

Preserve Today, Relish Tomorrow



UCCE Master Food Preservers of El Dorado County

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Sauerkraut

Intro to Sauerkraut

Sauerkraut is a naturally fermented cabbage. Natural fermentation is one of the oldest means of food preservation, and reduces the risk of foodborne illness and food spoilage. When salt is added to shredded cabbage, it causes juice to be extracted from the cabbage. This juice contains fermentable sugars. Microorganisms naturally present on the cabbage leaves will, in the absence of oxygen, use these sugars to produce lactic acid. The lactic acid preserves the cabbage.

Sauerkraut is a low-calorie food – only 42 calories per cup – and a good source of vitamin C (30 mg per cup). However, because of the salt necessary to regulate the fermentation, sauerkraut is a high-sodium food, containing about 1.5 grams (1,500 mg) sodium per cup. For that reason, people trying to moderate sodium intake should consider the sodium content of sauerkraut before including kraut in their menu. *Note:* Do not try to lower the sodium content of sauerkraut by using less salt to the cabbage, as the cabbage will spoil rather than ferment. It is very important to use the correct amount of salt so that fermentation can take place. You can reduce the sodium content – as well as the tartness – by rinsing sauerkraut in cold water before using.



SAUERKRAUT.

Ingredients

Cabbage. Use firm, sweet, fresh heads of cabbage, preferably within 24-48 hours of harvest. Kraut is typically made from regular green cabbage, but red cabbage may be used as well. Mid- to late-season harvest crops generally make the best kraut.

One medium head of cabbage weighs approximately 1¼ to 1½ pounds. One pound of cabbage will yield about 3½ to 4½ cups of shredded cabbage.

Canning/Pickling Salt. For best results, use a salt made for canning or pickling. Iodine and other additives, such as anti-caking agents, may inhibit fermentation. Flake salt is not recommended, as it varies in density and may result in an incorrect ratio of salt to cabbage (unless you weigh the salt).

When making sauerkraut, the ratio of salt to cabbage is 2.25 to 2.50 percent salt by weight (see *Procedures* below for exact recipe). Using too little salt not only softens the cabbage tissue, but also yields a product lacking in flavor. Too much salt delays the natural fermentation and, depending on the degree of over-salting, may cause an acrid flavor, darken the color or allow pink pigment-producing yeasts to grow.

Equipment

Slicer/Shredder. Use a large sharp knife, mandolin, kraut shredder or food processor.

Mixing bowl or tub. A large bowl or plastic tub is needed to mix the prepared cabbage and salt.

Kitchen scale. A scale is necessary for weighing the shredded cabbage, as the correct proportions of salt to cabbage are important for ensuring proper fermentation.

Fermenting Container. Glass jar, lead-free ceramic crock, or food-grade plastic pail.

Note: Check crocks carefully; if cracks or chips are found, or if using an old, potentially lead-glazed crock, line it with a with a clean, heavy food-grade plastic bag.

Procedures

Step 1. Discard outer cabbage leaves, reserving one or two large, unblemished leaves, if desired, for covering the cabbage (see Step 5). Rinse heads and reserved leaves under cold running cold water and drain.

Step 2. Cut heads into halves or quarters and core. Slice or shred the cabbage to about the thickness of a quarter.

Step 3. Weigh cabbage. Working with no more than 5 pounds at a time, place it in a mixing bowl or tub and sprinkle with the correct amount of canning/pickling salt (see table below for the correct ratio of salt to cabbage). Mix well with clean hands, gently massaging the shredded cabbage, to distribute the salt uniformly. Allow the salted cabbage to stand for about 5-15 minutes, until it wilts slightly and juice begins to be drawn out.

