THE CULTURED GURU
SCHOOL OF FERMENTATION

The Fermented Drinks Semester

Ginger Bugs & Wild Fermented Drinks

01 The Timeline & The Microbes

This topic takes us on a journey through the microbial processes that occur during primary and secondary fermentation of drinks made with a ginger bug.

02 How to Create a Ginger Bug

Learn through a step-by-step tutorial how to create a ginger bug starter culture to use in wild fermented drinks.

03 Primary & Secondary Fermentation

Learn through a step-by-step tutorial how to make deliciously flavored and carbonated drinks using a ginger bug.

04 Troubleshooting Intensive

This topic will help you troubleshoot any fermentation problems you may encounter.

05 How to Develop Your Own Recipes

Use this topic to learn how to develop your own creative ginger bugs and wild fermented drink recipes.

Topics

topic one

01 THE FERMENTATION TIMELINE & THE MICROBES

This topic takes us on a journey through the microbial processes that occur during primary and secondary fermentation of drinks made with a ginger bug.

FERMENTATION TIMELINE

Wild fermented drinks require a ginger bug starter culture along with a primary & secondary fermentation process.

01

GINGER BUG

We create a ginger bug by combining ginger, sugar, water, and a small amount of salt. Then we discard and feed the mixture fresh ginger, sugar, and water every 24 hours.
The ginger bug develops into a symbiotic colony of wild yeast and bacteria. This colony resembles a combination of what we find in kombucha and water kefir.

02

PRIMARY FERMENTATION

Primary fermentation begins when the yeast and bacteria from the ginger bug start metabolizing sugar into acids and small amounts of alcohol. Depending on the temperature, primary fermentation lasts about 3 days.
Most of the alcohol is metabolized into acids, making the alcohol content negligible.

03

SECONDARY FERMENTATION

Secondary fermentation is short and only takes 24 to 48 hours. The time depends on temperature.
During this process, yeasts and lactic acid bacteria metabolize remaining sugars into carbon dioxide, acids, and small amounts of alcohol.
The carbon dioxide builds in the pressurized bottle, resulting in a fizzy wild fermented drink.

NOTES

topic two

02

HOW TO MAKE A GINGER BUG

GINGER BUG RECIPE

This is a recipe to create and feed a ginger bug starter culture

INGREDIENTS

- 50 grams fresh ginger, grated
- 5 grams cane sugar
- 2 grams sea salt
- 50 mL filtered water

SUPPLIES

- 1 glass jar
- cloth covering
- scale
- rubber band

STEP ONE

Wash your glass jar well and gather all your ingredients.

STEP TWO

Place your kitchen scale on the counter. Turn it on and set it to weigh in grams. Place your clean glass jar on your kitchen scale and tare/zero the scale. This subtracts the weight of the jar, and the scale should read 0 with the jar on it.

STEP THREE

Weigh your ingredients: into your jar, add the ginger, sugar, water, and salt.

STEP FOUR

Mix well, cover with a cloth and a rubber band and allow to ferment for 24 hours. After 24 hours, feed your ginger bug.

STEP FIVE

To feed the ginger bug: Into a fresh jar, add 50 grams of the ginger bug, 25 grams freshly grated ginger, 3 grams of sugar, and 35 grams of water.

STEP SIX

Allow to ferment for 24 hours. Repeat step five to feed every 24 hours.

topic three

03 PRIMARY & SECONDARY FERMENTATION

PRIMARY FERMENTATION

Use this recipe to make 2 liters of mixture for primary fermentation

INGREDIENTS

- 100 grams ginger bug
- 300 grams strawberries
- 250 mL lemon juice
- 1.75 liters water
- 100 grams sugar

SUPPLIES

- Two 1-quart glass jars
- cloth covering
- scale
- rubber band
- large pot for boiling water
- colander

STEP ONE

Wash your fermentation equipment well. Gather all your ingredients.

STEP TWO

Place your kitchen scale on the counter. Turn it on and set it to weigh in grams. Place a bowl on your kitchen scale and tare/zero the scale. Taring the scale subtracts the weight of the bowl, and the scale should read 0 with the bowl on it.

STEP THREE

Weigh your ingredients: using your scale, measure out the called-for amounts of sugar and strawberries.

