people do not have springs as a local source of drinking water.

**Tap Water.** Water that comes from a municipal water source. This could be glacier water, well water, river water, or water collected in a variety of ways.

Tap water may be hard (contains minerals including calcium and magnesium), or soft (relatively free of minerals). Since hard water leaves deposits on tile and fixtures, and doesn't do a great job with laundry, many home owners choose to run their water through a water softener that adds salts to remove the "hard" minerals. To find out what is in your tap water, you can check with your water utility and they can provide you with a water quality report.

Tap water is inexpensive and plentiful, and is almost always of a quality good enough to drink and cook with. It can usually be used "as is" for many culturing projects.

Water that is too "hard" can be a problem for some cultures, while water that is too "soft" can require remineralization for some other cultures. Tap water also usually contains chlorine, chloramines, or fluoride that must be removed for some cultures to work well.

**Bottled Water.** You can buy water in plastic bottles almost anywhere these days. Check the labels: it can be spring water bottled at the source, or water collected from rivers or streams, or even municipal tap water.

Bottled water may have fluoride added to it.

Distilled water is a type of bottled water that has been completely purified and contains no minerals or chemicals of any sort. Water that is sold in fountain machines at supermarkets is usually distilled or purified in other ways, and is free of chlorine, fluoride, minerals, or bacterial contaminants.

## Common Contaminants



Water that is not distilled is rarely pure. Aside from the natural minerals and salts you may find in even the cleanest sources, there are usually chemicals of some sort in your water.

- **Chlorine** is added to most municipal water sources to keep pathogenic (bad) bacteria from reaching the consumer. This is generally a good thing, since the water usually passes through a variety of reservoirs, pipes, and other contraptions before it reaches your faucet. Water can contain all sorts of bacteria or organisms that are easily killed by chlorine. Unfortunately, that chlorine can also kill the probiotics that you are trying to work with. Chlorine is reasonably safe to ingest in the quantities present in drinking water, although some people are sensitive to it.
- **Chloramines** are a compound of chlorine and ammonia. They are more stable in water than chlorine, and are used by many municipalities to ensure the safety of drinking water. Water treated with chloramines has little taste or smell, so this is an attractive disinfectant process for public drinking water. Like chlorine, chloramines are considered safe to ingest in drinking-water quantities, although some people are sensitive to them. Also like chlorine, chloramines can be toxic to some probiotics.
- **Fluoride** gets into water in two ways. It can be naturally occurring, as a trace mineral from the water source, or it can be added by the water utility. Fluoride occurs naturally in fresh water at around .01 to .3 parts per million. The chemical from which fluoride is derived is fluorine, a very common element that bonds easily with practically anything. It's called fluoride in its bonded form. Sodium fluoride, hexafluorosilicic acid, or hexafluorosilicate are generally used to add fluoride to

drinking water, at a concentration of about 1 part per million. There is a tremendous amount of controversy over whether this practice is helpful or harmful. Many municipal water utilities add fluoride to the water. Some do not. Naturally occurring fluoride is rarely a problem in culturing. Added fluoride is generally toxic to young plants, and can also be toxic to certain probiotics.

- **Chemical Waste** can appear in drinking water from a variety of sources. Any chemical waste that is disposed of in drains or on the ground ultimately finds its way into the municipal water supply. Some of it is removed through standard waste treatment, and some shows up in public drinking water. Even well water and spring water can be contaminated if the chemicals are leached into the soil near the water sources. Common chemical contaminants include fertilizers, animal waste, detergents, industrial solvents, pesticides and herbicides, radon, heavy metals, prescription medication, and even decayed plant matter.

## Treatment Methods

If you are getting your water from a faucet, you may or may not need to treat it before using it for culturing. Some probiotics are very sensitive to the type of water you're using, while other probiotics are very resilient and can use almost any sort of water. However, if your water is not of drinking quality, you will definitely need to treat it before using it for culturing.

- **Aeration** is a suitable treatment method if all you want to do is eliminate chlorine from the water. Chlorine is very unstable in water, and if you boil the water or put it in a blender for about 20 minutes, the chlorine will percolate out. Or, you can leave water to stand for 24 hours to accomplish the same thing. Aeration will not remove chloramines.
- **Boiling** will take care of most common pathogens that might get into drinking water supplies. It does not eliminate fluoride or other heavy metals or chemicals.
- **Simple Charcoal Filtration** is what you get with a standard countertop or faucet filter system. Charcoal is made of carbon, which bonds with organic materials to remove them from the water it is filtering. Activated charcoal is charcoal that has been processed to open up many tiny pores in the material making more surface area available. Filtering water through activated charcoal is one of the easiest and

least expensive ways to remove common pathogens such as bacteria, chlorine, chloramines, etc. Charcoal filtration does not eliminate fluoride.

- **Enhanced Filtration** can be achieved with some types of whole-house filters, or more expensive faucet filters. It usually includes basic activated-charcoal filtration, as well as some chemical or barrier filtration. Enhanced filters will remove some particles that activated charcoal doesn't trap, such as sediment, calcium, etc. Some enhanced filtration systems are designed to remove fluoride as well.



- **Reverse Osmosis** requires an RO system that may fit under your sink, or may require a separate installation. Reverse osmosis is basically a process of forcing water through a membrane, which removes all particles that are larger than water molecules, but allows the passage of tinier particles. RO systems usually include pre-filters that remove things like chlorine and bacteria from the water before it passes through the RO membrane. RO systems remove most minerals from the water, and will remove most fluoride.
- **Structured Water / pH-Balanced Water / Ionized Water.** Water that has been treated to alkalinize it or to change its structure is not suitable for culturing. Culturing involves a precise interaction of bacteria and the food being cultured. If water is part of that culturing process, the natural structure and balance of the water should not be altered. If your water treatment unit has a setting for "clean water" that does not change the pH and does not alter the water structure, but merely filters out contaminants, then the water can be used for culturing.

## What Kind of Water Do You Need?

Most cultures, such as sourdough, cheese, and fermented vegetables, are pretty resilient, and will safely use any water that is suitable for drinking. The water can be rich in minerals, or completely pure. Many people prefer to use water that is free of chlorine and fluoride, and there is no harm in removing those things from the water before you culture.

There are two cultures that have very specific requirements for water: kombucha and water kefir.

Chlorine, chloramines, or fluoride will weaken or even kill either of these cultures, so the water you use must be free of those minerals.

Water kefir grains require some mineral content to culture successfully and to grow well. Mineral-rich water, such as from wells or springs, is ideal for brewing water kefir. If the water you have available is low in minerals, or if you have to filter it to remove chlorine and fluoride, you can add minerals back to the water in a number of ways.

Kombucha will culture best in water that is as pure as possible: even distilled or purified water is fine. The kombucha will get its nutrients from the sugar and the tea that you add to the brewing solution. While kombucha may brew successfully in water with minerals in it, it's possible that excessive metal content may weaken the scoby.



## Kombucha vs. Water Kefir

Many people are familiar with kombucha and when they then hear of water kefir they are intrigued and perhaps a bit perplexed. Exactly what is the difference between kombucha and water kefir? Are there benefits of one over the other? Should you be drinking both?

### Definitions

**Kombucha** is a fermented tea made with a kombucha starter culture (aka mushroom, mother, scoby, etc.), tea prepared with sugar, and some kombucha tea from a previous batch (aka starter tea). The mixture is allowed to ferment at room temperature for 5 to 30 days. It can be consumed plain or with added flavoring such as fruit or juice. Kombucha contains a number of vitamins (particularly B vitamins) and may have a number of health benefits.

**Water Kefir** is a probiotic beverage made with water kefir grains. Water kefir is different from the more well-known milk kefir. Milk kefir is made with milk kefir grains and cow milk, goat milk, or coconut milk, and milk kefir can also be made with a powdered kefir starter culture. Water kefir grains can be used with sugar water, juice, or coconut water. Water kefir grains consist of bacteria and yeast existing in a symbiotic relationship. The term “kefir grains” describes the look of the culture only. Kefir grains contain no actual grains such as wheat, rye, etc. Our water kefir grains are grown in filtered water and organic sugar.

**Conclusions:** Both kombucha and water kefir are made from a starter culture, though the starter cultures look very different. Both kombucha and water kefir contain bacteria and yeasts, which exist in symbiosis. Both are made from a sweetened water of some sort, with kombucha also including tea.

### Preparation

**To make kombucha**, tea is prepared and sugar is dissolved in the tea. The tea is allowed to cool to room temperature before adding the starter tea (kombucha tea from a previous batch) and the kombucha culture. The container is covered with a breathable cloth (we recommend securing it with a tight rubber band to keep the bugs out) and left to ferment at



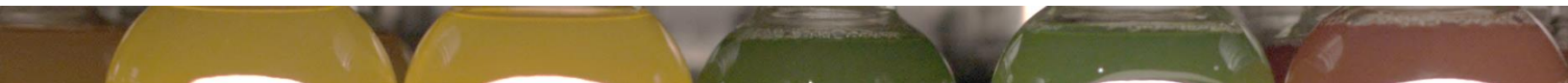
room temperature for 5 to 30 days. Once the fermentation process is complete, the kombucha culture and the new culture that has formed during the fermentation process are removed. Click here for [detailed instructions on making kombucha](#).

At this time you can drink the kombucha as is or you can add juice or fruit for additional flavoring. You can also bottle the kombucha with juice or fruit in airtight bottles (click here to view our [flip-top bottles](#) which are perfect for bottling kombucha) and allow them to sit for several days so the carbonation can build.

**To make water kefir**, water kefir grains are added to sugar water, juice, or coconut water and allowed to culture for 24 to 48 hours, then the kefir grains are removed. To flavor water kefir (we don't recommend drinking water kefir made with sugar water without flavoring!) simply add fruit juice or flavor extracts (e.g., vanilla extract) to the water kefir. If a more fizzy water kefir is desired, once the juice is added you can bottle it up tightly and allow it to sit for a few days so the carbonation can build. Click here for [detailed instructions and a video on making water kefir](#).

**Conclusions:** The process of making kombucha almost always takes longer than making water kefir. However, you can make a very large batch of kombucha with just one kombucha scoby whereas you are limited in the amount of water kefir you can make by the amount of grains that you have.

## Flavor



**The taste of kombucha** could be described as tangy and slightly sweet, with effervescence. The flavor varies greatly depending on the amount of time it was allowed to ferment and whether or not flavoring was added. For example, fermentation time determines whether the kombucha tea has a very mild taste or a very strong vinegar taste. (Kombucha is made using a method very similar to that used to make vinegar.) If you desire a more sweet taste, we recommend a very short brewing period of 5 to 10 days. If the vinegar taste doesn't bother you, a longer fermentation process will allow the tea to fully culture.

**The taste of water kefir** is fairly sweet. Depending on the type of sugar used, the amount of culturing time, etc., water kefir may also be slightly bubbly. We strongly recommend flavoring water kefir made with sugar water prior to consuming it as the taste of plain water kefir isn't particularly pleasant. Flavoring options include fruit (fresh or dried), fruit juice, and flavor extracts.

**Conclusions:** Most find kombucha to be more sour or vinegar-like than water kefir. Water kefir is generally sweeter, but the sweetness of both beverages is determined by how long it is cultured.

## Does the Starter Culture Multiply?

**Kombucha tea cultures do multiply.** Each time you brew a batch of kombucha tea a new starter culture may form. The original starter culture (the “mother”) and the new starter culture (“the baby”) can each be used to brew a new batch of kombucha tea. Sometimes the new kombucha culture will fuse to the original culture. This is not a cause for concern. They can be separated (ripped apart) or used as a single culture when you brew the next batch.

**Water kefir grains are known to multiply,** but at times they are reluctant to do so and therefore we do not guarantee kefir grains will multiply. Even if they do not multiply, with proper care, water kefir grains can be used repeatedly to brew water kefir. Click here for more information on ways you can [encourage your kefir grains to multiply](#).

**Conclusions:** Kombucha will almost always produce another culture each time you successfully make a new batch. (Note: a failure to produce a “baby” does not necessarily mean your kombucha has failed to culture.) Water kefir grains can multiply but are a bit more finicky and need specific circumstances to do so, even if you have made a successful batch of water kefir.

## Is One Better Than the Other?



Most people consider kombucha to be an aid to digestion and a detoxifier. In addition to its probiotic content, kombucha also contains some pretty powerful acids that detoxify the body and enzymes that aid in the breaking down of your meals.

Water kefir is considered more of a general probiotic beverage. There are a greater number of strains of bacteria and yeast than are found in kombucha. While water kefir does contain enzymes and acids, they don't seem to have quite as strong an effect as those in kombucha.

Both beverages are beneficial in aiding natural systems of the body. Whether you consume one or both is more a matter of your individual needs and preferences.



GETTING STARTED

# **GETTING STARTED**

how to work with a kombucha scoby

GETTING STARTED

## Obtaining a Kombucha Scoby

A [kombucha scoby](#) (also known as a starter culture, mother, mushroom, etc.) is a necessary component if you wish to make kombucha tea. There are generally three ways to obtain a scoby:

- Get one from an acquaintance,
- Purchase one from a reputable source,
- Grow a scoby from a bottle of raw kombucha tea.

### Getting a Kombucha Scoby from an Acquaintance

If you know someone who makes their own kombucha at home, odds are good they will have an extra kombucha scoby to share as each batch of kombucha made will usually yield a new extra scoby. When picking up your new scoby, be sure to bring the scoby home in a glass jar, covered in at least a half cup of kombucha tea. (It's important the scoby does not dry out and the tea is useful for making your first batch.) If the jar has a metal lid, be sure to put a piece of plastic wrap or something similar between the scoby and the lid so there is no danger of the scoby coming in contact with the metal, which can be detrimental to the health of the scoby. Once you get the scoby home, we recommend making your first batch of kombucha immediately. If you must delay a day, be sure the scoby is completely submerged in kombucha tea and is kept in a spot that is reasonably cool and dry. If it is going to be more than a day or two before you make the kombucha, you can refrigerate the scoby and the tea, but this will put it into a state of hibernation and it will take a few days to come out of it, adding time to the process.

### Purchasing a Kombucha Scoby

We offer high quality [kombucha scobys](#) on our website. Our cultures are grown in a licensed commercial food-processing facility using only organic black tea, organic sugar, and filtered water. We ship our kombucha scobys in a dehydrated state for safe transit. Dehydration preserves the vital yeast and bacteria while also limiting the risk of spoilage and potential for food poisoning. (We value your safety!)

## Growing a Scoby from Kombucha Tea

If you have access to bottled raw kombucha from your local health food store, it is possible to grow a kombucha scoby. The process is relatively simple: essentially you will be taking a bottle of kombucha and allowing it to ferment further which will result in a new kombucha scoby.