YIELD	CONTAINER SIZE	CABBAGE	SALT
1 Quart	Quart Jar	2 lbs.	3 ½ tsp.
2 Quarts	Half Gallon Jar	4 lbs.	7 tsp.
3-4 Quarts	Gallon Jar or Crock	5 lbs.	3 tbsp.
6-9 Quarts	5-Gallon Crock or Bucket	25 lbs.	¾ cup

Step 4. Transfer a layer of cabbage into the fermenting container, pressing firmly with a wooden spoon, tamper, or your hand until enough juices are drawn out to cover the cabbage. Repeat until the container is filled to the desired depth and the cabbage is completely covered with 1-2" of juice. If using glass jars, fill to the shoulder, leaving room for 1-2" of juice. If using crocks, leave at least 4-5" of headspace between the cabbage and the top of the container. If the juice does not cover the cabbage, add brine (boil 1 quart of water and 1½ tablespoons of salt; allow to cool).

Step 5. Cover the shredded cabbage with the reserved leaves, if using, ensuring that the leaves are covered with 1-2" of juice. Weight down the cabbage so it remains under the juice and cover the fermenting vessel. This step is essential, since the fermentation process requires anaerobic conditions (without oxygen). If using a large crock or bucket, a brine-filled plastic bag is one of the easiest ways to both cover and weight down the cabbage. Be sure to use a clear, heavy-duty, watertight plastic bag intended for food use. Clear freezer bags sold for packaging turkeys are suitable for use on 5-gallon containers. Fill the bag with salted water (6 tablespoons salt in 1 gallon water) to a depth of 3-4", allowing the bag to completely cover the cabbage. An alternate method is to cover the cabbage with a clean cloth or clear plastic, fitting the covering snugly against the container sides. Then put a plate or other nonmetallic disk that just fits inside the container so that the cabbage is not exposed to air. Put a weight on top of the cover so the juice comes to the cover but not over it. A jar filled with water or brine makes a good weight.

If working with glass jars, put a sterilized lid on the jar just tightly enough to keep out air, or use an airlock. A brine-filled bag as described above can also be used.

Step 6. Place the container on a tray or in a pan to collect juice that may leak out during active fermentation.

Note: Do not pour any juice that bubbles out back into the container. Set the container in a well-ventilated place with a relatively constant temperature. If kept at room temperature (70° to 75°F), large batches of kraut should be ready in 3 to 4 weeks; small batches should be ready in about 2 to 3 weeks.

At higher temperatures, fermentation will proceed more rapidly and the kraut will be ready sooner, but the kraut may become soft. If kept at temperatures lower than 70°F, fermentation will be slow, and it may be incomplete if the temperature drops to below 60°F. It is desirable to provide 70° to 75°F temperatures during the first several days to begin production of the acid that will preserve the cabbage. Then, if you want a slower fermentation, the container could be stored in a cooler area such as a basement or unheated garage. If the temperature drops below freezing, fermentation will stop, but will start again when the temperature rises into a favorable range.

Step 7. Check the kraut 2-3 times per week (or even daily) and remove any scum if it forms. If any discoloration appears within the top inch of kraut, remove it. If you are using a cloth covering, rinse or replace it each time you remove scum or spoiled cabbage. Fermentation is complete when the cabbage turns from opaque green-white to a translucent golden color, and the product smells like sauerkraut. The absence of bubbles may also be an indicator that the kraut is ready.

Storage

There are four alternatives for storing sauerkraut after fermentation is complete. For shorter-term storage, kraut may be refrigerated or left in the crock. For longer-term storage, freezing and canning will maintain high quality.

Refrigerating

Place the kraut in tightly closed jars or sealed freezer bags and stored in the refrigerator for as long as several months. Check the kraut after fermenting to ensure that there is still enough juice covering it. If more liquid is needed, add a weak brine (boil 1 tablespoon of salt in 1 quart of water and cool).

Leaving in the Crock

If you have a cool basement (65-75°F), garage or other storage area, the sauerkraut may be kept in the crock indefinitely as long as the surface is not exposed to air, which may cause spoilage. No refrigeration is required. After removing portions, cover and weight down. A small amount of spoilage may appear after each opening, but you can remove it the next time you open the crock.

