

Kefir

Kefir is a mesophilic culture
yogurts are thermophilic cultures.

This means is that kefir can be made at room temperature on your countertop while yogurt is usually made in a 100° to 112°F environment.

The kefir grains were then a result of the symbiotic relationship between the beneficial bacteria and the yeasts and other organisms in the milk kefir.

Kefir grains are a gelatinous mass, harboring a generous variety of bacteria and yeast from which one can make continual batches of kefir.

Kefir grains contain dozens of microorganisms, including bacteria and yeasts, some of which haven't even been identified.

When kefir grains or culture starter are added to milk the bacteria begin feasting on the lactose, or milk sugar, in the milk.

This feeding process produces byproducts such as lactic acid, very small amounts of alcohol, and carbon dioxide, and also causes the bacteria and yeast to reproduce and permeate the prepared milk kefir.

The milk sugar also nourishes the grains themselves, allowing them to grow and reproduce.

It is important to understand that kefir grains need food to survive, just like all other living things.

Their food is milk and the sugar it contains. Once the kefir is done culturing it has consumed all of the food available to it from the milk.

At this point the kefir is best for consumption and the kefir grains are in need of food. If the kefir grains are allowed to remain in the milk past that point, the grains will begin to starve and stress the culture. Straining out the kefir grains and moving them to fresh milk is ideal.

Once you get this cycle down you can create fresh kefir indefinitely, while keeping your kefir grains strong and vital

enzymes are helpful in aiding digestion, as all enzymatic foods help break down the food you are digesting by aiding the acid in the stomach

Finally, milk kefir is known to be a great source of various vitamins and minerals. Particularly, it is rich in vitamins A, B2, B12, D, and K, as well as calcium, magnesium, and phosphorus. Of course, the quality of the milk you start with will also dictate the nutritional content of the kefir you end up with.

Composition of Milk Kefir Grains: Bacteria & Yeasts

Milk kefir grains are a combination of live bacteria and yeasts that exist in a symbiotic matrix. While a highly complex and variable community of lactic acid bacteria and yeasts can be found in kefir grains, this is a list of the specific set of active bacteria and yeast generally known to comprise milk kefir grains*:

Bacteria *Species Lactobacillus* Lb.

acidophilus Lb. brevis [Possibly now Lb. kefiri] Lb. casei subsp. casei Lb. casei subsp. rhamnosus Lb. paracasei subsp. paracasei Lb. fermentum Lb. cellobiosus Lb. delbrueckii subsp. bulgaricus Lb. delbrueckii subsp. lactis Lb. fructivorans Lb. helveticus subsp. lactis Lb. hilgardii Lb. helveticus Lb. kefiri Lb. kefiranofaciens subsp. kefirgranum Lb. kefiranofaciens subsp. kefiranofaciens Lb.

parakefiri Lb. plantarum *Species Streptococcus* St. thermophilus St. paracitrovorus

Species Lactococcus Lc. lactis subsp. lactis Lc. lactis subsp. lactis biovar. diacetylactis Lc. lactis subsp. cremoris *Species Enterococcus* Ent. Durans

Species Leuconostoc Leuc. mesenteroides subsp. cremoris Leuc. mesenteroides subsp. mesenteroides Leuc. Dextranicum

Yeasts *Dekkera anomala/Brettanomyces anomalus Kluyveromyces marxianus/Candida kefyr Pichia fermentans/C. firmetaria Yarrowia lipolytica/C. lipolytica Debaryomyces hansenii/C. famata Deb. [Schwanniomycetes] occidentalis Issatchenia orientalis/C. krusei Galactomyces geotrichum/Geotrichum candidum C. friedrichii C. rancens C. tenuis C. humilis C. inconspicua C. maris Cryptococcus humicolus Kluyveromyces lactis var. lactis Kluyv. bulgaricus Kluyv. lodderae Saccharomyces cerevisiae Sacc. subsp. torulopsis holmii Sacc. pastorianus Sacc. humaticus Sacc. unisporus Sacc. exiguus Sacc. turicensis sp. nov Torulaspora delbrueckii Zygosaccharomyces rouxii*

Acetobacter *Acetobacter aceti Acetobacter rasens*

*Please note: this list is for general informational purposes only. We do not test individual batches of milk kefir grains for yeast and bacteria content; therefore we cannot make any guarantees to the exact probiotic makeup any particular set of milk kefir grains sold on our website

Kefir Contains Yeasts

Both kefir and yogurt are lactic acid fermentations. In addition, kefir contains beneficial yeasts that can also produce a slight amount of alcohol.

Texture & Flavor

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Bacteria Strains

One way in which kefir grains and kefir starter differ is in the number of strains of beneficial yeast and bacteria available through the starter culture. Generally speaking, kefir starter has 7 to 9 strains of bacteria (and little or no yeast) depending on the particular brand of starter. Milk kefir grains generally have around 56 strains of yeast and bacteria, making kefir grains the more nutrient-dense method for making kefir.

Reusability

Cost

Choose a Safe Spot. An ideal culturing spot should be relatively warm but not excessively so. Temperatures between 65° and 80°F are ideal.

Mold.

Pests.

Choosing Equipment for Making Kefir

Kefir Culturing Containers

Glass. Glass is hands-down the best option for brewing kefir. 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 canning jars in pint, quart, and half-gallon sizes.