*Why it works:* Once a batch of kombucha is finished brewing, the scoby used to make the brew is removed and the kombucha is either consumed or, in the case of commercial brands, bottled for sale. Even without the scoby, the yeast and bacteria that comprise the kombucha culture continue to work, fermenting what tea and sugar remain in the brew. A new scoby is a by-product of this fermentation process. Removal of the original scoby and airtight bottling do slow the process down significantly, but it does not stop the process completely. In fact, it is quite common to see a gelatinous blob in your bottled kombucha. That blob is actually an immature baby scoby and is good evidence that the yeast and bacteria are hard at work even under less-than-ideal conditions. The process detailed below for growing your own scoby essentially improves the conditions for the kombucha culture so it can more effectively work to continue fermenting the brew and produce a new scoby for you to use.

## Instructions for Growing a Kombucha Scoby

1. Purchase a bottle of kombucha from your local store. Be sure the kombucha is raw (not pasteurized). This is important because even after a culture has been removed from a batch of kombucha, the active yeast and bacteria in the brew can continue to work to create a new culture. Pasteurization kills the necessary yeast and bacteria. Ideally, choose a bottle of raw kombucha that is unflavored so no other ingredients interfere with your scoby-growing process.
2. *Optional Step:* Make about a cup of black or green tea. While the water is hot, add 1 to 2 tablespoons of regular white sugar. (More is better than less.) Mix until the sugar is thoroughly dissolved, then allow the sugared tea to cool completely to room temperature. While not critical to the process, adding a cup of sugared tea to the bottle of ready-made kombucha gives the yeast and bacteria additional food to eat during the process of growing a new culture. Essentially the cup of sugared tea

increases the odds of successfully growing a new scoby. [Click here](#) to learn more about choosing the best teas and sugars to use when brewing kombucha.

3. Find a clean glass container. (Pint- or quart-size canning jars work well.) Ideally the size of the jar will allow the liquid a fairly limited surface area (no more than about 3 inches in diameter) and allow for several inches or more of depth. A larger surface area will cause the mixture to ferment too quickly and not leave time for a new scoby to develop properly. Be sure the jar is free of any soap or food residue the dishwasher may have missed. If in doubt, give it a good rinse. Do not use plastic, metal, or ceramic as they can be detrimental to the process. Pour the bottle of kombucha and the cup of sugared tea into the clean glass jar. Please note: there may already be a floating jelly-like blob or brown blobs or stringy particles in the liquid. These are good things! The jelly-like blob is actually the very beginning of an immature scoby and a good sign your kombucha contains the active yeast and bacteria necessary to complete this process.
4. Cover the jar with a tight-weave dish towel, multi-layered tight-weave cheese cloth (such as butter muslin), a paper towel, or a paper coffee filter. Secure the covering with a tight rubber band. This type of covering system allows gas created during the fermentation process to escape while keeping out bugs and most foreign yeasts and bacteria.
5. Allow the jar to sit in a safe location, out of direct sunlight and away from any direct heat sources. Ideally, place the jar where the ambient temperature is between 70° and 80°F (keeping in mind potential temperature shifts at night). Too cool a temperature will slow down the process significantly. Too warm a temperature can cause the brew to ferment too quickly not leaving enough time for the new scoby to develop. It is also important not to move or otherwise disturb the jar during the process.
6. Wait about a week before taking a peek. While the timeline can be influenced by a number of factors, the most important of which is temperature, after a week it is common to see a baby scoby developing across the surface of the liquid. Please note: a new scoby starts off as a clear film or blob, then slowly becomes less translucent, more white, and thicker as time goes on. If you don't see any signs of scoby development after 3 weeks, discard the batch and start over. We recommend waiting until the scoby is at least 1/4-inch thick before using it to brew your first

batch of kombucha tea. Reaching that thickness will generally take 14 to 30 days. Be sure to retain the kombucha tea used to grow your scoby for use in your first batch of kombucha.

7. While growing your new scoby, watch out for signs of mold (black, green, or orange spots). Brown spots, brown blobs, or brown stringy particles are byproducts of the yeast and are not a concern. If mold does develop, discard the entire batch, clean the container thoroughly with pure vinegar, and try again with a new bottle of kombucha.



## Activating a Dehydrated Kombucha Scoby

Our kombucha scobys are sold in a dehydrated state, which preserves the yeast and bacteria present in the culture while greatly reducing the chance of spoilage. We value the safety of our customers! Our kombucha scobys can be activated for use through the following rehydration process.



### Prepare the Rehydration Solution

**Equipment.** Click here for more information on [choosing the best brewing container, cover system, utensils and more.](#)

- One quart-size glass jar
- A plastic or wood stirring utensil (never use metal in contact with a kombucha scoby!)
- A breathable cover for the jar such as a tight-weave towel, paper towel, or paper coffee filter
- A rubber band to secure the cover to the jar

**Ingredients.** Click here for more information on [choosing the best tea, sugar and water source for making kombucha.](#)

- One [dehydrated kombucha scoby](#)

- 2 tea bags or 1-1/2 teaspoons of loose tea ([click here for more information](#))
- 1/4 cup sugar ([click here for more information](#))
- 1/2 cup distilled white vinegar
- Filtered water (preferably free of chlorine, chloramines, and fluoride)

Please note that any vinegar used in the rehydration solution should be at least 5% acidity, and should not be raw. A raw vinegar has its own bacteria and may compromise the kombucha culture. We recommend using white distilled vinegar in the rehydration solution. Apple cider vinegar, wine vinegar, rice vinegar, or flavored vinegars can give less-than-optimal results.

**A note about hygiene.** When working with kombucha, it is important not to introduce competing bacteria to the process. Be sure to wash and rinse your hands well prior to working with the tea mixture or the scoby. Also be sure to thoroughly clean and rinse the container and all utensils that will come in contact with the scoby. Beware soap and food residue the dishwasher may have missed. When in doubt, give everything an extra rinse. The brewing vessel can be cleaned with regular soap and hot water (rinse several times very well) or with vinegar. Never use bleach on any item that will come in contact with the kombucha.

## Activating the Scoby



- Place hot water and sugar together in a jar. Mix until the sugar dissolves. The water should be hot enough to steep the tea but does not have to be boiling.

- Place the tea in the sugar water and allow the tea to steep. Allow the mixture to cool to room temperature. (This will likely take most of the day if you are making a gallon-size jar.) You can remove the tea bag after the first 10 to 15 minutes or leave it longer for a stronger tea, but be sure to remove the tea before adding the dehydrated scoby. If using loose tea, make sure no flakes remain in the brewing solution.
- Place the dehydrated kombucha scoby and vinegar in the jar of fresh sugared tea.
- Cover the jar to keep the fruit flies out but allow the mixture to breathe. A tight-weave towel or paper coffee filter secured by a thick rubber band works best for this. Do not use an airtight lid!

**Choose a safe spot.** An ideal culturing spot should be relatively warm but not excessively so. Temperatures between 70° and 80°F are ideal. An ideal spot for fermenting kombucha should be out of direct sunlight. Indirect light or darkness is neither favorable nor problematic. Be sure the spot has reasonably good airflow as access to oxygen benefits the fermentation process. In addition, be sure the kombucha is not fermenting near a garbage or compost bin, bread made with commercial yeast, or any other cultured foods such as kefir, yogurt, sourdough, sauerkraut, etc. Cross-contamination by stray yeasts and bacteria can be problematic for the kombucha scoby.

**Do not disturb.** It is important to allow the kombucha to ferment undisturbed. Moving the jar or otherwise disturbing the contents will not ruin the batch but does make it more difficult to observe the most common signs the process is proceeding normally.

## Signs the Rehydration Process is Complete

Allow the scoby to rehydrate for 30 days.

A new scoby *may or may not* form on the surface of the liquid during the rehydration process. While development of a new scoby does indicate the rehydration process is complete, lack of a new scoby development does not indicate the process failed (see below). A new scoby will start out as a cloudy haze or film developing on the surface of the liquid. If left undisturbed, the haze will become less opaque and more white in color and will thicken over time. If the original scoby is floating in the liquid, a newly developing scoby may attach to the original scoby making it more difficult to identify whether a new scoby has developed.

Please note: development of a new scoby is *not required* for successful rehydration. If 30 days pass and a new baby scoby does not develop on the surface of the liquid, use the following criteria to determine whether rehydration has been successful:

- If the scoby has thickened it indicates rehydration is proceeding normally. (It may thicken only slightly.)
- Presence of brown stringy yeast particles or brown globs of yeast either floating or sticking to the scoby is a sign rehydration is proceeding normally and that active yeast and bacteria are present. Please note: while extra yeast particles are encouraging, lack of floating yeast particles is not a sign the process failed.
- The scoby has developed an extra layer of substance on the top. This could be a piggyback scoby and happens when a newly developing scoby attaches itself to the original culture.
- If the kombucha mixture is becoming more acidic, this indicates the process is proceeding normally. To test acidity you can either taste a bit of the mixture using a straw or use a pH meter or pH strip. (pH testing strips are available on our site or at most drugstores.) A pH level between 2.5 and 4.0 indicates the scoby has rehydrated properly.
- If 30 days have passed and the signs above are present, it is likely the process has been completed successfully and the rehydrated scoby can be used to make a batch of kombucha. You may drink, bottle, or discard the kombucha from the rehydration. (We recommend using vinegar again in the first batch after rehydration.)



## Signs of Problems during Rehydration

While problems during rehydration are relatively uncommon, it is important to keep an eye out for these few signs that the process isn't proceeding normally.

**30 days pass with no signs of proper rehydration (see above).** [Click here for additional troubleshooting information](#). In a small number of cases, live cultures fail for unknown reasons. After reviewing the troubleshooting link, [contact us](#) for additional information to determine whether the culture is inactive and whether a replacement is needed.

**Mold.** If you are using appropriate varieties of water, tea, and sugar and adding the acidic component (starter tea or vinegar), the acidic nature of the brew makes it very uncommon for mold to develop. In fact, the most common cause of mold is forgetting an ingredient or using improper ingredient ratios that alter the acidic level of the brew. However unlikely, mold can and does occasionally develop and can generally be seen by the formation of white, green, orange, red, or black spots on the scoby or the surface of the liquid. If mold does develop, immediately toss the entire batch including the scoby. Do not try to salvage a moldy batch or a moldy scoby. Doing so may be dangerous to your health. [Contact us](#) for additional assistance.

**Pests.** The kombucha mixture is very attractive to ants and fruit flies, which is why we recommend using a tight-weave cover and securing the cover with a tight rubber band to keep the invaders out. If you find worms (maggots) have infested your batch, this is a sign that fruit flies or house flies have invaded and laid their eggs. If this happens, immediately toss the entire batch including the scoby. Do not try to salvage an infested batch or an infested scoby. Doing so may be dangerous to your health. [Contact us](#) for further assistance.

## Next Steps

Once your kombucha scoby has finished rehydrating it is time to use it to make your first batch of kombucha tea. You may drink, bottle, or discard the kombucha from the rehydration. (We recommend using vinegar again in the first batch after rehydration.)

# Kombucha Scoby Activation Troubleshooting

Okay, it's been 30 days since you started rehydrating a kombucha scoby, or maybe this is the first batch after rehydration, and you don't think it's working right even though you followed all the instructions exactly.

Here's a quick troubleshooting guide you can run through before you call Customer Support, to see if you can figure out what's going on.

## Is there mold in your kombucha?

Mold is visible as circular deposits that often look fuzzy or furry. Usually it is blue or green, or sometimes black. If you have mold, you will need to throw out the kombucha culture and the solution, and start over again. [Contact us](#) for assistance.

If you don't have mold, continue with this checklist.

## How long have you been rehydrating the scoby?

- *Less than 30 days.* The scoby is expected to take around 30 days to rehydrate. Let it work until it has reached 30 days.
- *More than 30 days.* By this time you should be seeing some action. Continue with this checklist.

## What does the scoby look like right now?

- *It is fatter than it was to start with, and it has brown globs of stuff on it.* This is a good sign. The brown globs are yeast accumulations. Your scoby is probably active.
- *It is fatter than it was to start with and it has some brown stringy things hanging off it.* This is a good sign. The brown stringy things are strands of yeast. Your scoby is probably active.
- *It is thin and flat and has no discoloration or markings on it.* The scoby is probably not active. Contact [Customer Support](#) for assistance.

- *It is fatter than it was to start with, but it is plain and clean with no discoloration. The scoby may or may not be active. Continue with this checklist.*



## Is there any sign of a new culture (baby) forming?

Note that a new scoby will not always form in the rehydration process, or even in the first batch or two. This is not necessarily a sign that the culture is inactive. The production of a new scoby is a byproduct of fermentation, not the end result. Here are some signs of a new scoby:

- *There is a cloudy haze or film on the surface of the liquid. If you leave the kombucha undisturbed, this haze will thicken and become a new scoby.*
- *The scoby has developed what appears to be an extra layer of substance on its top. This is a piggyback scoby. The new scoby has attached itself to the old one. If you like, when you are done fermenting the kombucha, you can rip the new layer off the old one and have two scobys.*
- *There is no sign of a new scoby. This is not conclusive. The scoby may still be actively fermenting kombucha.*

If you have investigated all the possibilities for activity and still believe there is a problem with your kombucha, continue with this checklist.



## What kind of water did you use?

It is important that the water contain no chlorine or fluoride, as both are toxic to the kombucha culture. Chlorine can be removed by letting water stand for 24 hours, or by aerating the water in a blender for 20 minutes, or by boiling the water for 20 minutes. If you boiled the water for 20 minutes to make the tea, that would remove the chlorine. If you added cool water to the tea, and it contained chlorine, that could be a problem.

If your municipality uses chloramines instead of chlorine, it cannot be removed as easily. You can find out from your water supplier if your tap water has chloramines added to it. Chloramine cannot be removed by boiling or aeration, but must be filtered through charcoal.

You can find out from your water supplier whether your tap water has fluoride added to it. If your water is fluoridated, you cannot easily remove it with standard filtration. (Reverse osmosis will reduce fluoride, but may not remove it completely.) If you need to remove fluoride from your water, inquire with a local garden supply store or nursery regarding specialized filters, or use bottled water that does not have fluoride added to it.

If you suspect that you have a problem with the water you used, [contact us](#) for assistance. If your water is not an issue, continue with this checklist.

## What kind of tea did you use?

Kombucha requires real tea (*camellia sinensis*). There are a number of teas made from this plant: black, green, white, pekoe, oolong, Darjeeling, and more.

