

# Brewing Kombucha

- What is Kombucha (pronounced “kom-BOO-cha”)?
  - In basic terms, Kombucha is fermented sweet tea.
  - Often called “mushroom tea,” it is a fermented beverage made from black or green tea, sugar and a fungus culture. It’s been used as a health tonic for centuries in China, Japan and Russia.
  - Kombucha is said to be loaded with probiotics, antioxidants and a broad spectrum of B-vitamins.
  - Kombucha consists of 5 main ingredients: water, tea, sugar, a scoby and starter liquid.
- How is it fermented?
  - Kombucha is fermented with a SCOBY – Symbiotic Colony (or Culture or Community) Of Bacteria and Yeast
  - A SCOBY is also called the “Mother” or mushroom.
  - There is Primary fermentation and Secondary fermentation.
  - The alcohol content of the kombucha is usually less than 1%, but increases with fermentation time.

# First Step – How Do You Get a SCOBY?

- Get one from someone. SCOBY's constantly grow “babies” with every batch and can be shared. Make sure to get enough starter liquid with your SCOBY for your first batch size.
- Buy one online. There are many sites you can buy a SCOBY from.
  - [www.kombuchakamp.com](http://www.kombuchakamp.com)
  - [www.culturesforhealth.com](http://www.culturesforhealth.com)
- Grow one from a bottle of kombucha.
  - Instructions are easy to find on the internet or Pinterest. There are instructions on the Cultures for Health website.



# Second Step – Choosing Your Tea

- Choosing the right tea is very important and affects the flavor of your kombucha and could affect the health of your SCOBY. The SCOBY, grows in and on tea leaves. It's a specialized group of yeasts and bacteria that evolved to feed on *Camellia sinensis* leaves, and therefore will grow best when that type of tea is used. The tea leaves provide the essential nutrients that the SCOBY needs to grow and stay healthy, like nitrogen, theanine, and caffeine.
- There are many varieties and sub varieties of tea. However, we can broadly divide tea into the following: White, Yellow, Green, Oolong, Black/Red, Post-Fermented, Riboos Tea, Herbal Teas
- All tea comes from the basic tea plant, the Camellia Sinensis plant. The differences between the tea types come from the processing, the different growing conditions, and of course, the geography. There are over 3000 varieties of tea out there, so you have a LOT of choices.
- Loose leaf vs tea bag. You'll have more flexibility with loose-leaf tea, and since you can buy it in just the quantity you need, it will be fresher than tea in bags. Without a doubt, Loose Leaf is a much higher quality sort of tea and delivers a better taste. As such it is recommend it over tea bags every time.

# Second Step – Choosing Your Tea

- You can use ANY basic tea for making Kombucha and depending on your choice, you will get a slightly different tasting brew. The most common tea used for Kombucha is BLACK tea. However, Green tea or Oolong tea works just as well, though giving of a more earthy flavor. A popular combo is to mix both green and black tea together.
- For a pretty comprehensive guide on tea for kombucha brewing go to <http://kombuchahome.com/what-is-the-best-tea-for-brewing-kombucha>
- Teas to avoid: Flavored teas, medicinal herb teas, highly smokey or other strongly flavored teas, decaffeinated teas or any teas that have oils in them (like Earl Grey or Peppermint).
- Although it's not recommended to use smoked teas, flavored teas, or herb teas in the initial brewing process (primary fermentation), you can easily experiment with them after you remove the SCOBY and move on to secondary fermentation.

# Third Step. Choosing your sugar.

<b>Sugar</b>	<b>Description</b>	<b>Results</b>
White cane sugar	Pure white, free of minerals	Good choice for brewing kombucha
Organic Cane Juice Crystals	Unbleached white sugar; very low mineral content	CFH best choice for brewing kombucha.
Brown, raw, or whole cane sugars	Sugar that is less refined and contains molasses	Hard on the kombucha scoby. Produces a yeasty kombucha and may shorten the scoby's life. Not recommended.
Honey	Natural sugar from bees; may be raw or pasteurized	Results may be inconsistent; If used, always have a back-up SCOBY available.
Agave, Maple, coconut, palm sugars or syrups	Sugar extracted from various plants or trees	Results may be inconsistent and hard on the scoby. Not recommended.
Stevia, xylitol, or Artificial Sweeteners	Sugar substitutes	Do not contain nutrients or proper food for the kombucha scoby. Not recommended.

