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What's the Word on Homemade Kombucha?

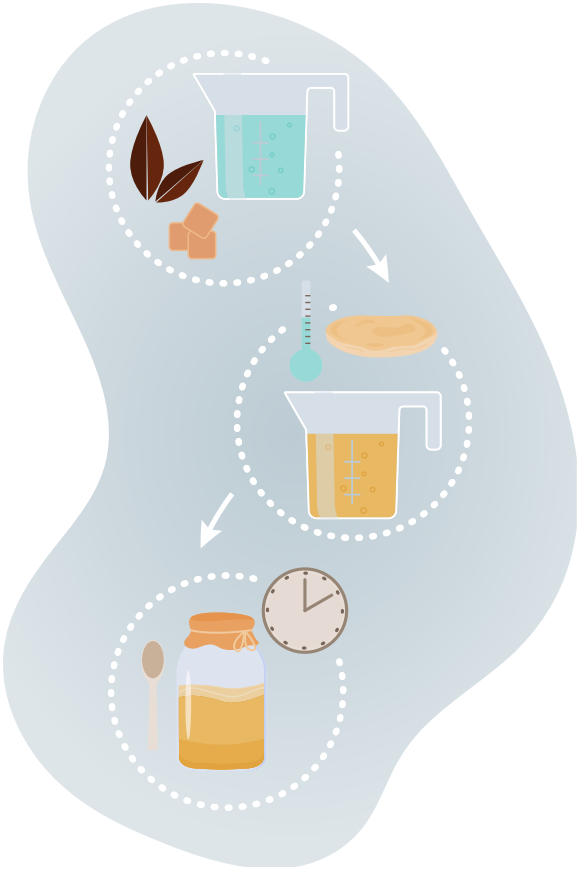
Authors: Sitara Cullinan, Mallika Mahida, Kris Ingmundson, Dulce M. Minaya, Rebecca Hardeman, Jessica Moore, Carla L. Schwan

Kombucha 101

Kombucha is a beverage created through the fermentation of sweetened tea, typically of the black or green variety, which results in a modestly effervescent, sweet, and tangy beverage. Many sources trace kombucha's roots back to what is now northeastern China around 220 B.C., and the drink appears to have been well-regarded by people in many regions of the world since then for its purported health benefits.

Indeed, this is what has driven kombucha's continued surge in popularity among consumers in the West. Though not all of the wellness claims people make about kombucha are backed by robust scientific evidence, some findings indicate that certain characteristics of the beverage, such as its diverse profile of probiotics and phytochemicals, potentially provide some modest benefits to human health. Research on kombucha and its plausible wellness properties is actively ongoing, and we will likely continue to learn much more about this beverage from food, culinary, and nutrition scientists in the coming years.

What we do know is that the key to the creation of this popular beverage is the range of biochemical activities of a particular collective of microorganisms, which work together to transform the sweetened tea into kombucha by sequentially metabolizing certain components of the brew. These microorganisms make up the SCOBY, which stands for symbiotic culture of bacteria and yeasts. The major players in the SCOBY are certain yeasts, acetic acid bacteria, and lactic acid bacteria.



When the fermentation process first begins, the sugar content is relatively high, and the yeasts in the SCOBY use that sugar to form ethanol. The ethanol is then metabolized by acetic acid bacteria in the presence of oxygen to produce acetic acid, which alongside growing concentrations of other acids—such as gluconic and glucuronic acids—makes the beverage progressively more acidic as it is fermented. The resulting acidic environment of fully brewed kombucha is one of the characteristics that help prevent harmful bacterial growth. There is other scholarly research that more fully describes what roles the other good microorganisms in the brew serve.