Herbal teas derived from other plants will not nourish the kombucha scoby. You can combine them with real tea. Teas that are flavored with fruits, flowers, or oils can weaken the kombucha culture.

If you suspect the tea you used could be a problem, [contact us](#) for assistance. If your tea is not an issue, continue with this checklist.

## What kind of sugar did you use?

Any kind of cane sugar is acceptable for kombucha. White sugar produces the most reliable results with kombucha. Unrefined sugar or brown sugar, which contains molasses, can also be successful. Honey, rice syrup, agave, maple syrup, coconut sugar, etc., are not ideal for kombucha production. Artificial sweeteners (Splenda, aspartame, etc.) or non-caloric sweeteners like stevia or xylitol are absolutely useless for kombucha production.

If you think you have used the wrong sugar to make your kombucha, [contact us](#) for assistance. If the sugar is not an issue, continue with this checklist.

## What kind of vinegar did you use?



The most reliable vinegar to use in your first batch of kombucha is distilled white vinegar. We do not recommend using apple cider vinegar or other types of vinegar.

The purpose of adding vinegar to the solution is to create an acid environment that is hospitable to the scoby. A vinegar that is too weak can inhibit the growth of the kombucha culture. A vinegar with additives and flavorings can weaken the culture.

Raw vinegar, in particular, can cause problems. Raw vinegar contains its own culture, which is very similar to kombucha culture. If the vinegar culture is too strong, it can overpower the kombucha culture and turn it into a vinegar culture or just make it stop working.

If you have used a vinegar other than white vinegar, [contact us](#) for assistance. If you have used white vinegar, continue with this checklist.

## What is the acidity of the kombucha?

Kombucha should have a pH between 2.5 and 4.0. Lower than 2.5 is too acid to drink. Higher than 4.0 may not support the scoby, and can encourage the formation of mold.

You can test the acidity of the kombucha with inexpensive pH strips available from Cultures for Health or from a pharmacy.

If the pH of the kombucha is out of range, [contact us](#) for assistance. If the pH is in range, continue with this checklist.

## Did you use the correct proportions of ingredients?

It's important to get the correct balance of tea, sugar, and vinegar in the solution. The size of the scoby is not particularly important, as even a small scoby can produce a good kombucha.

To make the tea, you should let it steep a minimum of 10 minutes, and up to an hour, depending on how strong you like the kombucha.

The rehydrating solution should consist of about 3 cups water, 2 teabags or 1-1/2 teaspoons of loose tea, 1/4 cup sugar, and 1/2 cup vinegar. Subsequent batches should use the same proportions.

If you have used different proportions of ingredients, [contact us](#) for assistance. If you used the correct proportions, continue with this checklist.

## Is your kombucha finished?

Taste the kombucha, using a plastic spoon or soda straw, and judge for yourself whether it is finished. Kombucha should taste rich and vinegary, and possibly slightly sweet (depending on how long it has fermented and how sweet you like it).

If you let kombucha ferment past the time it has used up all the sugar, it can starve. Most scobys will rehydrate in about 30 days. Some may take longer, especially in cooler temperatures. About 45 days would be the outside limit. If the kombucha is completely non-sweet and has been fermenting for 30 days or more, it may be done!

The kombucha is unlikely to be fizzy at the end of the ferment. To get carbonation, you should decant the solution, bottle it, add flavoring (if desired), and let the sealed bottles sit at room temperature for a second ferment. In 3 or 4 days, you should see bubbles and foam in the bottles.



# HOW TO MAKE KOMBUCHA

get started making homemade kombucha!

# How to Make Kombucha Tea

## Prepare the Equipment and Ingredients

To make kombucha tea, first gather your equipment and ingredients and prepare the kombucha mixture for fermentation.

**Equipment.** Click here for more information on [choosing the best brewing container, cover system, utensils, and other supplies](#)

- One glass jar (quart, half-gallon, or gallon)
- A plastic or wood stirring utensil (never use metal in contact with a kombucha scoby!)
- A breathable cover for the jar such as a tight-weave dish towel or paper coffee filter
- A rubber band to secure the cover

**Ingredients.** Click here for more information on [choosing the best tea, sugar, and water source for making kombucha](#)

- One [kombucha scoby](#)\*
- Tea ([click here for more information](#))
- Sugar ([click here for more information](#))
- Starter tea from a previous batch of kombucha or distilled white vinegar (If this is the first batch after rehydration, use vinegar)
- Filtered water (preferably free of chlorine, chloramines, and fluoride)

\* If you are working with a dehydrated kombucha scoby, please [click here](#) for instructions on activating the scoby through rehydration.

Container Size	Tea Amount	Sugar Amount	Water Amount	Starter Tea Amount
One quart	1-1/2 teaspoon loose tea or 2 tea bags	1/4 cup	2-1/2 cups (approx.)	1/2 cup
Half-gallon	1 tablespoon loose tea or 4 tea bags	1/2 cup	6-1/2 cups (approx.)	1 cup
Gallon	2 tablespoons loose tea or 8 tea bags	1 cup	13 cups (approx.)	2 cup

**A note about hygiene.** When working with kombucha, it is important not to introduce competing bacteria to the brew. Be sure to wash and rinse your hands well prior to working with the tea mixture or the scoby. Also be sure to thoroughly clean and rinse the container and all utensils that will come in contact with the scoby. Beware soap and food residue the dishwasher may have missed. When in doubt, give everything an extra rinse. The brewing vessel can be cleaned with regular soap and hot water (rinse very well) or with vinegar. Never use bleach on any item that will come in contact with your brew.

## The Basic Process for Making Kombucha



Place hot water and sugar together in a jar. Mix until the sugar dissolves. The water should be hot enough to steep the tea but does not have to be boiling.

Place the tea in the sugar water and allow the tea to steep. Allow the mixture to cool to room temperature. (This will likely take most of the day if you are making a gallon-size jar.) You can remove the tea bags after 10 minutes or leave them longer for stronger tea, but be sure to remove them before adding the scoby. If you are using loose tea, make sure no flakes remain in the brewing solution.

Place the kombucha scoby and starter tea or vinegar in the jar of cooled sugared tea. Cover the jar tightly (keep the fruit flies out!) but allow the mixture to breathe. A towel or paper coffee filter along with a thick rubber band work best for this. Do not use an airtight lid!



## Fermenting the Kombucha

**Choose a safe spot.** An ideal culturing spot should be relatively warm but not excessively so. Temperatures between 70° and 80°F are ideal (see below). The best fermenting spot for kombucha is out of direct sunlight. Indirect light or darkness is neither favorable nor problematic. Be sure the spot has reasonably good airflow as access to oxygen benefits the fermentation process. In addition, be sure the kombucha is not fermenting near any other cultured foods such as kefir, yogurt, sourdough, sauerkraut, etc. Cross-contamination by stray yeasts and bacteria can be problematic for the kombucha scoby and any other fermented foods you are working with.



**Do not disturb.** It is important to allow the kombucha to ferment undisturbed. Moving the jar or otherwise disturbing the contents will not ruin the batch but does make it more difficult to observe the most common signs the process is proceeding normally.

**Allow the kombucha to ferment.** Now comes the hard part: waiting for your brew to ferment. Fermentation periods are determined primarily by three factors:

- *Ambient temperature.* Ambient temperatures that are too hot or too cold can disrupt the process: too cold and the process slows down, too hot and fermentation proceeds too quickly resulting in a less desirable flavor pattern. We recommend choosing a culturing location with an ambient temperature between 70° and 80°F for ideal results.

- *Access to oxygen.* Air flow assists the fermentation process so culturing in a container with a breathable cover will speed the fermentation process, while using a solid lid will slow it down and may harm the scoby.
- *Liquid surface area.* The size of the surface area of liquid will influence the rate at which your kombucha brews. Kombucha brewed in a bowl with a 9-inch diameter opening will brew significantly faster than kombucha brewed in a jar with a 3-inch diameter opening.

*Remember:* Faster fermentation isn't necessarily better. Kombucha can develop a strong vinegar taste in a relatively short period of time if the temperature is too warm or the liquid surface area is too large. Slow and steady fermentation results in a more desirable taste profile.



Assuming ideal temperature, access to sufficient oxygen, reasonable liquid surface area, etc., your brew can officially be considered kombucha after it has been fermenting for 5 to 7 days. For the first few batches, we recommend using a straw to start tasting the kombucha every other day or so starting on day 7. This allows you to determine at what point to halt the fermentation process based on your own personal taste preferences. Some people like their kombucha best after it has been fermenting only a week. Others prefer 2, 3, or even 4 weeks or more of fermentation. Keep in mind that shorter fermentation periods will result in a sweeter brew. Longer periods will result in a more vinegar-like taste. Very long fermentation periods (over 30 days) tend to result in a strong vinegar-like taste. The longer the brew ferments, the less sugar will remain, so if sugar consumption is a concern we recommend brewing for 3 to 4 weeks prior to consumption. Please note: at some point your scoby will run out of sugar and tea to consume and will start to suffer nutritionally. For that

reason, we do not recommend over-brewing your kombucha. Assuming ideal conditions, over-brewing generally starts to occur sometime between 4 and 6 weeks.

## How Do I Know If I've Made Kombucha?

Assuming ideal fermenting conditions, it is common to see signs of fermentation within a few days. These signs include:

- **Formation of a new “baby” scoby.** This process begins as a layer of film developing on the surface of the liquid. Generally the layer will start off clear (and is often missed) but over the period of a few days or a week will become hazy and then less and less translucent, more white, and slowly thicker until it resembles the scoby you used to culture the batch. Please note: if the container is disturbed or vibrates during the early stages of the process, the newly developing scoby will often detach from the surface of the liquid and fall, resulting in a roaming gel-like mass in the liquid. This mass is not harmful and is simply an immature scoby. This will also not harm the batch in any way: the brew will still continue to ferment on schedule and within a few days the process of a new scoby forming on the surface of the liquid will begin again. Keep in mind that if the new scoby falls at this early stage of development, it could delay the number of days it takes to observe a new scoby forming (often considered the best sign a batch is culturing normally). Every once in a while, a new scoby does not form. This in and of itself does not indicate a failed batch. In a case where that happens, refer to the taste and pH level of the brew for further indication of whether the process proceeded normally.
- **An increasingly acidic (vinegar-like) flavor.** As the kombucha ferments, the scoby will consume the sugar and tea and produce acids, vitamins, minerals, enzymes, and carbon dioxide. As this process proceeds, the brew will taste less sweet and increasingly acidic (a more vinegar-like taste).
- **Lower pH.** The increasing level of acidity can also be seen by a lowering of the pH. While not required, a pH meter or pH testing strips can be used to determine the pH of your kombucha.

The best signs your kombucha is ready include that at least 7 days have passed (assuming ideal fermenting conditions), that it has become more acidic than the mixture you originally

began with, and that the taste is one that you find pleasing. While not required, it is also possible to test the pH level of your brew using a pH meter or testing strips. Kombucha should reach a pH level of between 2.5 and 4.0 prior to consumption.

## Normal Variations vs. Signs of Problems

**Normal Variations.** Each batch of kombucha is unique and therefore may not proceed exactly as the previous batch. Some common variations include:

- The scoby may float, sink to the bottom, or hover in the middle of the brew. The scoby may lie vertically or horizontally. None of these positions indicate any sort of problem and are likely attributable to atmospheric conditions including humidity level.
- You may see a brown stringy substance floating in the container, brown blobs clinging to the scoby, or dark sediment forming in the bottom of the container. All of these are byproducts of the yeast culturing the liquid and are not a sign of a problem.
- If the jar is disturbed or vibrates, or sometimes for unknown reasons, the new forming baby scoby may detach from the surface area and sink to the bottom or otherwise float in the liquid. This is not a problem and does not impede the process (see above).
- Depending on the position of the scoby used to ferment the batch, sometimes the original scoby will attach and fuse to the newly developing scoby. Once the batch is complete you can separate them by tearing them apart (do not use metal such as a knife or scissors) or use them as a single culture to brew your next batch.

**Signs of Potential Problems.** While generally rare, it is possible for problems to develop including mold, infestation by pests, or simply failure to culture properly.

**Mold.** If appropriate varieties of water, tea, and sugar are used, and the starter tea or vinegar is added, the acidic nature of the brew makes it very uncommon for mold to develop. In fact, the most common cause of mold is forgetting an ingredient or using improper ingredient ratios that alter the acidic level of the brew. However unlikely, mold can and occasionally does develop and can generally be seen by the formation of white, green, orange, red, or black spots on the scoby. Other potential causes of mold include:

- Contamination from soap or food residue in the jar or on the utensils used to prepare the mixture.
- Mold spores on the tea used to brew the kombucha.
- Transient yeasts and bacteria in the air or poor hygiene practices when preparing the brew.
- Allowing your kombucha to ferment too close to a garbage can that can be a source of transient bacteria.
- Allowing your kombucha to ferment too close to other fermented foods (yogurt, sourdough, kefir, sauerkraut, etc.) or rising bread made with commercial baking yeast.
- Mold spores in the air from a humid environment such as a kitchen or bathroom or in the air ducts. (High humidity levels in general can make it more difficult to prevent mold.)

If mold does develop, immediately toss the entire batch including the scoby. Do not try to salvage a moldy batch or a moldy scoby. Doing so can be dangerous to your health. Obtain a new scoby, clean the jar thoroughly, and try again another day.

**Pests.** Fermenting kombucha is very attractive to ants and fruit flies, which is why we recommend using a tight-weave cover and securing the cover with a tight rubber band to keep the invaders out. If you find worms (maggots) have infested your scoby, this is a sign that fruit flies or house flies have invaded and laid their eggs. If this happens, immediately toss the entire batch including the scoby. Do not try to salvage an infested batch or an infested scoby. Doing so can be dangerous to your health. Obtain a new scoby, clean the jar thoroughly and try again another day.

**Black scoby.** A black scoby (or black parts of the scoby) is a sign the scoby has died. While this doesn't happen too often, any batch brewed with that scoby should be tossed and a new scoby obtained prior to making the next batch.

**Taste of the kombucha doesn't change.** If you find that your kombucha does not seem to be fermenting, first determine whether the place it has been sitting is too cool. (Consider temperature shifts at night.) Often the problem can be resolved simply by moving the container to a warmer location. Also consider whether the place it has been sitting has adequate airflow and adjust the location accordingly.

**pH Level.** While most kombucha brewers do not test the pH level of each individual batch, we find pH testing to be useful when experimenting with non-recommended ingredients or ingredient ratios or when a problem is otherwise suspected. If a batch does not seem to be showing signs of fermentation and you have verified that temperature and airflow are not issues, it is worth testing the pH level of the batch to determine whether it has become more acidic and whether it is safe to consume. Kombucha should reach a pH level between 2.5 and 4.0 prior to consumption. While it is quite rare for a batch to fail, if it happens, just throw it out and start over.