Plastic. can harbor foreign bacteria.

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 kefir. Avoid porcelain pieces such as vases or decorative pottery that are not food-grade.

Crystal. Crystal may contain lead. Do not use crystal to brew kefir.

Metal.

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Size.

.Covering the Culturing Container

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Other Optional Supplies for Making Dairy Kefir

Strainer

Choosing Milk for Making Kefir

Animal Milk vs. Alternative Milks

Animal Milk. This is animal milk, also known as dairy milk. It provides the most efficient food source for the kefir grains and bacteria,

Alternative Milks. These varieties tend to yield more inconsistent results.

Non milk products - Revitalization Period. When using a non-animal milk, it is important to occasionally allow the kefir grains to revitalize in animal milk for 24 hours. We recommend allowing the kefir grains a revitalization period at least once every few batches. To revitalize the kefir grains, simply place them in 1 to 2 cups of dairy milk for 24 hours. Once the process is complete, the kefir grains can be returned to use with an alternative milk.

Fat Content

Milk with any fat content ranging from fat-free to whole milk may be used with kefir grains. While kefir made with reduced-fat milk will have a thinner consistency, the fat content itself does not influence the effectiveness of the kefir grains or the culturing process.

Non Homogenization

milk will develop a layer of kefir cream on top of the kefir milk.

Pasteurized vs. Raw

Using Previously Frozen Milk for Culturing

Negative Effects of Freezing

Some alterations of the milk you may find from freezing include:

Separation.

Vitamin Loss. The freezing process, like many other food preservation techniques, can lower the vitamin content of the milk.

Off Flavors. All food products that are frozen can develop off flavors. This may be due to contact with other flavors or odors from the foods surrounding your milk, especially dairy products more successfully than for others.

First, a Note about Hygiene. When working with kefir, 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 milk. Also be sure to thoroughly clean and rinse the container and all utensils that will come in contact with the milk or the kefir grains. Beware of soap and food residue the dishwasher may have missed. When in doubt, give everything an extra rinse. The culturing container 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 the milk or kefir grains.

The Basic Process

Culturing the Kefir

Choose a Safe Spot. Temperatures between 65° and 80°F are ideal

Stir Occasionally..

Allow the Kefir to Ferment..

Signs of Potential Problems

Milk Does Not Thicken. If the milk does not thicken after being allowed to culture for 48 hours, discard the milk and place the kefir grains in fresh milk. Do not try to culture kefir grains in the same milk for longer than 48 hours. While the milk and kefir grains have been sitting, the bacteria level in the milk has risen which can make the milk unsafe to consume and can present a considerable level of competition to the bacteria and yeast which comprise the kefir grains. Competing bacteria can cause damage to the kefir grains. Once the kefir grains have been placed in new milk, move the kefir to a new warmer spot (lack of culturing is almost always a temperature issue) and check it every 12 hours to determine at what point the kefir has thickened. If the warmer location does not resolve the issue, it may be that your kefir grains have died. While it is very unusual, it does occasionally happen and the kefir grains will need to be replaced. Please note:

alternative milks such as soy and coconut milk may not thicken significantly during the culturing process.

Mold. It is very uncommon to find mold developing on a batch of kefir. However unlikely, mold can and does occasionally develop and can generally be seen by the formation of white, green, orange, red, or black spots, or a pink film on the surface of the kefir. Potential causes of mold include:

☒ Contamination from soap or food residue in the jar or on the utensils used to prepare the kefir.

☒ Transient yeasts and bacteria in the air or poor hygiene practices when preparing the kefir.

☒ Allowing your kefir to ferment too close to a garbage can which can be a source of transient bacteria.

☒ Allowing your kefir to ferment too close to other fermented foods (yogurt, sourdough, kombucha, 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.)

Pests.

Harvesting the Kefir

Removing the Kefir Grains.

Flavoring.

Storage Tips. Unless a secondary fermentation period is used, kefir should be immediately stored in the refrigerator. While estimates vary, we recommend consuming kefir within two weeks.

Ingredients & Equipment

How to Make Coconut Milk Kefir

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Lactose in Kefir

Kefir Culturing Time

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How to Take a Break from Making Kefir

Encouraging Milk Kefir Grains to Multiply

If you've started making milk kefir then you know that the grains involved in the process are a bit of a miraculous thing. These tiny little gelatinous things contain yeasts and bacteria and convert milk into the "feel good" beverage kefir.

What's especially great is that your milk kefir grains may multiply. There is no guarantee that they will, and even if they don't they are perfectly viable and will continue to make delicious kefir.

But, if you are looking to multiply your kefir grains in order to share with friends, then there are a few things you can do to encourage growth and reproduction. Giving them everything they need while protecting them from stress is a must if you want growth.

All culture starters thrive in a consistent temperature. Too cold and they slow way down, too warm and they speed way up which can put strain on the culture. Room temperature is ideal for kefir grains and keeping the temperature between 65° and 80°F is ideal. Also, try to keep them in a draft-free space away from windows and doors.

Feed Them What They Need

Feed Them Frequently

Keep the Grains Smaller

Straining Kefir: Thick Kefir and Kefir Whey

How to Strain Kefir

What You Will Need:

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What are the Flavor Benefits of a Second Fermentation?