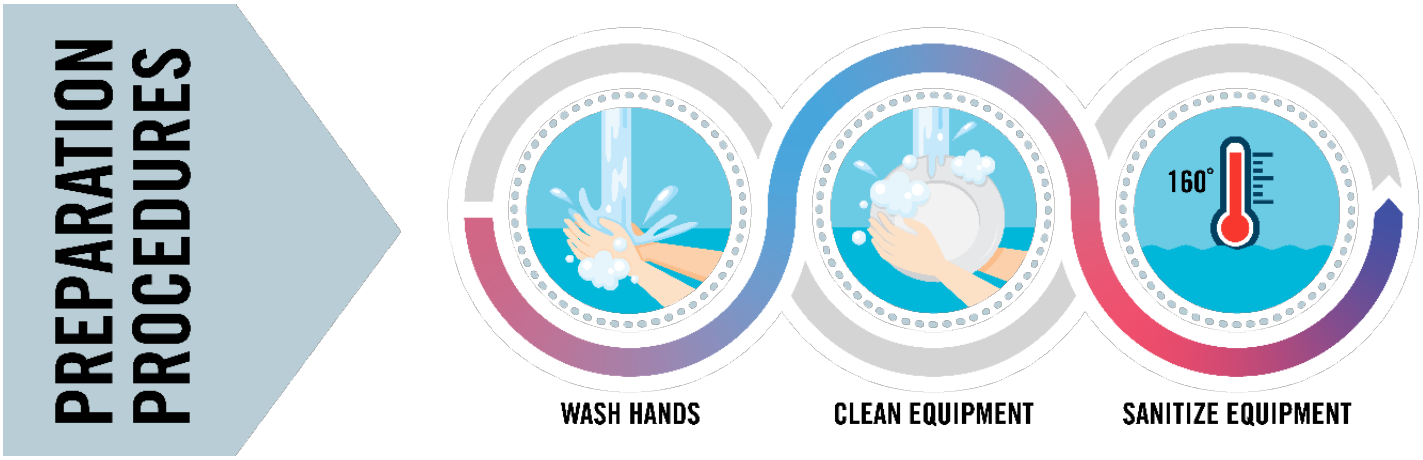
Though the biochemistry that transforms sweetened tea into kombucha is complex, the beverage is relatively simple to make, and there are many consumer home brew recipes available online. However, there are important food safety considerations that consumers should be mindful of when making kombucha so that their end product is both tasty and safe. Start by using a validated and tested recipe!

Safe Kombucha Brewing

Before starting any project, ensure that the equipment you intend to use is safe for the task. When brewing kombucha, for example, it is important to keep in mind that the beverage becomes quite acidic as it ferments. Because of this, it is crucial not to use fermentation or storage containers made of materials like glazed earthenware, which can leach heavy metals once exposed to such an acidic environment.

Before preparing anything in your kitchen, it is important to wash your hands for a minimum of 20 seconds with soap and warm water. Regularly washing your hands in this same fashion while handling foods and beverages in the kitchen, and again before consuming them, is important for preventing contamination of the food with germs that can make you and your loved ones sick.

Properly cleaning and sanitizing all preparation equipment and other food-contact surfaces in the kitchen also goes a long way to keeping you safe. To clean equipment, wash with warm water and dish soap, and to sanitize equipment, submerge your cleaned equipment in hot water—the reading on your thermometer should be at least 160 °F—keeping your equipment submerged for a minimum of 30 seconds. Always ensure that you meet any temperatures noted in a recipe to ensure that the food or beverage is being handled safely.



Molds can grow on the kombucha and/or the SCOBY if improperly handled. Practicing food safety while making the recipe can reduce the chance of contamination, but mold growth can still occur in certain situations—such as if the kombucha fails to be acidic enough to dissuade mold growth. If you see dry, fuzzy patches on your SCOBY and/or the liquid surface of the kombucha that are either white or colored, this is an indicator that the brew is spoiled. The tea and SCOBY should both be discarded, after which it is important to fully clean and sanitize the container that was housing them with the methods described above.

An important driver of kombucha's ability to dissuade harmful bacterial growth during its normal shelf life is its acidity. Certain bacteria in the SCOBY are primarily responsible for producing the acidic compounds that lend to kombucha's tangy flavor and acidic profile. However, it is important to not allow your kombucha to become too acidic as that also may cause safety concerns.

Kombucha teas typically contain negligible alcohol content. However, certain circumstances can cause alcohol levels in the beverage to exceed the 0.5% alcohol-by-volume limit for nonalcoholic beverages set by the Alcohol and Tobacco Tax and Trade Bureau (TTB). Home brewers may wish to consider TTB regulations, as well as state and local regulations regarding the taxation of products generated for personal use. Additionally, individuals who are advised to abstain from alcohol should consider the potential alcohol content of the beverage when deciding if it is safe for them to consume.

Current evidence suggests that consuming up to 4 fluid ounces of kombucha per day is considered safe for most healthy individuals. However, consumption by an individual with certain preexisting health conditions, such as a susceptibility to acidosis, a weakened immune system, or by pregnant and/or lactating individuals is not advised as potential health risks are unknown.

Happy brewing!

YOU SHOULD AVOID KOMBUCHA CONSUMPTION IF...

> you are susceptible to acidosis
> have a weakened immune system
> are pregnant or lactating

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