**Safety First!** Please note: all this information is presented as suggestion only and does not substitute for using good judgment. No matter what ingredients or ratios you choose to use, regardless of whether visible mold is present or not, and regardless of the pH level of the finished brew, we advise you to always use your best judgment when brewing and consuming kombucha and to never consume any kombucha that looks, tastes, or smells unpleasant.

## Harvesting Your Kombucha



Congratulations! You've brewed your first batch of kombucha. Now comes the fun part: harvesting and enjoying your brew.

**Removing the scobys (both of them).** Prior to harvesting your batch, you will need to make a new batch of sugar tea with some starter kombucha tea so you will have a place to put both the original scoby you started with as well as the baby scoby that formed during the fermentation process. You can use both scobys to brew a new single batch or you can



separate them into two containers. When removing the scobys be sure to use clean hands without metal jewelry. If the scobys have fused together they can be torn apart if desired.

**Straining.** Prior to consumption, we do recommend straining the kombucha through a fine-mesh plastic strainer. The strainer will catch the stringy brown yeast particles and any immature scobys that may have formed (often look like blobs of gel). While neither of these things is problematic if consumed, the texture isn't particularly desirable either. Once strained, the kombucha can be consumed.

**Flavoring.** If desired, kombucha tea can be flavored using fruit, fruit juice, herbs, and more. Be sure to set aside some unflavored kombucha to use as starter tea for your next batch prior to adding flavorings. [Click here](#) for more information on flavoring your kombucha.

**Bottling.** If desired, kombucha can be bottled for consumption at a later date. If you use airtight bottles, bottling kombucha can serve a secondary purpose beyond storage as the active yeast and bacteria will continue to consume the remaining tea and sugar in the brew but at a much slower rate. (This process continues even though the scoby has been removed.) The fermentation process produces carbon dioxide, which will build up under the pressure of the airtight bottle resulting in the fizzy texture kombucha is known for. This process can be further enhanced by adding juice or fruit for a secondary fermentation period. The added sugar from the juice increases the amount of food available to the active yeast and bacteria thereby increasing the amount of carbon dioxide the secondary fermentation process will create. Be sure to use extreme caution when opening the bottle as the contents are most likely under pressure. [Click here](#) for additional information on bottling your kombucha.

**Storage Tips.** If the kombucha is stored in an airtight container, be sure to use caution when opening it as the contents are most likely under pressure. (This is particularly true if the kombucha has not been refrigerated as warmer temperatures speed the secondary fermentation process.) Also be aware that if the kombucha is stored for more than a few days, it may need to be strained again prior to consumption. The active yeast and bacteria in the kombucha continue to process the remaining tea and sugar in the brew even in the absence of the scoby. This process means that a new baby scoby may start to form over time



(albeit at a much slower rate due to the lack of the scoby and the lack of airflow) and is typically visible as a gelatinous blob.

**More Ways to Use Kombucha.** Kombucha is good for more than just drinking! [Click here](#) to view our collection of recipes for using kombucha. [Click here](#) to view other creative ideas for using kombucha.

## Setting Up a Continuous Brewing System



Traditionally, kombucha is brewed using a continuous brewing system. Continuous-brew systems are easy to set up and have a number of benefits.

- A continuous-brew system is less maintenance as it can be cleaned periodically rather than with each new batch. Adding new sugared tea to an existing jar already containing the starter tea and scoby is far easier than starting with a new container.
- A continuous-brew system allows for the greatest chance of a successful batch. Maintaining the ecosystem created during the fermentation process provides the best defense against the development of mold and invasion by transient yeasts and bacteria.
- A continuous-brew system provides the healthiest environment for the scoby. Rather than disturbing the ecological environment through moving to new containers and regular cleaning cycles, the continuous brew allows the yeast and bacteria to develop relatively undisturbed with a consistent supply of new food.
- A continuous-brew system provides a more consistent supply of kombucha for your family. A specific amount can be harvested every few days, once a week, etc.
- A continuous-brew system allows for a balance between the benefits of short and long fermentation periods. Shorter fermentation periods (1 to 2 weeks) will generally yield a more sweet and pleasant-tasting kombucha. Longer fermentation periods yield kombucha with a much stronger vinegar-like taste but also a wider array of beneficial bacteria and enzymes. A continuous-brew system allows you to reap the benefits of both.

## How to Set Up the Brewing System

**Choosing Equipment.** The only difference between a standard system and a continuous brewing system is the container used for brewing. [Click here](#) for a list of other equipment used when brewing kombucha.

**Size.** A continuous-brew container should hold between 1 and 5 gallons.

**Material.** Kombucha should be brewed in glass or porcelain. Ceramic, plastic, crystal, and metal are problematic and generally should not be used. [Click here](#) for more information on choosing the best material for your brewing vessel.

**Spigot.** A continuous-brew container should have a spigot located near the bottom of the container so kombucha can be drawn off without disturbing the contents at the top of the container. Do not use a container with a spigot that has metal on the inside of the container! Metal in contact with the scoby is detrimental. Be sure to test the container and spigot thoroughly for leaks prior to filling the container with the kombucha mixture.

**Cover.** A cover serves two purposes. It should allow the gases created during the fermentation process to escape while keeping out transient yeast and bacteria as well as pests such as fruit flies and ants. If the container has its own cover, determine that the lid is not airtight so the gases can escape properly. If the container does not have a built-in cover, use a tight-weave towel, paper towel, coffee filter, etc. to cover the top. We also recommend securing the cover with a tight rubber band to prevent infestation by fruit flies and ants.

**Cleaning.** Be sure to clean everything thoroughly prior to setting up the brew system. While soap can be used, rinse very thoroughly multiple times to ensure that no traces of soap or food particles remain. Vinegar can also be used to clean the container and is much safer than soap as remaining traces will not harm the brewing process.

**Prepare the Kombucha Mixture.** Prepare the sugared tea mixture just as you would when creating a typical batch of kombucha. ([Click here](#) for ingredients, ratios, and instructions.) Be sure to adhere to proper ratios even when making a larger batch. Once the sugared tea is completely cooled and the starter tea or vinegar has been added, pour the mixture into the continuous brewing system and add the scoby. Do not overfill the container. Only 80% of the vessel should be filled with liquid to allow space for the mother scoby, development

of the new scoby, circulation of gases, etc. Please note: normal-size scobys can be used to brew these larger batches. There is no need to use a larger-than-normal scoby for this project.

**Ferment the Kombucha.** Allow the kombucha to ferment for the desired period of time. ([Click here](#) for more information on kombucha fermentation periods.)

**Harvesting the Kombucha.** Once the taste profile is desirable, remove the portion of the kombucha you wish to consume for the week and bottle the kombucha. Be sure to leave at least 20% of the kombucha in the vessel to act as starter tea for the next batch.



**Feeding the Brewing System.** Prepare new sugared tea using the normal ratios. Allow the sugared tea to cool thoroughly then slowly pour the solution into the top of the brew system. No need to mix. This feeds the system for the week. Be sure to fill the container only to 80% capacity.

**Timing Harvesting and Feeding.** If desired, harvesting and feeding can be done every 3 to 14 days. We suggest weekly as that is the method used by most people. If you wish to draw off kombucha to drink daily but only feed the mixture weekly, be aware that kombucha drawn off at the beginning of the week is likely to have a higher sugar content than kombucha drawn off later in the week (further away from when sugared tea was last added).

**Controlling Sugar Content.** It is a bit more challenging to control the sugar content of the kombucha when using a continuous-brew system. If low sugar content is an important factor for you, be sure to draw off all the kombucha you will require first before adding the fresh

sugared tea. We also recommend allowing the new sugared tea an adequate fermentation period prior to the next draw. For example, if you require kombucha with a low sugar content, we would recommend drawing off 2 to 3 weeks' worth of kombucha from the brew system prior to adding the new sugared tea. We would then recommend waiting 2 to 3 weeks before the next draw to ensure the batch has fermented sufficiently.

**Ongoing Cleaning of the Brewing Vessel and Spigot.** We recommend cleaning the vessel and spigot only when warranted; for example, if the spigot becomes clogged with yeast particles or if too much yeast debris builds up in the bottom of the container. To clean the system, remove the kombucha and scoby and set them aside in a safe container. Clean the system thoroughly using vinegar if possible. (Soap can be used but must be rinsed very thoroughly several times as soap residue will be detrimental.) Once the system is clean, the kombucha and scoby can be added back to the vessel, sugared tea can be added, and the process can resume.

**The Large Scoby.** One side effect of the continuous brewing system is the development of very large scobys as the scoby will generally cover the entire surface area of the liquid. The primary issue with large scobys is that after some time they grow very thick and take up valuable space in the container. While a giant scoby can be a fun thing to show off and possibly make a great prop for Halloween, you may want to reduce its size to allow more efficient fermenting. A very large scoby can be cut up using a non-metal utensil and pieces distributed to friends for making their own kombucha; or [check out our list of ideas for using extra scobys](#).

## How Surface Area Affects Kombucha Brew Time

There are cultured foods like yogurt, kefir, and sourdough that require daily maintenance. They need to be fed or “harvested” every day in order to keep the cultures alive.

Kombucha, on the other hand, takes much longer to culture. You can keep it on a 7- to 14-day rotation when you create a culturing “rhythm” because it takes a bit longer for the kombucha scoby to turn the tea and sugar into the delicious beverage we know of as kombucha.

This can be good or bad. On the one hand, kombucha is more hands-off in that you don’t have to worry about it on a daily basis as you would a kefir or sourdough starter. On the other hand, you might wish for your kombucha to brew faster so you can enjoy more of it!

Temperature has a large effect on how fast your kombucha will brew. A warmer temperature means a quicker brew; a cooler temperature means a slower brew. But temperature is not the only factor in brewing time.

### Consider Your Brewing Vessel

One element of the brewing process that you might not think to manipulate to achieve a faster brew time is the shape of the vessel you are using to brew your kombucha.

Many people brew their kombucha in half-gallon mason jars. When you’re making a lot of kombucha, you can go through a lot of these in a 2- to 3-week brewing cycle!

However, the narrow-mouth opening at the top of a typical half-gallon jar also slows the process down substantially, and you can shorten the brew time with a differently shaped container.

### Why Surface Area Matters

Cultures like yogurt are made up mostly of bacteria. It is the probiotics in this culture that eat up the lactose in your milk to produce more probiotics. And the cycle repeats when you use that latest yogurt batch to make another quart of tangy yogurt.

There are other cultures, like milk kefir and kombucha, that culture through bacteria and yeasts together. And while you would culture vegetables by keeping them under brine, in an anaerobic environment, yeast-based cultures need air to breathe in order to survive and perpetuate the culture as it ought to be.

When you put a kombucha scoby in sugar and tea, you are giving the bacteria and yeast food to thrive on and those bacteria and yeast produce kombucha tea. When you use a vessel that gives the scoby more access to oxygen, you are making it possible for the yeasts to eat more efficiently, which in turn keeps them healthy and strong.

If you increase the oxygen available to the culture you increase the rate at which it converts that tea and sugar to kombucha tea. This means that a half-gallon glass crock with a 10-inch diameter is going to make a faster kombucha tea than a half-gallon jar with a 4-inch diameter.

So you may want to consider seeking out wider-mouthed vessels for brewing your favorite kombucha tea even faster.



## Flavoring and Bottling Kombucha Tea



One of the greatest benefits of making your own kombucha at home is the ability to influence the flavor of the finished product and find new blends for your family. Kombucha flavor can be influenced a number of ways including the tea used to initially brew the kombucha, the length of the fermentation period, whether or not you choose to add flavorings, and whether you choose to employ a second fermentation period.

### Choosing the Tea

The type of tea used to brew kombucha is one of the most important influences in how the finished kombucha will taste. However, not all teas are appropriate for use when making kombucha. [Click here](#) to read more about which teas are best to use for the health of the scoby.

- Black tea tends to make a bolder-tasting, amber-colored kombucha. Kombucha made with black tea is often described as having a fruity flavor reminiscent of apple cider but can vary greatly. We recommend experimenting with English Breakfast, Ceylon, Darjeeling, etc. as different teas and combinations of teas can create undertones that are woody, earthy, and smoky.
- Oolong tea is a favorite here at Cultures for Health. Oolong provides the amber color of a black tea but the partial fermentation of the tea leaves balances the flavor creating a more even-toned flavor that is somewhat fruity, somewhat grassy; essentially a flavor between a black tea and a green tea. Oolong makes a very nice

base flavor upon which to add flavorings after the primary fermentation process is complete.

- Green teas generally offer a lighter color and a grassy taste profile. We recommend trying jasmine green tea which makes a particularly tasty kombucha.
- White teas make a very delicate and flowery-tasting kombucha.
- Herbal teas can be added for flavor but must be used in combination with black or green teas. Remember, herbal teas with oils must be avoided. ([Click here for more information.](#)) Combining strawberry herbal tea with oolong tea makes a particularly tasty brew.

## Fermentation Period

As the kombucha ferments, the scoby consumes the tea and sugar producing vitamins, minerals, enzymes, carbon dioxide, etc. The longer the fermentation process is allowed to proceed, the less sweet and more acidic the resulting liquid will be. This process can be used to one's advantage by strategically halting fermentation when the brew has reached the right balance between the sweetness and vinegar flavors for your particular taste preferences. While we recommend allowing the kombucha to ferment for at least 7 days given ideal conditions, once that initial week has passed, it is a matter of personal preference when to halt the process. For example, many people prefer to stop fermentation between 7 and 10 days which yields a more sweet kombucha due to higher sugar content. Fermentation periods of 3 to 5 weeks will generally yield a much more vinegar-like flavor profile (and significantly lower sugar content).

A quick tip: After 7 days, you can start tasting your brewing kombucha using a straw. Simply dip the straw carefully into the brew, past the developing baby scoby. When you have about an inch or two of the straw in the liquid, put your finger over the top of the straw, and pull it out of the brew. Release the liquid into a spoon or glass by lifting your finger off the top of the straw.

This way you can keep an eye on how the flavor is progressing and halt the process when you find the flavor most pleasing.

