

Bacteria

Bacteria are used in all sorts of food—yogurt, kimchi, cheese, chocolate—and bacteria can generate gas, so it's not that far of a leap to wonder how to create bacteria-leavened foods. Alas, using bacteria as a leavening agent is downright rare.

The only recipe I'm aware of is salt-rising bread, possibly named from the use of a mound of warm salt to keep a bowl warm overnight in cooler climates. Salt-rising bread used to be popular in some Midwestern communities and was literally prized: the Iowa State Agricultural Society awarded one Mrs. M. L. Harding of Des Moines \$5 for her salt-rising bread in 1889. (The last state fair I went to featured deep-fried Twinkies slathered in strawberry jam for \$5—how times have changed!)

Leavening relies on the bacteria *Clostridium perfringens* to generate hydrogen for lift. While the idea of flammable bread is oddly appealing, the problem for me is *C. perfringens*: it's the same bacteria that causes millions of cases of foodborne illnesses annually. To be fair, there are multiple strains of *C. perfringens*, and no illnesses have been linked to salt-rising bread. Researchers checked a few samples for relevant toxins and found nothing, attributing the lack of toxins to the particular strain, but also noted “the very real possibility” that other batches could contain the wrong strain. If you do want to give it a try, search online for Harold McGee's article “The Disquieting Delights of Salt-Rising Bread.”

Of course, bacteria show up elsewhere in baking bread all the time: *Lactobacillus* is what gives sourdough bread its distinctive flavor, with different species creating different flavors based on the byproducts they generate during fermentation. *Lactobacillus* has other benefits, too: it reduces the potential for mold growth in the baked loaf and improves the nutritional aspects.

Making sourdough bread is easy enough: add sourdough starter and water to whatever flour you like, and knead away. Making the sourdough starter, though, takes longer. Sourdough starter—sometimes called *mother dough*—is commonly created by gambling on the wild bacteria and yeast in your environment. Mix equal parts by weight of water and flour in an open container, cover with cheesecloth or a towel to keep flies out while

allowing air to flow, stir twice daily, start feeding a few tablespoons of flour and water after a few days. After a week, you should have something that smells like sourdough; if not, try again. This “wild fermentation” method usually works, and I greatly respect the tradition and culture (pardon the pun) that it comes from and the practitioners who use it.

Sourdough Starter

*There is a small chance that the strain of bacteria that settles into a wild starter won't be safe—it needs to produce enough acetic acid to drive the pH low enough to prevent other bacteria from cohabitating. Using good strains of *Lactobacillus* and commercial yeast removes that risk.*

Mix together **2 cups (500 mL) lukewarm water**, **1 teaspoon (5g) yeast**, **1 tablespoon (12g) sugar**, and **¼ cup (60g) plain yogurt** (with live cultures) and then knead in **2 cups (280g) of bread flour**. Stir a few times daily, following the wild fermentation method.