STEP FOUR

Add the sugar, strawberries, lemon juice, and water to the large pot and bring to a boil—cook for about 15 minutes. Remove the mixture from heat. Using a colander, strain off all of the strawberry fruit pieces.

STEP FIVE

Carefully pour the mixture into the two clean glass jars, cover with a cloth and a rubber band, and allow it to cool.

STEP SIX

Once cool, add 50 grams of the ginger bug to each jar. Allow fermenting for about 3 days.

SECONDARY FERMENTATION

This is a recipe for secondary fermentation and carbonation

INGREDIENTS

- The fermented mixture from primary fermentation

SUPPLIES

- Pressure safe glass bottles with swing top closure.
- funnel
- mesh strainer

STEP ONE

Wash your fermentation equipment (bottle, strainer, and funnel).

STEP TWO

Strain off all of the ginger pieces from the primary fermentation mixture.

STEP THREE

Place the funnel in the bottle's opening and pour the primary fermentation mixture into the bottle, leaving only about 1/2 to 1 inch of headspace.

STEP FOUR

Close and secure the lid, making sure to snap the metal closure closed.

STEP FIVE

Allow fermenting for 24-48 hours.

REMEMBER: if your house is warm, carefully check the carbonation level at 24 hours. If your house is cool, you may need to allow secondary fermentation to proceed for longer.

04

TROUBLESHOOTING INTENSIVE

Troubleshooting fermentation requires an understanding of what is normal and expected through primary and secondary fermentation. If you understand what is normal, you can notice when things are abnormal.

topic four

CHECKLIST OF SENSES

This is a checklist you can go through if you're ever wondering, "Is this safe?" after you've made wild fermented drinks.

HOW DOES IT SMELL?

Primary Fermentation: Mostly like the fruit used to make the primary fermentation mixture and ginger.
Secondary Fermentation: Sweet and sour, lightly vinegary, notes of ginger, and like the fruit/juice you used for flavoring.

DID YOU CHECK THE PH?

It's easy to verify fermentation safety with pH strips. Make sure the strips measure from 0-7 on the pH scale. The pH should be between 3.5 to 4 after secondary fermentation.

DID IT CARBONATE?

The main indication that secondary fermentation occurred correctly and safely is carbonation. Finished wild fermented drinks should be bubbly/effervescent and more acidic.

HOW DOES IT LOOK?

Primary Fermentation: The liquid color should lighten significantly and become cloudy in 24 hours. You may see ginger pieces float to the top and small bubbles on the surface.
Secondary Fermentation: You should not have any ginger for fruit pieces in the bottle.
You should see a lot of carbonation.

DID IT BECOME CLOUDY?

After primary fermentation, the liquid should be lighter in color and quite cloudy. This is an indication of microbial growth throughout the liquid.

HOW DOES IT TASTE?

Wild fermented drinks should taste lightly sour, slightly vinegary, fruity, gingery, and very effervescent/bubbly.

topic five

05

HOW TO DEVELOP YOUR OWN RECIPES

It's easy to develop your own wild fermented drink recipes. You won't change the process, but you can find variety by making different types of ginger bugs, using different types of sugar, different flavors, and various carbonation levels.

HOW TO DEVELOP YOUR OWN RECIPES

Get creative with wild fermented drinks! Make sure to keep things consistent by weighing your ingredients, cleaning your equipment, and using about 5% sugar.

DIFFERENT GINGER BUGS

- Try adding in floral components like elderflower or calendula
- Try using turmeric or a mix of turmeric and ginger
- Feed your ginger bug different types of sugars

HOW MUCH CARBONATION?

- Secondary fermentation usually results in carbonation within 48 hours.
- For more carbonation, you can allow secondary fermentation to proceed for longer (BE CAREFUL DOING THIS).

FLAVORING OPTIONS

- You can use any type of fruit and herbs to make a primary fermentation mixture as we did in the how-to videos.
- You can also use pasteurized juice as the primary fermentation liquid without having to cook it! Just pick a juice flavor, add the juice to a clean jar, and add in your ginger bug to begin primary fermentation.

DIFFERENT TYPES OF SUGAR

- You can use many different types of sugar sources.
- Just weigh the sugar to ensure you're adding 5% sugar.

COPYRIGHT NOTICE

Kaitlynn Fenley

MICROBIOLOGIST | CEO | EDUCATOR