## Adding Flavors



Once the initial fermentation period is complete and the scoby removed, you can consume the kombucha as is or choose to add additional flavorings. Common options for additional flavorings include fruits, juices, herbs, and spices. Flavor extracts such as vanilla, almond, coconut, etc. can also be used. Flavoring agents can be added to the kombucha just prior to drinking, or they can be added to the kombucha and then the mixture can be stored in an airtight bottle for a second round of fermentation (see below). As a general rule of thumb:

- If flavoring with fresh, frozen, or dried fruit, we recommend starting with 10% to 30% fruit and 70% to 90% kombucha. Keep in mind that dried fruit often yields less flavor than fresh or frozen fruit.
- If flavoring with juice, we recommend starting with 10% to 20% juice and 80% to 90% kombucha.
- If flavoring with herbs, the variety and strength of herbs varies so greatly we recommend just experimenting to come up with the best ratios and combinations for your taste preferences.
- For flavor extracts such as almond extract or vanilla extract, start with 1/4 teaspoon extract per cup of kombucha and then adjust to taste. Remember the flavor will develop during the second fermentation period.

## Flavoring Ideas

Blueberries and raspberries

Blueberries and cinnamon

Blueberries and fresh or candied ginger

Strawberries and fresh or candied ginger

Strawberries and raspberries

Cherries and almond extract

Fresh peaches

Fresh pears

Pears and almond extract

Goji berries

Pineapple

Cranberry juice

Pear juice

Pomegranate-blueberry juice

Apple juice and cinnamon

Grape juice

Lemon juice and fresh or candied ginger

Lime juice and fresh or candied ginger

Pineapple juice, coconut water, and coconut extract

Vanilla beans (split open) or vanilla extract

Pumpkin pie spice

Fresh or candied ginger

Coconut extract

## Second Fermentation and Bottling



There are advantages to taking the time to allow the now-flavored kombucha a second round of fermentation. A second fermentation period allows the flavors to meld and achieve a deeper and more complex flavor profile. Further, if bottled in an airtight container (see below), the live yeast and bacteria in the kombucha will continue to consume the tea and sugar that remained after the primary fermentation process was completed and the scoby was removed, along with any sugar from juice or fruit added for flavor. A byproduct of fermentation is that the sugar is turned into carbon dioxide giving the kombucha the fizzy texture it is often known for.

### Instructions for a Second Fermentation

- Remove the scoby from the finished kombucha
- Add the desired flavoring and mix to combine
- Bottle the flavored kombucha in airtight bottles (see below)
- Allow the kombucha to remain bottled for 2 to 14 days at room temperature.
- Once the secondary fermentation process is complete, the kombucha can be strained of the fruit or herbs if desired. The liquid can then be rebottled and stored on the counter or in the refrigerator. We recommend storing kombucha at room temperature for no longer than 14 days, as carbonation can build up. The more sugar that is in the flavoring, the faster the carbonation will build.
- The kombucha may need to be strained again prior to consumption as the active yeast and bacteria in the kombucha will continue to ferment the beverage (even in

the refrigerator) at a slower rate and can produce small immature scobys (looks like small blobs of gel) or stringy brown yeast particles. While neither is harmful if consumed, both have an unpleasant texture.

**Choosing bottles for kombucha.** We recommend glass containers for bottling and storing kombucha. Technically stainless steel can be used but we find that glass is the least problematic material. We do not recommend using plastic. Plastic can be scratched or damaged and can harbor bacteria that can contaminate the kombucha. Plastic may also react to the acidic nature of the kombucha. While essentially any glass container with a lid can be used to store kombucha, to obtain the best level of carbon dioxide, which gives kombucha its characteristic fizzy texture, it is important to bottle kombucha in truly airtight bottles. For example, canning jars make wonderful storage vessels for finished kombucha but they are not truly airtight and carbon dioxide will leak from them resulting in flat-tasting kombucha. Better options include [Grolsch-style \(flip-top\) bottles](#) or old wine bottles fitted with new corks. Both adequately contain the building gas and keep the kombucha better carbonated.



***Use caution when opening the bottle.*** Creation of carbon dioxide during the secondary fermentation period means the contents of the bottle will be under pressure and caution should be used when opening the bottle. We recommend covering the bottle with a cloth to catch any spraying liquid, and opening the bottle slowly while applying downward pressure.

**Alcohol content.** A quick word of warning about alcohol content in flavored kombucha: The manner in which most people flavor and store their kombucha for a secondary fermentation

period will result in only a very minimal amount of alcohol (generally purported to be less than .5%). However, in cases where a large proportion of a high-sugar flavoring is added to the kombucha, a very long secondary fermentation period is utilized, or the flavored kombucha is stored for an extensive period of time prior to consumption, it is possible to build a higher level of alcohol content. Consequently, we urge you to always use good judgment when consuming flavored kombucha.



## Using Chai for Brewing Kombucha



Many of us have recently fallen in love with what is often called chai tea. The word “chai” means “tea,” so “chai tea” is actually redundant. What we are referring to when we speak of the mixed-spice tea which is often sweetened and served with milk is masala chai: literally “mixed-spice tea.”

Masala chai usually contains a blend of black tea and a few spices like cloves, cardamom, ginger, cinnamon, and so on. Each blend is different, so what you may get in your tea bag may be vastly different than the mix from another brand.

If you’re brewing kombucha with black tea then you might wonder whether you can combine two of your favorite things: kombucha tea and chai tea. Because masala is just a blend of the same black tea you would use for kombucha and a few spices, right?

Here are a couple of things to consider before brewing up your masala chai kombucha:

**Many spices have oils.** That deliciously warming and fragrant flavor that emanates from the spice mixture in the masala chai actually comes from the oils of the spices. The problem with this, in terms of kombucha brewing, is that oils go rancid. So if you were to brew up some chai tea, add your kombucha scoby, and let it ferment for several weeks, you might end up with rancid and maybe even moldy kombucha. You would also lose your scoby that way.

**Masala chai spices are often antibacterial.** This is actually a wonderful property in the masala chai tea. The spices that taste so lovely are also good for us and can help support your body's natural defenses.

However, the antimicrobial properties of these spices can also interfere with the normal yeasts, acids, and bacteria that are present in the scoby and the kombucha tea itself. This, in turn, changes the culture for when you make your next batch of kombucha.

With those two factors in mind you may still want to give masala chai kombucha a try. Here are some recommendations if you are doing so:

- Keep a backup scoby going in your normal sweet-tea brew. That way if you do find mold or rancidity in your brew you can toss it and start over with a good culture.
- Keep your brewing time to a minimum. The longer your kombucha brews, the more likely that the oils in the spices will go rancid. Try out your chai kombucha during a warmer part of the year when the brew goes much faster.
- Read the tea label. Many cheaper brands of chai contain weird ingredients like cheap sugars, "natural flavorings," added oils, etc. These may make the chai kombucha brewing experience even more precarious. The only ingredients should be tea and various spices, organic if possible.
- Instead of brewing your kombucha with chai tea, try adding a chai tea bag to the second fermentation. That way you get the exotic spicy flavor of chai, without endangering the scoby.
- Remember, never consume any kombucha tea that looks, tastes, or smells unpleasant. When in doubt, toss the whole batch including the scoby. Always err on the side of caution!

It doesn't hurt to be adventurous with your kombucha. It is in those adventures that we often find some of the most unexpectedly delightful outcomes. Just keep in mind that things can go wrong and having a backup is always a good idea.

# Taking a Break from Making Kombucha Tea

As a live culture consisting of active yeasts and bacteria, a kombucha scoby does best if it is allowed to sit on the counter culturing one batch of sugared tea after another. However, life can interfere at times and if you are facing the possibility of needing to take a break from making kombucha, here are some guidelines for how to take a break without damaging the scoby.

## Short-term Breaks (less than 6 weeks)

While many people brew their kombucha for only 1 to 4 weeks (depending on personal taste preferences), it is possible to allow a batch of kombucha to brew for up to 6 weeks assuming it is not brewing someplace particularly warm. So for breaks of up to 6 weeks, we recommend simply allowing the kombucha to brew in a batch of fresh sugared tea and starter tea for that length of time. The resulting brew will have a very strong vinegar taste and can be discarded or used in place of vinegar to make salad dressing, marinade, etc.

## Long-term Breaks (more than 6 weeks)

Longer-term breaks tend to be a bit more difficult to manage safely but there are several options available.

**Create a holding jar and feed the scoby every 4 to 6 weeks.** A kombucha scoby can be placed in a jar of fresh sugared tea and starter tea (in the same ratios as would be used to make a normal batch) and allowed to sit in a relatively cool spot. Every 4 to 6 weeks, discard some of the liquid and add either some fresh sugared tea (up to 80% of the jar) or just some sugar (1/4 cup per quart of liquid). Stir to combine. (No metal utensils!) The fresh sugared tea is preferable as it provides all the nutrients the scoby needs to survive and thrive during the break. If that isn't an option, adding just sugar will generally keep the scoby going until you can get back to it. Please note: if adding just sugar, you'll likely only be able to do so for 2 or 3 cycles before the scoby begins to suffer. Also note that over time, liquid will evaporate from the jar and will have to be replaced.

**Create a holding jar for the scoby and place it in the refrigerator.** While not an ideal solution, a kombucha scoby can be placed in a fresh batch of sugared tea and starter tea in the refrigerator. The cold will greatly slow the fermentation process and place the scoby in a state of hibernation. Keep in mind that placing a live culture in a state of chilled hibernation and bringing it back out is not a guaranteed process and may cause some damage to the scoby. However, most of the time it does work well. Please note: *do not freeze* kombucha scobys.

**Dehydrate the scoby.** The final option is to dehydrate a few scobys to use in the future. Scobys can be dehydrated by placing them on a sheet of unbleached parchment paper and allowing them to dry in a warm spot (around 80° to 90°F) until they are the consistency of jerky. Beware of fruit flies and other pests when leaving scobys out to dry. Please note: we suggest drying several scobys as the process isn't normally very precise and there is a failure rate. Having multiple scobys improves the odds you'll be successful rehydrating at least one scoby when you are ready to start making kombucha again. Once the scobys are dehydrated, place them in sealable plastic bags (one per bag) and store them in the refrigerator (not the freezer). Dehydrated scobys will generally survive in the refrigerator for at least 3 months. [Click here](#) for instructions on how to rehydrate the scoby once you are ready to start making kombucha again.



# **BITS AND BOBS**

little tips for brewing kombucha in your kitchen

## Kombucha FAQ

### **Q. What is kombucha?**

**A.** Kombucha is a fermented tea made with a kombucha starter culture (aka mushroom, mother, scoby, etc.), tea prepared with sugar, and some kombucha tea from a previous batch (starter tea). The mixture is allowed to ferment at room temperature for 5 to 30 days. It can be consumed plain or with added flavoring such as fruit or juice. Kombucha contains a number of vitamins (particularly B vitamins) and may have a number of health benefits. Click here to [learn more about the beneficial yeast and bacteria that comprise kombucha](#).

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### **Q. What does kombucha taste like?**

**A.** The taste of kombucha varies greatly depending on the amount of time it was allowed to ferment and whether or not flavoring was added. For example, fermentation time determines whether the kombucha tea has a very mild taste or a very strong vinegar taste. (Kombucha is made using a method very similar to the one used to make vinegar.) If you desire a more sweet taste, we recommend a very short brewing period of around 5 days. If the vinegar taste doesn't bother you, a longer fermentation process will allow the tea to fully culture. When first making kombucha, we recommend you taste the kombucha starting at day 7 (using a straw makes this easier) to determine at what point you wish to stop the fermentation process. Adding fruit or juice following fermentation can sweeten the kombucha. Alternatively, you can add water to the finished kombucha prior to drinking to cut the flavor. Click here for more information on [influencing the flavor of homemade kombucha](#).

If you have never tried kombucha we recommend purchasing a bottle of kombucha from your local grocery or health food store to sample. Kombucha is generally located in the health food section or in the cold case with the other bottled ready-to-go drinks.

**Q. I really like the bottles of kombucha I find at the grocery store? Can I make my homemade kombucha taste like that?**

**A.** Many of our customers find us because they like commercial kombucha but simply can't afford the \$3+ per bottle price tag. Brewing kombucha at home costs \$1 to \$2 a gallon and offers you great flexibility. By experimenting with the type of tea used, fermentation time, and flavor additives (fruit, juice, ginger, etc.) you can invent your own kombucha flavors or try to replicate a commercial flavor. Click here for more information on [influencing the flavor of homemade kombucha](#).

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**Q. Why is the kombucha tea starter culture known by so many names (mushroom, mother, scoby, etc.)?**

**A.** Kombucha tea is a very old beverage and over time a number of names have been assigned to the culture. The term kombucha mushroom likely refers to the appearance of the culture — flat, round, white-grayish, disk-shaped — as a kombucha culture is not actually a mushroom. The term mother is a more appropriate term as kombucha is fermented in a manner similar to making vinegar where the cultures are also known as mothers. Finally, the term SCOBY is an acronym for Symbiotic Colony Of Bacteria and Yeast (making scoby perhaps the most accurate term).

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**Q. What ingredients go into making kombucha cultures?**

**A.** Our kombucha starter cultures are grown and packaged in a licensed commercial food processing facility using filtered water, organic sugar, and organic black tea.

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**Q. Do kombucha cultures contain gluten, dairy, or animal products?**

**A.** No, our kombucha cultures only contain organic black tea, organic sugar, and filtered water. (Please note: our kombucha cultures are grown and processed in the same facility as dairy-based products.)

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**Q. Are kombucha cultures reusable? How long will the culture last?**

**A.** Yes, with proper care kombucha cultures can be reused many times to create kombucha tea. Since the cultures do multiply with each batch (see below) as a practical matter you will likely recycle or compost older cultures after a few months or sooner, but theoretically with care you should be able to continue using the same culture.

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**Q. Why are your kombucha cultures shipped in a dehydrated state?**

**A.** We ship dehydrated cultures because they are shelf-stable and therefore make the trip to you more safely with a very low rate of spoilage/failure (particularly during warm summer months). We take your safety seriously and use this more conservative method to ship the cultures. Please note, kombucha cultures are a live active organism and in about 1% of cases may fail to culture for unknown reasons. If at any time you have questions about whether your culture is working correctly, please see our [troubleshooting kombucha](#) section and/or feel free to [contact us](#).

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**Q. What is the process to make kombucha?**

**A.** Tea is prepared and sugar is dissolved in the tea. The tea is allowed to cool to room temperature before adding the starter tea (kombucha tea from a previous batch) and the kombucha culture. The container is covered with a breathable cloth (we recommend securing it with a tight rubber band to keep the bugs out) and left to ferment at room temperature for 5 to 30 days. Once the fermentation process is complete, remove the kombucha culture and the new culture that has formed during the fermentation process. At this time you can drink the kombucha as is or you can add juice or fruit for additional flavoring. You can also bottle the kombucha with juice or fruit in airtight bottles (click here to view our [flip-top bottles](#) which are perfect for bottling kombucha) and allow them to sit for several days so the carbonation can build. Click here to view our videos demonstrating [Making Kombucha](#) and [Flavoring and Bottling Kombucha](#). Please note: the initial batch of kombucha you will make from the dehydrated culture will take a bit longer as the cultures generally spend the first 7 to 21 days rehydrating before actually beginning the fermentation process.