# Fourth Step – Choosing Your Brewing Vessel

- **Material Options: What to Use**

- **Glass.** Glass is the best option for brewing kombucha. Not only will it not react to the acidity of the brew, it doesn't scratch easily or contain chemicals such as BPA. Glass containers are also easy and inexpensive to obtain. Canning jars and storage jars in quart, half-gallon, and gallon sizes work well. For continuous brews a larger glass jar with spigot is a good choice.
- **Ceramic.** If you would like to culture kombucha in a ceramic container, check to make sure the glaze is food-grade to prevent potential contact with lead.
- **Porcelain.** Porcelain is generally safe for brewing kombucha, as long as it is food-grade. Avoid porcelain pieces such as vases or decorative pottery that are not food-grade.



# Fourth Step – Choosing Your Brewing Vessel

- **Material Options: What to Avoid**
  - **Plastic.** We do not recommend using plastic containers for brewing kombucha. Plastic is easily damaged, and scratches in the plastic can harbor foreign bacteria. Plastic, even food-grade, may contain undesirable chemicals that can be harmful to the kombucha SCOBY.
  - **Crystal.** Because crystal contains lead we do not advise using crystal to brew kombucha.
  - **Metal.** Metal is generally detrimental to kombucha. The only possible exception is stainless steel. Because it is relatively inert, some brewers feel it is a reasonable alternative to glass.
- **NOTE:** If you buy a glass vessel with a spigot, most of the time this is plastic. You can easily replace with a stainless steel spigot. I bought mine on Amazon.

# Brewing Kombucha - Water

- Information about water.
  - Kombucha cultures best when you use water that is as free from contaminants as possible
  - Basic, inexpensive spring water is fine to use, but a water that claims to be "mineral water" or has a high mineral content should be avoided if possible.
  - It is recommend to use filtered water to remove as many additives, chemicals, and contaminants as possible.
  - If filtering is not possible, at the very least, aerating or boiling the water for 20 minutes may remove the chlorine. Letting the water stand for 24 hours will also allow chlorine to evaporate.
  - Water that is structured, alkalized, or pH-adjusted is **not appropriate for making kombucha.**



# Basic Steps of Brewing Kombucha

- For a Gallon Batch:
  - 2 tablespoons loose tea **OR** 8 tea bags
  - 1 cup sugar
  - 13-14 cups water
  - 2 cups starter tea or vinegar
- Combine hot water and sugar in a glass jar. Stir until the sugar dissolves. *The water should be hot enough to steep the tea but does not have to be boiling.*
- Place the tea or tea bags in the sugar water to steep.
- Cool the mixture to 68-85°F. The tea may be left in the liquid as it cools or removed after the first 10-15 minutes. The longer the tea is left in the liquid, the stronger the tea will be.
- Remove the tea bags or completely strain the loose tea leaves from the liquid.

**NOTE:** Using a metal tea ball to contain loose tea for making kombucha is acceptable. The tea ball should be removed before adding the SCOBY and starter tea, so the tea ball will not come into contact with the SCOBY.

# Basic Steps of Brewing Kombucha

- Add starter tea from a previous batch to the liquid. *If you do not have starter tea, distilled white vinegar may be substituted.*
- Add an active kombucha SCOBY (if you buy online, some SCOBY's will come dehydrated and you will need to activate before using).
- Cover the jar with a tight-weave towel or coffee filter and secure with a rubber band.
- Allow the mixture to sit undisturbed at 68-78°F, out of direct sunlight, for 7-30 days, or to taste. *The longer the kombucha ferments, the less sweet and more vinegary it will taste.*
- Pour kombucha off the top of the jar for consuming. Retain the SCOBY and enough liquid from the bottom of the jar to use as starter tea for the next batch.
- The finished kombucha can be flavored and bottled, if desired, or enjoyed plain.

# Primary Fermentation

- Kombucha brews best between 68-78 degrees Fahrenheit.
- Brewing it on the warmer end of this range will speed up the culturing. It is possible to brew kombucha even up to 85°F. A warmer brewing temperature will result in a stronger tasting kombucha.
- When adjusting culturing temperatures, be sure to check the kombucha frequently with a thermometer. If it gets too warm, the scoby can be damaged. A damaged or weakened scoby may result in spoilage or mold on future batches.
- Kombucha tea has a rich, earthy flavor, which can vary greatly depending on the length of time it ferments, 7-30 days. At around 5 days, start tasting the kombucha. For a milder, sweeter flavor, primary for a shorter time. For a bolder, more vinegary flavor, primary for a longer time.

