Vegetable Fermentation

Presented by Ann Green

Cultured food has likely been around since the beginning of time.
Preserving food through fermentation also provides many health benefits.
Making your own fermented food at home is easy!

The Amazing Human Body Interacts with the World of Bacteria, Yeast and Fungi

- The primary bacteria of fermentation are lactobacillus.
- They are found on plants and animals in abundance.
- Scientists estimate the human body has 100 trillion bacteria living in and on it, more than the number of cells in the body. Most are found in the gut.
- These bacteria are essential for life and health.
- An over abundance of bad bacteria and yeasts can have serious health consequences.
- Eating fermented foods helps keep a healthy balance of bacteria in the body and has numerous other health benefits.
- Eating processed, refined foods with preservatives and chemicals may alter gut bacteria and result in obesity and glucose intolerance. Antibiotics can be especially harmful to the beneficial microbes.

Benefits of Fermentation

- **Preserves Food**
  - Lactobacillus bacteria live on the surface of all living things, especially on roots and vegetables in or near the ground.
  - Given a few days and the right temperature, these bacteria will convert the starches and sugars of vegetables, fruits and dairy into lactic acid.
  - Lactic acid is a natural preservative that inhibits putrefying bacteria.

- **Makes Food More Digestible**
  - Breaks down lactose and casein in milk
  - Breaks down phytates, substances in the outer coating of grains, seeds, nuts and beans that may bind minerals in the intestine and prevent their absorption
  - Breaks down goitogens in certain vegetables and beans, especially cruciferous and soybeans that may interfere with thyroid function
  - Inactivates natural food toxins such as cyanide in cassava root

- **Increases Vitamin Levels**
  - Increases levels of B vitamins thiamin, riboflavin, niacin, folic acid, choline, and biotin in addition to glutathione.
• Converts minerals into less toxic, more absorbable forms.
• Produces enzymes
  • Enzymes are helpful in digestion and make even cooked food living food once again.
• Produces antibiotic and anti-carcinogenic substances — *The Life Bridge* lists over 49 “beneficial compounds created by probiotics.”
  • “Culturing thus creates unique pre-biotic nutrients, apart from the viable bacteria, that promote the growth of beneficial bacteria, the health of the digestive system and reduce the risks of colon cancer.”
  • “…probiotics compete against unfriendly flora by creating natural antibiotics.”
  • “…the low breast cancer incidence and mortality rates in Japan are clearly associated with the extensive and historic consumption of miso, natto and other probiotic soy preparations.’
• Enhances flavor—“Lacto fermentation is not only a means of conserving foods, but also a procedure for ennobling them, as proved by their taste and aroma.” Annelies Schoneck

**Basic Steps to Vegetable Fermentation**

1) Chop vegetables.
2) Add salt. (Preserves food from bad bacteria until enough lactic acid is produced)
3) Pound or massage to release juices.
4) Press into quart jar(s) and seal.
5) Keep in a dark place at room temperature for 2-7 days.
6) Refrigerate or store in cellar. (Most vegetables keep for a year. Sauerkraut is reportedly best after 6 months.)

**Options- Four Ways to Ferment**

1) Just salt- 4 teaspoons per quart or 2 teaspoons per pound of vegetables- usually requires 5-7 days for fermentation process.
2) Lacto fermentation- Uses whey, which enhances the production of lactic acid, and acts as insurance for fermentation success. Fermentation usually accomplished in about 3 days. Reduce salt to 1 tablespoon per quart. Don’t use in cases of severe milk allergy.
3) Use the brine from a previous batch of fermented food, or just keep adding vegetables to the brine.
4) Use a commercial cultured starter and follow directions.

**What Kind of Vegetables Do I Ferment?**

1) Any food can be preserved by fermentation.
2) Among the vegetables, cruciferous ferment best. (cabbage, broccoli, cauliflower, kale, Brussels sprouts, radishes)
3) Sauerkraut is a mixture of cabbage and other veggies or just cabbage. It is made in various versions.
Sauerkraut Recipe

2 pounds cabbage, usually 1 medium (may use just green or red and green)

¼ cup whey and 1 tablespoon sea salt OR 4 teaspoons sea salt OR culture starter (as directed)

1 quart jar with lid

Discard outer, blemished leaves of cabbage. Cut cabbage in halves and quarters and cut out core. Cut into eighths; then either put into food processor with a slicing wheel, or thinly slice with a knife.

Put all the vegetables into a large mixing bowl. (This is the best time to weigh.) Add salt and whey if using and mix well. Either pound vegetables with a pounder or knead with clean hands until juices are released. (If using hands-on method, you will be able to squeeze juice from your hands.) Begin putting cabbage into quart jars and pounding down with a wooden spoon to continue to release juices. Ultimately juice should rise above the top of the cabbage. If after 10 minutes of pounding you still don’t have enough juice, add just enough brine to cover. (To make brine, mix 1 teaspoon salt with 1/3 cup filtered water.) Always leave 1 inch of head space at the top of the jar for expansion during fermentation.

Screw on lid tightly, and put jar in a cool dark place to ferment. Krauts made with whey or starter culture ferment in about 3-5 days. Those made with just salt will take 5-7 days. You can check your kraut every day or two by smelling and tasting. (It will be bubbly.) Refrigerate when it has reached the degree of sourness that you prefer. Sauerkraut supposedly reaches its best flavor after about 6 months, so don’t worry about it going “bad”.

You may add any vegetable you like to a kraut, but cruciferous vegetables ferment the most predictably. (Cabbage, broccoli, cauliflower, kale, radish and Brussels sprouts are examples.) You may also add shredded carrots, peppers, onions, ginger, or most any other vegetable. If using primarily non-crusiferous vegetables, then adding whey or starter culture will give more reliable results.

You may also ferment whole vegetables by using brine. Wonderful creative recipes abound. Use your imagination and creativity or try recipes from Nourishing Traditions by Sally Fallon; Real Food Fermentation by Alex Lewin; Wild Fermentation by Sandor Katz (resident of Woodbury); Cultured Food for Life by Donna Schwenk or www.culturesforhealth.com.

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