**Q. Will kombucha tea starters multiply?**

**A.** Kombucha tea cultures do multiply. Each time you brew a batch of kombucha tea a new starter culture will form. The original starter culture ("the mother") and the new starter culture ("the baby") can each be used to brew a new batch of kombucha tea. Sometimes the new kombucha culture will fuse to the original culture. This is not a cause for concern. They can be separated (ripped apart) or used as a single culture when you brew the next batch. If at some point you find yourself with more kombucha scobys than you can use, you can either compost them (they make fantastic compost) or give them away to friends and family. (Please note: because maintaining proper ingredient ratios is critically important to successfully creating a kombucha that is safe to drink, please be sure to give them a copy of the [instructions](#) or refer them to our website to download the instructions so they have all the appropriate information.) Click here for more [ideas for using extra kombucha scobys](#).

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**Q. What supplies will I need for making kombucha tea?**

**A.** Click here for information on the [equipment needed to brew kombucha](#). Click here for information on [choosing the best ingredients for making kombucha](#) (including tea, sugar, water source, etc.).

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**Q. How long should I brew my kombucha?**

**A.** Kombucha can be brewed from 7 to 30 days depending on personal preferences. While a longer brewing time results in a more cultured beverage, it also results in less sugar which makes for a more vinegar-like (less sweet) beverage. When you begin making kombucha, we recommend you taste the kombucha starting at day 7 (using a straw makes this easier) to determine at what point you wish to stop the fermentation process. Adding fruit or juice following fermentation can sweeten the kombucha. Alternatively, you can add water to the finished kombucha prior to drinking to cut the flavor. Keep in mind that temperature will play a role in how quickly the kombucha cultures. During cooler months, the same degree of culturing may take a few days longer than it will during warmer months.

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**Q. How can I reduce the amount of sugar in the finished kombucha tea?**

**A.** A longer fermentation process will reduce the amount of sugar in the kombucha tea. At the end of a 30-day ferment period, there is generally very little sugar remaining in the kombucha. It's best to allow the mixture to start off with the appropriate amount of sugar as this will help ensure that the scoby gets enough food to culture properly.

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**Q. Can I use less sugar or otherwise play around with the basic ingredients used to make kombucha?**

**A.** While some kombucha masters do occasionally experiment with the ingredient ratios, we strongly recommend you stick with the tea-sugar-water-starter tea ratios indicated in the instructions. These ratios help encourage a proper pH balance which discourages the growth of mold and the spoiling of the batch, and also help ensure the scoby gets enough food to culture properly. If you do choose to alter ingredient ratios, be sure to obtain and use a reliable pH meter or [pH strips](#) to ensure that the pH level for your kombucha is below 4.0 before consuming.

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**Q. Can I use a plastic container to brew kombucha and plastic bottles to store it?**

**A.** Theoretically food-grade plastic shouldn't cause any damage to the culture but we always recommend glass when working with starter cultures or food due to the potential of plastic to leach undesirable chemicals. Additionally, plastic is more easily damaged (often without your knowledge) and can result in hidden bacteria which can grow and not only disrupt the culturing process but also potentially cause food-borne illness.

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**Q. How can I flavor my kombucha tea?**

**A.** Once the fermentation period is complete and the culture has been removed you can ferment the kombucha a second time by adding juice (most common), fruit, and/or ginger to flavor the kombucha tea. After adding the flavorings, allow the kombucha to sit for an

additional few days with an airtight lid. This process also allows carbonation to build so be careful when removing the lid! While most airtight jars or containers will work, bottling your kombucha in flip top style bottles works particularly well. Click here to view our [flip-top bottles](#). Flip-top style bottles can also be purchased at your local beer- and wine-making supply store. Our customers also report success bottling kombucha using old wine bottles with new corks.

Click here to view our [video demonstrating the process to flavor kombucha](#).

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**Q. What ratio of juice to kombucha should I use for the second fermentation (to add flavor)?**

**A.** Generally speaking a ratio of 20% juice and 80% kombucha works well. We've also had customers report good luck adding fresh fruit (peaches are a favorite) to the kombucha. But adding fruit and juice is one place you can certainly experiment to find your preferred flavors. When using fresh fruit, be sure to limit the amount of time the mixture is allowed to sit (24 to 48 hours).

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**Q. How do I increase the carbonation of my kombucha tea?**

**A.** Once the fermentation period is complete and the culture has been removed you can ferment the kombucha a second time by adding juice (most common), fruit and/or ginger to flavor the kombucha tea. After adding the flavorings, allow the kombucha to sit for an additional few days with an airtight lid. This process also allows carbonation to build so be careful when removing the lid! While most airtight jars or containers will work, bottling your kombucha in flip-top style bottles works particularly well. Click here to view our [flip-top bottles](#). Flip-top bottles are also generally available at local beer- and wine-making supply stores. We've also had customers report success bottling kombucha in old wine bottles with new corks. Click here for more information on [using a secondary fermentation period to improve the kombucha carbonation level](#).

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**Q. Is there any danger of the glass container exploding under the carbonation pressure when bottling kombucha?**

**A.** It is possible for bottles to explode, although it is more common that lids occasionally fly off, particularly when being opened. We recommend keeping your whole hand over the lid of the container as you open it to prevent being hit by a flying lid. We also recommend opening the container over a sink in case the carbonation causes the kombucha to bubble over.

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**Q. What type of sugar should I use to make kombucha? Can I use honey?**

**A.** Click here for information on the [types of sugar most appropriate for making kombucha](#).

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**Q. What type of tea should I use to make kombucha?**

**A.** Click here for more information on [choosing the best varieties of tea for brewing kombucha](#).

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**Q. What type of water should I use to make kombucha?**

**A.** It is important to use non-chlorinated water to brew kombucha tea. Ideally the water should also be free of fluoride and other added chemicals. [Click here for more information](#).

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**Q. Can I make kombucha without starter tea?**

**A.** Yes, you can use an equal portion of distilled white vinegar in place of starter tea. Alternatively you can purchase bottled kombucha tea at many health food and grocery stores which can be used. If you choose this option, we do recommend using a non-flavored variety of kombucha.

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**Q. Can I culture my kombucha tea in a cupboard, on a window sill, etc.?**

**A.** It is important to keep fermenting kombucha out of direct sunlight and away from excessive heat or cold. (Heat can speed the fermentation process and/or damage the culture; cold can slow the fermentation process significantly.) Kombucha does best if allowed to breathe during the process but both those locations allow for some air to enter. Click here for more information on [choosing an ideal culturing location for your kombucha](#).

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**Q. Does finished kombucha contain alcohol?**

**A.** Yes, as with all cultured and fermented foods, a small amount of naturally occurring alcohol is typically present in the finished product. Although the amount will vary from batch to batch, the amount should be quite small (usually about 0.5%). There have been reports of alcohol levels exceeding this range in cases where the kombucha has been mixed with fruit juice for flavoring, then bottled and allowed to sit for excessive periods of time.

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**Q. How do I take a break from making kombucha tea?**

**A.** Click here for instructions on [how to take a break from making kombucha while keeping the scoby safe and healthy](#).

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**Q. If I'm making other cultured foods (yogurt, sourdough, kombucha, etc.), how far apart do I need to keep the cultures?**

**A.** When items are being actively cultured (and don't have lids), we suggest keeping a distance of at least several feet (and preferably more) between items. When cultured items are being stored in the refrigerator with tight-fitting lids, there is no need to keep distance between them. Brewing kombucha should be kept at least several feet from rising bread made with yeast, garbage or compost bins, or other cultured foods (yogurt, kefir, sourdough, fermenting vegetables, etc.). Transient yeast and bacteria can be harmful to the scoby.

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**Q. Where can I view the instructions for making kombucha?**

**A.** [Click here](#) to view the kombucha instructions.

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**Q. What signs should I look for to determine the kombucha is culturing properly?**

**A.** A few good signs the kombucha fermentation process is proceeding normally include the formation of a new kombucha culture over the opening of the brewing container, development of brown stringy yeast particles, and the liquid becoming less sweet and more vinegar-like. Click here for a comprehensive discussion of [how to determine if your batch is proceeding normally](#).

The development of mold (generally green but not always) is a bad sign. If your batch of kombucha develops mold, you will need to throw out the batch and the culture (see below). The most common reason for mold development is improper ingredient ratios. (Forgetting to add the sugar or starter tea are the most common reasons.) Click here for a comprehensive discussion of [normal variations in a batch and signs of a problem](#) (including mold).

Keep in mind that for the initial batch using a dehydrated culture, it can take up to 30 days at room temperature (70° to 80°F) for signs of a new forming kombucha culture. This is normal as the cultures generally spend the first 7 to 21 days rehydrating before the actual culturing process begins. If you are making your [initial rehydration batch and need specific troubleshooting information](#), click here.

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**Q. I'm brewing my first batch of kombucha using the dehydrated culture. It doesn't seem to be doing anything. How can I know if it's working properly?**

**A.** Click here for [specific information concerning the scoby activation process](#).

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**Q. Why would I need to strain the finished kombucha?**

**A.** Some people prefer to strain their kombucha tea prior to drinking it to filter out the yeast particles (brown and stringy) as well as any baby kombucha cultures that may be forming (often the consistency of a jelly blob). Click here to view our [plastic mesh strainers](#) which are perfect for this task.

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**Q. My kombucha has been fermenting for a period of time and is developing a cloudy layer on top. Is this normal?**

**A.** Yes. The cloudy white layer is the beginning of a new baby kombucha culture. The formation of a new culture is a sign that your batch of kombucha is fermenting properly.

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**Q. My kombucha has been fermenting for a period of time and is developing brown stringy particles. Is this normal?**

**A.** The brown stringy particles are yeast particles and are harmless. They are a natural byproduct of the fermentation process. You can strain them out of the finished kefir if desired.

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**Q. My kombucha culture sank to the bottom of my container, is floating sideways, rose to the top of the liquid, etc. Is this normal?**

**A.** Depending on a number of factors (including humidity), the culture may sink, float or sit sideways. Any of these is normal and will not affect the brewing process.

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**Q. The new baby kombucha culture seems to have detached from the container opening. Will this mess up the fermentation process?**

**A.** Having the baby culture detach from the container opening is common if the jar is bumped or moved. It does not affect the fermentation process. If you continue the culturing process, a new baby culture will begin to form on top of the liquid but again, does not affect

the culturing process itself (i.e., no additional fermentation time is required unless you are specifically trying to grow a new scoby of a certain size).

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**Q. I've been storing a batch of finished kombucha for a few days and it seems to be developing a jelly-type mass on top. Is this normal? What is it?**

**A.** The jelly-like mass is the beginning of a new baby kombucha culture. Even after the main kombucha culture is removed, the kombucha remains full of living yeast and bacteria which continue to ferment slowly on their own. Consequently idle kombucha will eventually form a new baby culture. These cultures start out as a jelly-like mass and eventually form a full-blown culture. If you leave a batch of finished kombucha long enough, it will eventually form a full scoby on the top just as it did during the initial fermentation process. You can remove and use this culture just like any other culture. If you accidentally consume the culture (easy to do when it's still a jelly-like mass) it is not harmful.

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**Q. One of my kombucha cultures has a hole in it or is only a piece because I had to separate it from mother culture after they fused. Can I still use it?**

**A.** Kombucha cultures will work just fine even with holes or if they have been torn in half.

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**Q. Does the size of the kombucha culture matter in relation to how much kombucha I will be brewing?**

**A.** No, even a small kombucha culture will effectively ferment a full gallon of kombucha. We do recommend using a culture or piece of a culture which is equivalent to at least a 3-inch diameter circle.

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**Q. My batch of kombucha has developed mold. What can I do?**

**A.** The most common reason for mold development is improper ingredient ratios. (The most common reasons we hear about are forgetting to add the sugar or starter tea.)

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Contamination can also be a factor (could be as simple as a bit of food or soap residue the dishwasher missed). Once mold has developed, it is very important to toss the whole batch, including the kombucha scoby. Normally we are all for trying to save cultures but in this case, it would be potentially dangerous to do so.

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**Q. My kombucha culture has turned black. What should I do?**

**A.** A black scoby is a sign that the kombucha culture has been contaminated or is worn out (takes a long time and many batches to do this). If your kombucha culture turns black, it should be retired to the compost bin. Turning black is not to be confused with developing brown or slightly discolored patches. Yeast build-up will result in brown spots or stringy particles attaching to the scoby and is a normal byproduct of the fermentation process.

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**Q. I've been brewing kombucha for a while and am overrun with kombucha scobys. What can I do with them?**

**A.** Because a new culture is usually created with each batch, you may quickly find that you have too many cultures! If at some point you find yourself with more kombucha scobys please give them away to friends and family who could benefit from brewing their own kombucha. (Please note: because maintaining proper ingredient ratios is critically important to successfully creating a kombucha that is safe to drink, please be sure to give them a copy of the instructions or refer them to our website to [download the instructions](#) so they have all the appropriate information). If at some point you run out of good homes to send extra scobys too, click here for some [creative ideas for using the extra scobys](#).

## Busting Kombucha Myths

There are a lot of interesting ideas about kombucha floating around in the environment, often erroneous or fear-filled. Some people have heard some strange things about this health-giving beverage and they have simply accepted them as truths.

Most of these rumors, in fact, are not true at all. They are like urban legends that have developed out of ignorance or a story that hasn't quite given you all of the facts.

The truth is, there's nothing to stop you brewing this delicious, tangy homemade tonic.



**Myth 1. You can't use honey as the sweetener.** This is a really common misconception, even in some of the more “cultured” circles. The idea is that raw honey has anti-bacterial properties and therefore might interfere with or even kill the scoby if used as the sweetener in the brewing process.

The truth is that honey kills bacteria by suffocation. It should not be problematic when used as a sweetener for brewing kombucha. According to *The Complete Idiot's Guide to Fermenting Foods* by Wardeh Harmon, you can use raw honey to make kombucha without any concerns for the health of your scoby. You *may* run into problems if the raw honey contains additional organic matter that might attract mold.

If you're still hesitant, just save a scoby to use with sugar as a backup.



**Myth 2. You can die from drinking homemade kombucha.** There are occasional stories that surface claiming that someone has heard that someone making homemade kombucha had died from drinking it.

