

Local Food Initiative **FERMENTED BEVERAGES- Kombucha**

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What are fermented beverages?

Fermentation is the transformation of food and beverages by various bacteria, fungi and the enzymes they produce. It is a natural process that people observed long ago and learned how to take advantage of. For thousands of years, people have used fermentation to preserve food and make it more digestible, nutritious and delicious. There are many forms of fermented foods and beverages including dairy, grains, condiments, meats, seafood, chocolate, vegetables, fruit, beans/soy, wine, beer, cider, other beverages. It's estimated that about one third of the food eaten around the world is fermented; reduced now due to modern refrigeration.

Fermented beverages range from sour tonic beverages including Kombucha and Water Kefir; to fermented milk products like Dairy and Coconut Kefir to alcohol (alcoholic ones are not part of this class). They are tasty, acidic/sweet combination and are teeming with live lactic acid and other bacterial cultures. They are considered healthful tonics.

Most of these beverages require a starter culture of some sort. SCOBYs (Symbiotic Culture or Community Of Bacteria and Yeast) are communities of bacteria and fungi that have evolved into distinctive physical forms able to be handled and used from batch to batch. They contain about 30 types of microbes, coordinate reproduction and share a skin.

SCOBYs require regular care and feeding. As these cultures reproduce, they can be shared with your friends. Kombucha SCOBY cannot be dried or frozen, but if you start a batch for a couple of days and then put it in the fridge, they will live for months on that liquid. Brief contact of SCOBY or the beverages with metal is fine but prolonged contact may cause corrosion so use glass jars for storage.

Fermented beverages can be made even more delicious when carbonated naturally. Transfer the active ferment to a sealed bottle that can hold some pressure. Add fruit or fruit juice/syrup or sugar can be added. The carbonation happens quickly, within a few hours to a day. Remember that a vigorously

active ferment trapped in a bottle has the potential to explode so take some care to use sturdy glass containers and you might want to cover them with a towel.

All these beverages have the potential to be slightly alcoholic, especially if brewed anaerobically (without oxygen) in a sealed jar. If you wish to minimize the alcohol content at under .5% which is safe for children or those avoiding alcohol, ferment them in a non-sealed glass container for as short a time as possible. Beverages brewed in a closed container or with secondary fermentation can contain up to about 3% alcohol.

What are the Health Benefits of Fermented Beverages?

- Science is suggesting that 90% of all human known illness can be traced back to an unhealthy gut. The bacteria you ingest through fermented beverages and foods are probiotic in nature. Probiotics have all sorts of complex interactions with the microbiome in the gut provoking improved gut health and overall immunity. Prebiotics are soluble plant fibers that feed microbiota and are also an important part of gut health.
- A healthy gut has a vital role in immune system function, detoxification, preventing inflammation, production of neurotransmitters and vitamins, absorption of nutrients, signaling of being hungry or full, and utilization of carbohydrates and fat.
- Lactic acid produced through fermentation doesn't bring about the over-acidifying action of other acids in the body. Fermented beverages are fine to drink when you are trying to alkalize your body. Although fermented products are acidic in nature, they have an alkalizing effect on the body because they make minerals more accessible to the body, and minerals are alkalizing. In Candida overgrowth, lactic acid bacteria in fermented beverages and foods can help restore the harmful bacteria to a more benign role.
- Fermented food and drinks stimulate gastric juices and are highly digestible, making them a great appetizer. They are some of the best chelators available, capable of drawing out a wide range of toxins and heavy metals.

- They reduce high cholesterol levels and balance stomach acidity up or down as needed.
- Fermented food and drinks contain acetylcholine which has a powerful effect on the parasympathetic nervous system that helps to decrease blood pressure, slow down the heart rate, promotes calmness and sleep and improve the pumping (peristaltic) activity of the intestines -so they are recommended for constipation.

Kombucha Tea (pronounced Com-boo-shuh) –a healthy soft drink from the Ural Mountains in Russia. Don't get too hung up on amounts–fermenting isn't an exacting science; it's more of an art!

The Kombucha SCOBY eats the sugar and tea and produces acetic acid and lactic acid and small amounts of a potent detoxifying substance, glucuronic acid. This compound helps eliminate the glucuronic acid conjugates produced by the liver and is said to makes the liver more efficient. Kombucha is said to be a powerful aid to the body's natural cleansing process, a boost to the immune system and a proven prophylactic against cancer and other degenerative diseases.

