

## The geography of fermented foods

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Photo of a meal of fermented foods from Europe including *Kefir*, *Sourdough* bread, *Gouda* cheese, *Kalamata* olives, *Sauerkraut*, and *Soppressata*.

Fermented foods are common in most cultures of the world and have long and fascinating histories. Different regions developed their own fermented foods based on local crops and their microbes. As people and cultures spread across the globe, fermented foods also travelled and changed to adapt to local ingredients and taste preferences. Let's look at some traditional fermented foods from around the world.

### Traditional fermented foods of Europe

Check out the table below to see some traditional European fermented foods.

**More about *Kvass*:** *Kvass* is a semi-sweet, tangy drink that is most often made from stale bread. *Kvass* originates from Northeastern Europe and is traditionally made from rye bread. To make *Kvass*, stale bread is cut into cubes, mixed with hot water, and held at room temperature for 12 hours. Then, a small amount of the previous batch of *Kvass* and sugar is added. Yeast works together with lactic acid bacteria from the environment to ferment the sugars



Photo of homemade mint *Kvass* by Mr. Icon, CC BY-SA 3.0  
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and produce a tangy drink. People often drink *Kvass* for its possible health benefits. *Kvass* has high levels of fermented food microbes that may be good for you, and can also be a good source of vitamins, minerals, and amino acids.

Starting Product	Fermented Product	Nation(s) or Region(s) Most Associated with Food
Olives	Olives	Spain, Greece, Italy, Türkiye, Morocco, Portugal
Cucumbers	Pickles	Many countries
Cabbage	Sauerkraut	Germany
Cow's milk	Yogurt	Many countries
Cow's milk	<i>Kefir</i> , fermented beverage	Caucasus region
Mare's milk	<i>Koumiss</i> , fermented beverage	Türkiye
Cow's milk	<i>Villi</i> , fermented beverage	Finland
Cow's milk	Cheese of many varieties	Many countries
Pork	<i>Chorizo</i> , dry-cured sausage	Spain
Pork	<i>Schinkenwurst</i> , cured sausage	Germany
Pork	<i>Soppressata</i> , dry-cured sausage	Italy
Pork/Beef	<i>Sucuk</i> , dry-cured sausage	Türkiye
Wheat/rye	Sourdough bread	Many countries
Wheat	<i>Boza</i> , fermented beverage	Türkiye and Caucasus region
Rye bread/beets	<i>Kvass</i> , fermented beverage	Northeastern Europe
Grapes	Wine, fermented alcoholic beverage	Many countries
Cherries	<i>Kijafa</i> , fermented alcoholic beverage	Denmark
Pears	<i>Poiré</i> , fermented alcoholic beverage	France

### Traditional fermented foods of Africa

The table below shows some traditional fermented foods from Africa.

**More about Injera:** *Injera*, an Ethiopian flatbread, is very well known for its spongy texture and sour taste. It is usually made from a batter of fermented teff flour (*Eragrostis tef*).



Photo of Injera by Dr. Ondřej Havelka, CC BY 4.0, <https://creativecommons.org/licenses/by/4.0/>, via Wikimedia Commons.

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Teff is a small grain with a great nutritional value that originates from Ethiopia and Eritrea. The first step in *Injera* production involves working with a wild yeast starter, also known as *ersho*. As the days pass, the batter ferments, separates, and transforms. A small batch is gently cooked to form *absit*, a gelatin-like mixture that helps bind and enrich the final batter. After a short rest, the fermented mixture is poured in a spiral pattern onto a clay or metal plate called a *mitad*, creating the soft, spongy flatbread that is central to Ethiopian meals. It works as a plate, utensil, and food. People place their dishes, such as salads, meats, and vegetables, all on top of the *injera*. Since *injera* is great at soaking up sauces, it captures all the flavors.



Photo of Injera by Dr. Ondřej Havelka, CC BY 4.0,  
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Starting Product	Fermented Product	Nation(s) or Region(s) Most Associated with Food
Cassava	<i>Gari</i> , fermented and roasted grits	Nigeria, Ghana
Maize	<i>Kenkey</i> , fermented dough	Ghana
Teff	<i>Injera</i> , fermented flatbread	Ethiopia
Maize	<i>Koko</i> , fermented porridge	Ghana
Cassava/Maize	<i>Banku</i> , fermented dough	Ghana
Millet, maize, or sorghum	<i>Kunun-zaki</i> , fermented beverage	Nigeria
Millet	<i>Pito</i> , fermented alcoholic beverage	Ghana
Locust beans	<i>Dawadawa</i> , fermented condiment	Ghana
Castor oil, melon, pumpkin, or groundnut seeds	<i>Ogiri</i> , fermented condiment	Nigeria
Fava bean/safflower	<i>Siljo</i> , fermented condiment	Ethiopia
Camel's milk	<i>Gariss</i> , fermented beverage	Sudan
Cow's milk	<i>Leben</i> , fermented beverage	Tunisia and North Africa
Cow's milk	<i>Kulenaota</i> , fermented beverage	Kenya
Fish	<i>Lanhouin</i> , fermented, salted fish	West Africa
Fish	<i>Guedj</i> , fermented, dried fish	Senegal
Beef/pork	<i>Kitoza</i> , fermented, dried strips	Madagascar
Banana/plantain	<i>Agadagidi</i> , fermented alcoholic beverage	Nigeria

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### Traditional fermented foods of Asia

The table below shows a sample of the fermented foods important in the cuisines of Asian countries.