First of all, the story is just extreme. People have been drinking kombucha for thousands of years, and one person had heard that one person one time might have died from it. It's simply unlikely, statistically.

Second, when cultured foods are prepared properly there is very little possibility for food-borne illness. This is because the cultures in combination with the acid present create an environment inhospitable for bad bacteria.

This myth is very likely perpetuated by the idea that foods that are pasteurized or come from a factory are somehow safer than those we can create at home. While pasteurization can remove harmful bacteria and make foods last longer on the shelf, good fermentation practices can do the same thing without pasteurization.

**3. More scoby = faster brewing time.** There really is no hard evidence on this either way, but there are a few problems in thinking that this is the key to a faster brewing time.

A faster brewing time isn't necessarily better. Allowing the kombucha culture to slowly eat up the sugar and produce beneficial bacteria and acids slowly will help create a better-rounded brew, both for flavor and health.

Additionally, the more scoby you have in your brew, the less room you will have for actual tea. This will result in less kombucha tea in the end. You're also providing more culture without increasing the amount of food (sugar) in the solution, so your scoby may run out of food faster.

Finally, if you are looking to speed up the brewing time of your kombucha, your best bet is to get a wider fermentation vessel. By increasing the surface area of the ferment you are feeding the yeasts in the kombucha culture with the oxygen it needs to reproduce well.

Kombucha is a delicious drink, loaded with probiotics and other healthy vitamins. It's fun to make, and hard to mess up. If you think you might like to make kombucha at home, try some store-bought and see what you think. Then get a scoby from a friend, or buy one from us, and give it a try!



# **USING KOMBUCHA**

additional information on using kombucha



## Creative Ways to Use Kombucha Tea

Kombucha is surprisingly versatile! It can be bottled or used in salad dressing, marinade, frozen treats, mixed drinks, and many more types of recipes.

**Bottled Drink.** The most popular way to use kombucha tea is as a flavored bottled beverage. The options for flavoring are practically endless as fruit, juice, herbs, and spices can all be used. Click here for more information on [flavoring and bottling kombucha tea](#).

**Salad Dressing and Marinade Recipes.** Kombucha tea can be used in place of vinegar in your favorite salad dressing or marinade recipe. For these types of recipes, it is best to use well-fermented kombucha that has taken on a strong vinegar-like flavor. If your kombucha is on the sweeter side, adjust any sweeteners in the recipe accordingly.

**Frozen Treats.** Kombucha can be blended with fruit or juice and frozen to make popsicles or granitas.

**Acidic Ingredient in Mixed Drinks.** Many cocktail recipes call for an acidic ingredient and kombucha can often be used as a substitute.

**As a Substitute for Apple Cider Vinegar.** Kombucha can be substituted for ACV in most recipes. It is best to use well-fermented kombucha that has taken on a strong vinegar-like flavor. If your kombucha is on the sweeter side, adjust any sweeteners in the recipe accordingly.

**As a Marinade for Meats.** Any recipe calling for cider vinegar or beer as a marinade or stock can use kombucha. Tougher cuts like brisket and corned beef are especially delicious when roasted slowly in a batch of kombucha!

## How to Substitute Kombucha for Vinegar in a Recipe



If you've ever had a batch of kombucha tea ferment for a bit too long you might have experienced what some people call kombucha vinegar. The longer fermentation of kombucha tea produces a very acidic taste, almost like an apple cider vinegar.

Because of this property, kombucha tea can be used not only as a slightly tart and sweet bubbly beverage, but as a vinegar as well. Not only is it acidic like vinegar, but if used raw, it has beneficial probiotics and enzymes similar to apple cider vinegar.

### How to Make Kombucha Vinegar

Kombucha tea begins with tea, sugar, and a scoby or "mother." The sweetened tea feeds the scoby which produces acids. By manipulating the amount of time you ferment the kombucha you can produce a sweeter tea or a more acidic tea.

A shorter fermentation will produce a sweet kombucha with a higher sugar content because the scoby has not had a chance to use up as much of the sugar. A longer fermentation will produce a more acidic kombucha because more of the sugar has been "eaten up" and more acids produced in the fermentation process.

For a vinegar-like kombucha many recommend a fermentation period of around 30 days. This, of course, is all dependent on your environmental factors as well. If your fermentation temperature is lower, it may take longer. If your fermentation vessel has a narrow opening, it may take longer.

Your best bet is to taste the kombucha at least once a week until you reach the desired acidity.

## How to Substitute Kombucha for Vinegar

Depending on the acidity of your kombucha, you can pretty much substitute kombucha for the vinegar in any recipe, from baked goods to salad dressings. To be exact with the final flavor of the recipe will take some tweaking, though.

If your kombucha still has a bit of sweetness to it then you will want to remove or lessen the amount of other sweeteners used in the recipe. If your kombucha isn't as tangy as a vinegar then you will want to use a little bit more to make up for the lack of acidity.

Also, you will probably want to only use kombucha that has not been flavored with fruits, spices, or juices.

## Recipes Containing Kombucha

The following are examples of how kombucha can be substituted for vinegar in a recipe:

[Garden Pasta Salad with Kombucha Herb Dressing](#)

[Kombucha Coleslaw Recipe](#)

[Cucumber and Dill Salad](#)

[Kombucha and Honey Vinaigrette](#)

[Tomato Kombucha Salad Dressing](#)

[Kombucha Citrus Vinaigrette](#)

[Parmesan Salad Dressing](#)

[Kombucha Tamari Marinade](#)

[Mexican-style Kombucha Marinade](#)

[Kombucha Mustard Recipe](#)

[Kombucha BBQ Sauce](#)

## Uses for Extra Kombucha Scobys



Because a new scoby is created with almost every new batch, it is easy to quickly be overrun with scobys. If you have friends or family members who would benefit from being able to make their own kombucha, the best place for an extra scoby is in a loving home. (Be sure to pass on a copy of this eBook so they can take good care of the scoby.) However, at some point you are likely to run out of homes for the scobys to go to so then what?

**Add to a Smoothie.** Add a piece of scoby to your morning smoothie.

**Kombucha Jerky.** Kombucha scobys can be laid on a piece of unbleached parchment paper and dried at 80° to 90°F until they reach the consistency of jerky. (Be watchful for fruit flies and pests that are attracted to drying scobys.) Kombucha scobys can then be consumed as a treat or cut up on a salad, in trail mix, etc.

**Pet Treats.** Kombucha scobys can be fed to pets either fresh or using the same process for making kombucha jerky to make a dried pet treat.

**Substitute for Raw Fish in Sushi.** With a texture similar to squid, kombucha scobys can be cut up and eaten along with the nori, rice, vegetables, etc.

**Face Mask.** Kombucha scobys can be used as a face mask either whole or ground up.

**As a Bandage.** Some customers report using scobys as a live bandage.



**Chicken Food.** Many chicken owners find their chickens really appreciate a fresh scoby as a treat.

**Compost.** Scobys can be added whole to the compost pile or ground up and added directly to the soil beneath plants.

RECIPES

**RECIPES**

ways to use kombucha as an ingredient

RECIPES



## Salads & Dressings

### Cucumber and Dill Salad



#### Ingredients

- 5 cucumbers, peeled, seeded, and cut into 1/2-inch pieces
- 1-1/2 cups sour cream
- 1/4 cup kombucha\*
- 1/4 cup fresh dill, finely chopped
- 1 teaspoon raw honey
- 1 small red onion, diced
- Sea salt
- Freshly ground pepper

#### Instructions

In a colander, toss the cucumber pieces with 2 teaspoons salt and let drain for one hour.

In a bowl, mix together the sour cream, kombucha, dill, and honey. Add the drained cucumbers and diced onion. Toss together and season with salt and pepper to taste. Serve immediately.

\*This is a good use for kombucha that has over-fermented a bit and has a more vinegar-like flavor.

## Garden Pasta Salad with Kombucha Herb Dressing



### Ingredients

- 1/2 cup kombucha tea
- 1 cup olive oil
- Juice of one lemon
- Zest of one lemon
- Juice of one orange
- Zest of one orange
- 1 cup fresh parsley
- 1 cup fresh basil
- 1 cup shredded carrots
- 3 celery stalks, diced
- 1 cucumber, peeled, seeded, and diced
- 1 pound of pasta, cooked al dente and cooled to room temperature

### Instructions

Prepare the dressing by adding the kombucha, juice, and zest from both the lemon and orange, the parsley, and the basil to a blender or food processor. As the mixture processes, very slowly drizzle in the olive oil. Add salt and pepper to taste.

In a large bowl combine the pasta, vegetables, and dressing. Toss and either serve immediately or chill for a few hours before serving.



## Kombucha Coleslaw



### Ingredients

- 1 pound green cabbage, shredded
- 2 medium carrots, grated
- 1 cup lacto-fermented mayonnaise
- 1/4 cup kombucha tea, well-fermented\*
- 1 to 2 tablespoons raw honey to taste
- 1 tablespoon celery seed

### Instructions

Combine the cabbage and carrots in a large bowl. In a separate bowl mix the mayonnaise, kombucha, honey and celery seeds together until smooth. Mix the cabbage and carrots with the dressing and refrigerate at least 4 hours before serving.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste. If using kombucha that is less fermented, use less honey.

## Kombucha Citrus Vinaigrette



### Ingredients

- Fresh juice from 1/2 lemon
- Fresh juice from 1/2 orange
- Fresh juice from 1/4 Lime
- 1 tablespoon balsamic vinegar
- 7 tablespoons kombucha\*
- 2 teaspoons Dijon mustard (or try kombucha mustard)
- 1/2 cup olive oil
- 1/2 cup sunflower oil
- Lemon zest
- Orange zest
- Lime zest
- Salt and pepper to taste

### Instructions

Combine the juices, vinegar, kombucha, and mustard in a blender or food processor. Very slowly drizzle the olive oil and sunflower oil into the dressing while the blender or food processor is processing. Add the fruit zests and then season with salt and pepper to taste. Serve immediately. Makes 1-1/2 cups.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste. If using kombucha that is less fermented, use less honey.

## Kombucha and Honey Vinaigrette



### Ingredients

- 3/4 cup olive oil
- 1/4 cup kombucha tea\*
- 2 tablespoons water
- 2 tablespoons raw honey
- 1-1/2 teaspoons sea salt
- 1/4 teaspoon pepper

### Instructions

Combine the kombucha, water, honey, salt, and pepper in a blender or food processor. Very slowly drizzle the olive oil into the dressing while the blender or food processor is running. Serve immediately. Makes 1-1/4 cups.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste. If using kombucha that is less fermented, use less honey.

## Tomato Kombucha Salad Dressing



### Ingredients

- 1/2 large tomato
- 1/4 cup tahini
- 6 tablespoons olive oil
- 6 tablespoons water
- 3 tablespoons nutritional yeast
- 1 tablespoons sesame seeds
- 1/2 teaspoon sea salt
- 2 cloves garlic
- 1/4 cup tamari
- 6 tablespoons kombucha\*

### Instructions

Combine all ingredients except olive oil in a blender or food processor. Process until smooth. Slowly drizzle in the olive oil. Serve immediately.

\* This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste.



## Parmesan Salad Dressing



### Ingredients

- 1-1/4 cups milk
- 1 cup cultured buttermilk
- 1/4 cup kombucha\*
- 2-1/4 cup lacto-fermented mayonnaise
- 3/4 cup parmesan cheese, grated or shredded
- 1/4 teaspoon pepper, freshly ground
- 1 tablespoon garlic salt
- 1-1/2 cups sour cream

### Instructions

Combine all ingredients except sour cream and mix well. Gently fold in sour cream. Refrigerate until ready to serve.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste.

## Tomato French Dressing



### Ingredients

- 1 cup tomato juice
- 2 teaspoons non-GMO cornstarch
- 1 tablespoon honey
- 2 tablespoons kombucha
- 2 tablespoons olive oil
- 1 teaspoon Dijon mustard
- 1 clove garlic, minced
- 1 teaspoon dried herbs of your choice, optional
- Salt and pepper to taste

### Instructions

1. Mix tomato juice and cornstarch in a small saucepan. Place over medium heat and stir until mixture comes to a boil. Boil for one minute. Stir in honey.
2. Remove from heat and let cool to room temperature; stir in kombucha, olive oil, mustard, garlic, and herbs, if using. Season to taste with salt and pepper. Let cool completely before serving.

## Marinades & Sauces

### Kombucha Tamari Marinade



#### Ingredients

- 2 cups kombucha tea\*
- 4 ounces olive oil, sunflower oil, or grapeseed oil
- 2 tablespoons tamari, soy sauce, or coconut aminos
- 1 tablespoon Worcestershire sauce
- 2 teaspoons tabasco sauce
- 2 teaspoons red pepper, ground if desired
- 1 teaspoon sea salt
- 1/2 teaspoon garlic powder

#### Instructions

Combine the kombucha, tamari, Worcestershire, tabasco, red pepper, sea salt, and garlic powder. Very slowly drizzle the olive oil into the dressing while the blender or food processor is processing. Serve immediately. Makes 3-3/4 cups.

\*This is a great way to use extra kombucha tea that has over-fermented and has a vinegar-like taste.

## Mexican-style Kombucha Marinade



### Ingredients

- 1/3 cup tomato sauce
- 1/3 cup olive oil or sunflower oil
- 1/4 cup kombucha\*
- Juice from 2 limes
- 2 tablespoons chili powder
- 1 teaspoon cumin
- 1 teaspoon cayenne pepper
- 1 teaspoon onion powder
- 1 teaspoon garlic powder

### Instructions

Mix together and use as a marinade for one pound of beef, chicken, or pork.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste.



## Kombucha BBQ Sauce



### Ingredients

- 1 cup kombucha tea\*
- 1 tablespoon brown sugar, rapadura, Sucanat, or similar sugar containing molasses
- 1 tablespoon sea salt
- 1/2 teaspoon cayenne pepper
- 1 teaspoon crushed red pepper

### Instructions

Combine all ingredients in a bowl. Mix thoroughly. Refrigerate for at least 4 hours prior to using to allow the flavors to meld. Makes approximately 1 cup.

\*This is a great way to use kombucha tea that has over-fermented and has a vinegar-like taste. If using kombucha that is less fermented, use less sugar to taste.

## Kombucha Mustard



### Ingredients

- Whole mustard seeds
- Kombucha
- Sea salt (optional)
- Herbs and spices (see below)

### Instructions

Use a glass container or ceramic crock. (Canning jars work well). Fill the container about half full of mustard seeds. Add sea salt to taste (about 1/4 teaspoon per quart). Add well-fermented kombucha tea to cover the seeds with about 1/2 inch of liquid sitting on top of the seeds. Cover the container loosely. A loose lid, towel, or paper coffee filter, will work well. Check the mustard seeds periodically and add more kombucha as necessary to keep them covered and moist. As the seeds absorb the kombucha they will swell, and it is important to keep them sufficiently moist. After a week or two the seeds will be soft and will pop when you bite them. At this point the seeds are ready for the blending stage but can continue to sit and ferment for up to a month if desired provided they are kept moist.