# Secondary Fermentation

- Once the kombucha is where you like it for tartness/sweetness, you can draw off 75% of the kombucha (you need to leave 25% starter for the next batch).
- At this point you can drink the kombucha plain, or secondary it with added flavors. You can add fresh/frozen fruit, spices, flavored teas, etc. If you want to drink it plain, you may still want to secondary to carbonate it.
- You can find tons of flavor combinations online or on Pinterest.
- In secondary, you want to use air tight bottles to allow the kombucha to carbonate. If you are not using something that has sugar in it (like fruit), it is recommended to add a little sugar to your bottles so the yeast has something to feed on and will create the Co2.
- REMEMBER TO BURP YOUR BOTTLES! Co2 will build up and can cause an explosion (ask us about it – it has happened).
- Favorite combinations we use are strawberry ginger, peach jalapeno, dragonfruit, orange cranberry, ginger pear, coconut lime mint, candy cane, beet, oak infused



# Different Kinds of SCOBY

- Vintage or Heirloom
  - Any SCOBY that is not grown from a bottle.
- Tibetan
  - Said to have originated in Tibet and is traditionally used with Pu-erh tea. Produces mild tasting kombucha and least likely to turn vinegar which allows for longer ferment time.
- Island Girl
  - Most often used with Oolong tea and is described as smooth and well-balanced. Slowest of all strains so ferment times are longer.

# What is a SCOBY Hotel?

- Every time you brew a new batch of kombucha the SCOBY spawns a new colony (or baby) on top of the liquid and since your mother SCOBY is most likely floating on top, the new colony will settle on top of the older SCOBY and create a new layer.
- You need to keep backups in case something happens to your main SCOBY (it gets contaminated or maybe you want to experiment with different teas, sugars, coffee, etc).
- As your SCOBY grows, you can peel off layers and put them in a separate jar with half starter liquid and half fresh sweet tea. Cover as normal with a breathable cover and feed them fresh sweet tea every 1 or 2 months to keep them viable. There should be twice as much liquid in the jar as the SCOBY mass.
- Keep in a cool, dark place with good airflow but out of the way of possible contaminants (like tobacco smoke, excess dust, mold, etc).
- If something happens to your main SCOBY, you can pull one from your SCOBY hotel. It is also great to have extras to share with friends.

# Batch Brewing vs. Continuous Brewing

- Continuous Brew is done in a glass or ceramic container with a spigot at the base so you can draw off finished kombucha from the bottom, and pour fresh tea to feed the SCOBY into the top. The containers are 1 to 5 gallons in size, and the SCOBY lives undisturbed in the brewing vessel for months at a time.
  - The main advantage with a continuous brew container is how simple and quick it is to pour off the finished kombucha straight from the brew container.
  - You draw off a certain amount and immediately replace with the same amount of fresh tea.
  - Downside is every few months you have to completely empty and clean it out to trim your SCOBY down. Also, occasionally the spigot gets clogged with small bits of SCOBY and that also means a complete empty and clean.
  - With continuous brew, the kombucha tends to ferment faster, because you start out with a larger amount of starter tea, and the window of time in which the kombucha is 'just right' and ready for bottling is smaller. If you miss bottling day because you're busy, your kombucha may be over-ripe, too vinegar-y and you may have to dump that week's brew and start over.
- Batch Brewing is usually done in large glass jars or bowl and each time you make a new batch, you transfer the SCOBY and some starter liquid to a fresh, clean jar. The jars are usually 1/2 to 3 gallons, and the SCOBY is handled every week to 10 days.
  - What some people don't like about the batch brew method is that they have to handle the SCOBY every time they make a batch.
  - You draw off 75% and leave 25% to start the next batch.
  - With batch brewing, the kombucha matures more slowly, giving you a wider window in which to bottle. In other words, if you miss bottling day by a day, or two, or even three days –the kombucha will still be good, patiently waiting for you to get around to it.

# Kombucha vs. Jun

- Kombucha is fermented tea and sugar
- Jun (pronounced like the month June) is fermented GREEN TEA and HONEY
- While you can use different teas with kombucha, Jun is always green tea
- Jun is known as the “champagne of kombucha” due to the fact it is less tart and vinegary and more delicate.
- Jun also ferments faster and at lower temperatures than kombucha.
- The SCOBY used for Jun has different bacteria and yeasts than kombucha and they cannot be used interchangeably.



# References

- References
  - <http://kombuchahome.com>
  - <https://en.wikipedia.org/wiki/Kombucha>
  - <http://www.culturesforhealth.com/>