**More about Gundruk:** *Gundruk* is a traditional Nepali fermented vegetable made from cruciferous vegetables, including mustard greens, radish leaves, or cauliflower leaves. The leaves are briefly sun-dried, partially crushed, and stored warm in a compacted stage, then allowed to ferment for a week. After the fermentation, *Gundruk* is sundried and stored in an airtight container. *Gundruk* can be consumed as pickles, soups, and curry and is valued for its unique sour and tangy flavor.



Photo of *Tempoyak*, a dish of fermented Durian fruit from Borneo and Malaysia.



A photo of *Gundruk*.

Starting Product	Fermented Product	Nation(s) or Region(s) Most Associated with Food
Cabbage	<i>Kimchi</i>	Korea
Mustard greens	<i>Burong mustala</i>	Philippines
Cucumber	<i>Khalpi</i>	Nepal
Lentils and Rice	<i>Dosa</i> , fermented flatbread	India
Cassava	<i>Tapa Ubi</i> , fermented dessert	Malaysia
Rice	<i>Idli</i> , fermented rice cake	India and Sri Lanka
Rice and Coconut	<i>Appam</i> , fermented pancake	India and Sri Lanka
Cow's or Yak's milk	<i>Chhu</i> , cheese-like product	India, Nepal, Bhutan
Buffalo's milk	<i>Dadih</i> , fermented beverage	Indonesia
Pork	<i>Nem-chua</i> , dry-cured sausage	Vietnam
Fish	<i>Nuo mam</i> , fermented fish sauce	Vietnam
Soybeans	<i>Miso</i> , fermented paste	Japan
Soybeans	<i>Tempeh</i> , fermented soybean cake	Indonesia
Soybeans	<i>Bekang</i> , fermented paste	India
Black soybeans	<i>Douchi</i> , fermented seasoning	China

### Traditional fermented foods of Oceania

Fermented foods in the traditional diets of Oceania are in the table below.

**More about Kabwiro:** *Kabwiro* is a traditional way of preparing breadfruit that is used by people from the Marshall Islands. *Kabwiro* is prepared by peeling the breadfruit, placing it in bags, soaking the bags in salt water for a few days, and then baking the fermented product. Once baked, *Kabwiro* is stored in baskets or big biscuit cans. This method of preserving breadfruit has been essential for island communities, especially during times when food is scarce, such as after powerful storms or natural disasters.

Starting Product	Fermented Product	Nation(s) or Region(s) Most Associated with Food
Taro root	<i>Poi</i> , fermented paste	Polynesia, Samoa, and Tonga
Maize	<i>Kaanga-pirau</i> , fermented gruel	New Zealand
Maize	<i>Kaanga-wai</i> , fermented gruel	New Zealand
Coconut milk	<i>Miti hue</i> , fermented alcoholic beverage	Tahiti
Coconut, crustaceans	<i>Taioro</i> , fermented condiment	Polynesia
Coconut	<i>Kora</i> , fermented condiment	Fiji
Breadfruit	Fermented <i>Kabwiro</i> paste	Many countries
Tuna and Crustaceans	<i>Fafaru</i> , fermented fish	Tahiti

### Traditional fermented foods of the Americas

The table below shows some fermented foods in the traditional diets of the Americas.



Photo of *Pulque*, an alcoholic beverage fermented from agave produced in Mexico.

**More about chocolate:** Did you know that fermentation of cacao is needed to obtain the flavors we love in chocolate? When fresh, cacao tastes bitter and is considered inedible without fermentation. After cocoa pods are picked from the trees, they are opened. Inside, there are beans covered in a sweet, white, sticky pulp. The beans, still covered in this pulp, are then piled into big heaps or placed in special boxes to start fermentation. After fermentation, the beans are dried, roasted, and then turned into chocolate.

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Starting Product	Fermented Product	Nation(s) or Region(s) Most Associated with Food
Maize and Rice	<i>Calugi</i> , fermented porridge	Brazil
Maize	<i>Pozol</i> , fermented porridge	Mexico
Cassava	<i>Parakari</i> , fermented alcoholic beverage	Guyana
Cassava	<i>Yakupa</i> , fermented beverage	Brazil
Maize	<i>Chicha</i> , fermented alcoholic beverage	Amazon and Andes regions
Agave	<i>Pulque</i> , fermented alcoholic beverage	Mexico
Cassava and Maize	<i>Cauim</i> , fermented alcoholic beverage	Brazil
Cacao	Chocolate	Many countries
Pineapple	<i>Tepache</i> , fermented alcoholic beverage	Mexico
Caribou, seal, whale, Arctic char, trout	Fermented meats and fish	Canada and Alaska (Inuit populations)

As you have read, different types of fermented foods are found all around the world. Some foods, like cheeses and breads, are now so widespread that it is difficult to say where they originated. As cultural exchange continues, we are likely to discover new and interesting ways to add fermented foods to our diet!

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