Once the seeds are sufficiently soft, use a food processor or blender to blend the mixture to the desired consistency. More kombucha can be added to give the mustard a thinner consistency. Vinegar can also be added to increase the level of tang.

### **Customizing Your Mustard**

A number of herbs, spices, and sweeteners can be added to create a custom taste your family will love.

- **Garlic cloves:** can be added during the brewing process or the blending stage
- **Honey or maple syrup:** add during the blending stage
- **Chiles:** can be added during the brewing process or the blending stage
- **Turmeric:** adds a yellow color if desired; add during the blending stage
- **Your favorite herbs:** add during the brewing stage

## Kombucha Ketchup



### Ingredients

- Two 6-ounce cans of tomato paste
- 2/3 to 1 cup long-brewed kombucha (that tastes vinegary)
- 1/8 teaspoon cinnamon
- 1/8 teaspoon cloves
- 1/8 teaspoon cayenne
- 1/8 teaspoon black pepper
- Sea salt, to taste
- 1/4 cup Sucanat

### Instructions

Combine all ingredients in a medium-sized bowl and whisk well to combine. Transfer to a quart jar, cover with a lid, and allow to ferment for 2 to 5 days, depending on the temperature, until bubbly and fermented.

## Strawberries with Kombucha Mint Sauce



### Ingredients

- 2 tablespoons kombucha
- 2 tablespoon very fine sugar
- 2 tablespoons fresh mint, finely chopped
- 1 pound strawberries, sliced

### Instructions

Combine the vinegar, sugar, and mint. Stir until the sugar dissolves and is fully incorporated. Combine the strawberries and the sauce. Allow to marinate for 1 to 2 hours prior to serving. Serve at room temperature. Can be served alone or over ice cream, sponge cake, or shortbread.



## Meat & Main Dishes

### Easy Homemade Italian Sausage with Kombucha



#### Ingredients

- 2 pounds fresh ground pork (up to 1/4 pound of additional pork fat can be added to the mix for more moistness, if desired)
- 1/4 cup extra-sour kombucha
- 1 tablespoon fennel seeds
- 1 tablespoon dried parsley
- 2 bay leaves
- 6 whole peppercorns
- 2 to 4 cloves garlic, minced (depending on your affinity for garlic)
- 1 teaspoon Celtic sea salt
- A few dashes of dried hot pepper flakes or 1/8 teaspoon cayenne pepper, optional

#### Instructions

1. Place fennel seeds, dried parsley, bay leaves, and peppercorns in a clean coffee mill and grind coarsely. Alternatively, you can use 1/4 teaspoon ground pepper and 1 to 2 teaspoons ground fennel, but it's nice to have a few pieces of fennel seeds in the finished sausage.

2. Place ground pork in a bowl large enough to allow for mixing. Pour kombucha over pork and sprinkle with spice mix. Add minced garlic, salt, and cayenne if using. With very clean hands, mix together until spices are evenly distributed throughout the ground meat. Place meat mixture in a resealable plastic bag or a glass bowl with a tight lid and refrigerate overnight or up to 48 hours.
3. Use in any recipe calling for bulk Italian sausage. Be sure to cook sausage to an internal temperature of 160°F.

## Kombucha Marinated Pork Cutlets



### Ingredients

- 4 to 6 boneless thin center-cut pork chops
- 1 cup kombucha
- 1 clove garlic, minced
- 1 teaspoon dried tarragon, optional
- 1/2 teaspoon sea salt
- 1 egg, beaten
- 1 to 1-1/2 cups almond flour (from soaked and dried almonds, preferably)
- 1/4 cup lard or ghee
- 1 cup crème fraîche or sour cream
- 2 tablespoons Dijon-style mustard
- Fresh chopped parsley for garnish

### Instructions

1. Combine garlic and kombucha. Lay pork chops in a single layer in a 9x13-inch covered baking dish. Pour kombucha over chops, turning them to make sure all surfaces are covered. Refrigerate at least 4 hours up to 24 hours. Remove from marinade and pat dry.



2. In a shallow container, beat egg. Place almond flour into a second shallow container. Put ghee or lard into a large skillet and turn heat on low.
3. While fat is melting place pork chops, one at a time, into a plastic bag or between two pieces of parchment paper. With a meat mallet, pound chops into 1/4-inch thick cutlets. Dip into egg, then coat with almond flour. Increase heat under skillet.
4. Place cutlets in the hot fat and brown on each side, about 3 to 4 minutes per side. Remove to a platter. Pour crème fraîche or sour cream into skillet. Whisk in mustard. Stir to incorporate all of the browned bits. Heat sauce just until hot and pour over pork cutlets. Garnish with chopped parsley if desired. Makes 4 generous servings.

## Drinks

### Any Fruit Juice Fizzy Kombucha



Flavoring kombucha is a fun way to keep your family excited about the latest flavor that is rolling out of your kitchen. One of the easiest ways to make flavored fruity kombucha that is full of fun carbonation is to use fruit juice.

You can use any juice – store-bought or fresh squeezed – which leaves the possibilities endless. A few ideas are:

- Grape juice
- Apple juice
- Strawberry or other berry juice
- Pineapple juice
- Orange juice
- Vegetable juices

If you choose to use vegetable juices and you desire carbonation you will need to either mix the vegetable juice with a fruit juice, or add 1/2 teaspoon of sugar to your bottle along with the vegetable juice. Carbonation can only be created if there is sugar present for the second fermentation.

Likewise, you will want to avoid any store-bought juices that are “light” or are sweetened with any artificial sweeteners that are not true sugar.

### **Ingredients**

- 2 to 3 tablespoons fruit juice
- Enough freshly brewed kombucha to fill your pint-sized container

### **Instructions**

1. Add the fruit juice to your pint-sized vessel. Fill the rest of the bottle with freshly brewed kombucha, leaving about 1/2 inch of headspace.
2. Cap tightly and leave in a warm place to culture 3 to 7 days, depending on the temperature. Once kombucha is carbonated to your liking, transfer to the refrigerator for storage.
3. Serve cold, over ice if desired.

## Apple-Cinnamon Kombucha



Reminiscent of a sparkling apple cider, this apple-cinnamon kombucha will be your new favorite fall beverage. Tangy, slightly sweet, spicy, and bubbly; this flavored kombucha is made with fresh apples or apple juice and small chips of the cinnamon stick.

### Ingredients

- 1/4 medium (sweet) apple, diced small or 3 tablespoons apple juice
- 1/2 teaspoon cinnamon chips (purchased, or from a broken cinnamon stick)
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the apple or juice and cinnamon chips to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to the refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle. Pour through a strainer into a glass to remove apple chunks and cinnamon chips.

## Chocolate-Raspberry Kombucha



It is an unlikely combination – kombucha and chocolate – but its uniqueness is what makes it so delicious. Chocolate and raspberry, on the other hand, are a great combination and make this work delightfully. The sugar in the jam creates a great carbonated beverage full of raspberry flavor with a hint of chocolate.

### Ingredients

- 1/2 teaspoon cocoa powder
- 1 tablespoon raspberry jam
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the cocoa powder and raspberry jam to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and shake gently to dissolve cocoa powder and jam. Allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to the refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle.

## Clean Green Kombucha



It's common knowledge that leafy green vegetables should be a big part of our diet. Making that work on a daily basis isn't always easy, though. To help us bridge the gap there are green powders that contain a mixture of dried green leafy vegetables, sea grasses, and other healthful ingredients.

These greens powders, also known as greens drinks, can be used in smoothies, mixed with juice, and thrown down the hatch as best as you can, or mixed with some cleansing lemon juice to create a bright, healthful carbonated drink.

### Ingredients

- 2 teaspoons greens powder
- Juice of 1/2 lemon (1 to 2 tablespoons)
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the greens powder and lemon juice to your pint-sized vessel.
2. Fill with kombucha, leaving about 1/2 inch of head space.
3. Cap tightly and shake vigorously to dissolve greens powder. Allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to the refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle.



## Elderberry Kombucha



Elderberries are delicious. Used dry, as in this recipe, they impart a rich, jammy flavor to bubbly kombucha. The sugar in this recipe is used to impart some extra carbonation to the end result, but you may omit it or switch it out for honey or maple syrup.

### Ingredients

- 4 teaspoons dried elderberries
- 1/2 teaspoon sugar, optional
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the elderberries and sugar to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and shake gently to dissolve sugar. Allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle. Strain kombucha through a small strainer in order to remove elderberries. Serve cold.



## Grapefruit Kombucha



This kombucha is reminiscent of a grapefruit-flavored soda pop. However, it boasts a low sugar content and a delightful citrus tang, as well as kombucha's probiotics and enzymes. Like all flavored kombucha, this beverage is made through a second fermentation. Be sure to use freshly brewed kombucha in this recipe and cap the lid tight to create a refreshing carbonated beverage.

### Ingredients

- Juice of 1/2 medium grapefruit or 2 grapefruit segments
- 1/2 teaspoon sugar
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the grapefruit juice or fruit and sugar to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and allow to culture 3 to 7 days or until kombucha is carbonated to your liking.

Move bottles to refrigerator for storage. When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle.

## Kombucha Coffee



### Ingredients

- 2 quarts freshly brewed plain coffee
- 1/2 cup sugar
- Kombucha scoby

### Instructions

In a glass or ceramic container, dissolve the sugar in the hot coffee and allow the mixture to cool to room temperature. Be sure the coffee is free of leftover coffee grounds. Add the kombucha scoby and cover the jar with a tight-weave tea towel, paper coffee filter, etc. secured with a tight rubber band. This covering will allow the gas created during fermentation to escape while keeping bugs out. Allow the jar to sit undisturbed at room temperature out of direct sunlight for at least 7 days. After 7 days, start tasting the kombucha daily using a straw. Halt the process when the kombucha coffee tastes pleasant to you.

### Additional Considerations When Making Kombucha Coffee:

- Coffee is very acidic therefore starter kombucha tea or vinegar is not required (unlike when kombucha is made with black, green, or herbal teas).

- Use a spare kombucha culture, and once a culture is used to make kombucha coffee, it should not be used to brew batches of kombucha tea.
- Because coffee contains oils, it is possible for rancidity to occur. Watch your batch closely and limit fermentation time to only what is necessary to achieve the desired taste. Never consume any kombucha that looks, tastes, or smells unpleasant.
- Coffee will generally stain the kombucha culture so you may see brown spots on the scoby.
- Some people claim kombucha coffee brews faster than kombucha tea while others claim it is slower. Be sure to taste your batch regularly so you can stop the fermentation process at the point you find the taste agreeable.
- Kombucha coffee should be served room temperature or cold. Do not heat the kombucha coffee as heating will destroy most of the beneficial yeasts and bacteria.
- Some people find that kombucha coffee is less acidic to drink than regular coffee.

## Kombucha “Mocktail”



### Ingredients

- One part kombucha tea
- One part pineapple juice
- One part coconut water

### Instructions

Mix thoroughly and serve over ice. If a true cocktail is desired, add gin or vodka prior to serving.

## Lemon-Ginger Zinger Kombucha



Lemon and ginger are, individually, two of the strongest flavors. This is why they are popular for making flavorful teas, salads, and other dishes.

Together they are incredibly complementary, imparting a bright spiciness that works so well with the tangy kombucha.

The added sugar in this recipe gives the kombucha something to feast on in order to create the lovely carbonation, but if you are concerned about it you can simply omit it or use honey or maple syrup in its place.

### Ingredients

- 1 teaspoon roughly chopped ginger
- Juice of 1/2 lemon (1 to 2 tablespoons)
- 1/2 teaspoon sugar
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the ginger, lemon juice, and sugar to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.

3. Cap tightly and shake gently to dissolve sugar. Allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to refrigerator for storage.
5. When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle.

Strain kombucha through a small strainer in order to remove ginger pieces. Serve cold.



## Pumpkin Spice Kombucha



The warming flavors of cinnamon, cloves, and ginger are what we all love about pumpkin pie spice. Unfortunately you can't make kombucha from these spices on the first fermentation. The oils naturally present in the spices can go rancid during the fermentation process and taint the scoby, so they are best to be avoided.

Luckily those spices are fine to use during a second, shorter fermentation. This recipe combines a common spice blend — pumpkin pie spice — with a bit of extra kick from fresh ginger to create a spicy fall pumpkin flavor.

The sugar in this recipe is used to give the kombucha some fuel to create the carbonation desirable with a second fermentation. Because there is no fruit or juice in this recipe the sugar is necessary. You may switch it out for maple syrup or honey if desired.

### Ingredients

- 1/4 teaspoon pumpkin pie spice
- 1/4 teaspoon fresh ginger
- 1 teaspoon sugar
- Enough kombucha to fill a 16-ounce vessel.

### Instructions

1. Add the spices, ginger, and sugar to your pint-size vessel.



2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and shake gently to dissolve sugar and spices. Allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle. Strain kombucha through a small strainer in order to remove ginger and any clumps of spice. Serve cold.

## Strawberry Kombucha



Strawberries, fresh and sweet, lend a light fruitiness to kombucha. Strawberry-flavored kombucha is available commercially and is usually made with a strawberry puree of some sort. This strawberry kombucha, on the other hand, is made with a handful of fresh, plump berries.

You could use any berry here, actually.

This simple approach is one you can maintain with fruit from your own backyard or your local farm. You'll notice that much of the color leaves the berries after a few days of the second fermentation. This is a natural process of much of the phytochemicals leaving the strawberries and finding their way into the already healthful kombucha.

Depending on the sweetness of your berries, you can omit the additional sugar. It simply helps to create more carbonation.

### Ingredients

- 4 to 6 medium strawberries, depending on size
- 1/2 teaspoon sugar, maple syrup, or honey, optional
- Enough kombucha to fill a 16-ounce vessel.

### **Instructions**

1. Add the strawberries to your pint-size vessel.
2. Fill with kombucha, leaving about 1/2 inch of headspace, depending on the shape of the container.
3. Cap tightly and allow to culture 3 to 7 days or until kombucha is carbonated to your liking.
4. Move bottles to refrigerator for storage.

When you are ready to drink it, open carefully, without shaking, to avoid spilling the bubbly kombucha over the top of the bottle. You can strain the strawberries out when you serve it or just enjoy them with the kombucha.