For a 12 cup glass container (check in thrift stores for big jars or vessels –Le Marche was giving away olive jars).

- **12 cups of tea (see below)**
- **3/4 cup of white sugar (not brown sugar or honey!) or up to 1/2 cup of sugar per 4 cups/quart/liter (**
- **Kombucha 'SCOBY' and about 1/2-1 cup of kombucha from a previous batch**

Use organic tea –black, green, or white. The **oil of bergamot in Earl Grey may kill the SCOBY**. Rooibos tea also works (Rooibos ginger and chai are tasty) but **herbal teas don't work**. Caffeine stimulates the bacteria and you may need to use caffeinated tea from time to time or add some black tea to the Rooibos to keep the SCOBY happy. Kombucha made with black tea contains about 5 mg of caffeine per serving (around what's in decaffeinated coffee) and most people don't have problems with that amount of caffeine.

Brew the tea as usual but make it fairly strong. For 12 cups I use **about 4 tsp of loose tea or 4 tea bags**. When the tea has cooled, strain out the loose

leaves or remove the bags. Dissolve the sugar in the tea then add the tea to your large glass container and fill it to close to the top. Ensure that the mix is room temperature (**if it's too warm, you'll kill your SCOBY** friend). Place the kombucha SCOBY in the jar and cover the container with a cloth or paper coffee filter to keep out bugs.

Leave **the brew in a warm place** (22-28 degrees Celsius if possible (on top of my hot water tank is my fermenting place) **away from direct sun** and insects for 7-10 days. The SCOBY will form into the shape of the container it is in and will usually float on the top or sometimes in the middle. If it sinks to the bottom, the SCOBY may be no longer viable. When the brew tastes right for you –it should be rather sour and a bit fizzy, take your SCOBY out and store it in the fridge in a covered glass container **with some of the tea to cover** or use it right away to start a new batch. When it grows a second spongy pancake, you can split that off and give it to a friend or use it to start other batches. Any little pieces of the SCOBY (you can cut pieces off) will work as a starter. Run the tea through a strainer into glass jars with well sealing lids and **store in the fridge**. It will keep for months but doesn't tend to as someone will drink it!

To make a fizzy drink, you can do a secondary fermentation. Add a bit of fruit juice, fruit syrup or pieces of fruit to a quart of Kombucha (SCOBY has been removed), put it in a well-sealed jar in a warm place for 24-48 hours and then put in the fridge.

Potential Problems and Solutions with Fermenting Beverages:

- Fermentation not starting –probably too cool. Put on or near a warm appliance like freezer or fridge or higher up in a room where air is warmer, near a heat source, in a warm water bath, with a heating pad or seed starting pad on warm.
- Dark slime on Kombucha SCOBY –this is completely normal. You can wash it off if you like but it's not a problem.
- Taste is too strong –ferment for less time. A stronger ferment may have more health benefits but make what you enjoy.

- Kombucha SCOBY sinks to the bottom or is not working –the SCOBY may no longer be viable i.e. probably dead. Get a new one. Remember when you store your SCOBY for more than a few weeks to put it in some sugar water in the fridge so it doesn't starve (it will slow down with refrigeration but is not dormant) and always store it in some kombucha from the last batch. Also remember that Kombucha is happier with a bit of caffeine in the tea so use black or green tea, even if you alternate with Rooibos. The finished product is low in caffeine regardless.
- Secondary ferment not getting bubbly –make sure the container is a sealed one and that it is warm enough or add a bit more sugar and let it ferment for a bit longer.

References:

- “The Art of Fermentation” by Sandor Ellix Katz
- “Nourishing Traditions” by Sally Fallon
- Dom’s Kefir Site -everything you could ever possibly want to know about kefir
- “Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life” Dr. David Perlmutter
- “Gut: The Inside Story of Our Bodies Most Underrated Organ” Giulia Enders
- “Eating on the Wild Side” Jo Robinson (about what veggies and fruits have the most nutritional value)
- Cultures for Health website, lots of info and suggestions for flavourings

All notes adapted by Maria-Lynn Johnson from Solea Rico ‘s March 2016 Fermented Beverages workshop in Courtenay BC