Freezing

Pack sauerkraut and juice in rigid plastic moisture- or vapor-proof freezer containers, in glass freezer jars (leaving 1½ inches headspace), or in heavy, tightly sealed plastic freezer bags. Freeze.

Canning

- **Hot pack** – Bring kraut and liquid slowly to a boil in a large kettle, stirring frequently. Remove from heat and fill jars rather firmly with kraut and juices, leaving 1/2-inch headspace.

Raw pack – Fill jars firmly with kraut and cover with juices, leaving 1/2-inch headspace.

- If there is not enough sauerkraut juice to cover all the kraut in the jars, use a boiling hot, weak brine (2 tablespoons salt for each quart of water).
- Adjust lids and process in a boiling-water or atmospheric steam canner per the recommendations below.

Cooking with Kraut

For full flavor, just heat sauerkraut through. But to make it more interesting and mellow, add a little brown sugar, chopped apple and onion, and simmer slowly. Rinsing kraut with water before using it will produce a milder flavor and remove some of the salt.

Sauerkraut can be used in appetizers, dips, soups, relishes, salads, entrées and even desserts. It is also a good vegetable companion for corned beef, spareribs, frankfurters, sausages, pork hocks, poultry or game.

A newer way to use kraut is as a sauce, dip or potato topping. Puréed sauerkraut, called kolé, is mixed in equal amounts with plain yogurt or with mayonnaise. To make a flavorful topping for baked potatoes or a dip for chips and vegetables, add herbs, chili sauce, hot taco or pepper sauce, chopped meats or seafood such as clams. If the flavor seems too acidic, smooth it out with a pinch of baking soda. Yogurt kolé is a low-calorie taste treat.

Sauerkraut Salad

"Great-Grandma Maida Dixon made this salad for family gatherings. I think of her every time I make. It's sooo good. It needs to be placed in the refrigerator to allow the flavors to meld. It really is worth the wait."

- 1 quart sauerkraut, drained
- 1 onion, chopped
- 2 stalks celery, chopped
- 1 green bell pepper, chopped
- 1 large carrots, chopped
- 1 (4 ounce) jar diced pimento peppers, drained
- 1 teaspoon mustard seed
- 1 ½ cups white sugar
- 1 cup vegetable oil
- ½ cup cider vinegar

In a large bowl, mix together sauerkraut, onion, celery, green bell pepper, carrot, pimientos, and mustard seed. Set aside this mixture.

In a small saucepan, mix together sugar, oil, and vinegar. Bring to a boil. Remove from heat.

Pour sugar mixture over salad, cover, and leave it in the refrigerator for 2 days before serving.

Sauerkraut Soup

- 2 pounds Italian sausage, removed from casing and crumbled
- 2 to 3 large onions or leeks, diced
- 3 pounds cooked northern (navy) beans
- 1 quart sauerkraut, homemade preferred
- Thinly sliced celery or carrots (optional)
- Salt, pepper and paprika to taste

Brown 2 pounds Italian sausage, until well browned.

Add 2-3 large onions and cook until transparent.

Add thinly sliced celery/carrots with onions, if you like.

Add 3 pounds cooked beans, 1 quart of sauerkraut, salt, pepper and paprika.

Heat thoroughly.

This is best made with homemade sauerkraut and sausages, if available.

If the soup seems too thick add 1 or 2 cans of chicken broth.

I usually use additional seasonings, for example, I like to use Herbs Provence but the choice is yours.

Slow Cooker Kielbasa, Sauerkraut and Beer

- 2 lbs Kielbasa sausage, cut into 1" pieces
- 20 oz of sauerkraut, drained
- 12 oz can or bottle of your favorite beer

In a slow cooker, combine sausage, beer and sauerkraut.
Cook on low for 5 to 6 hours until the meat is tender and plump.
Serve with choice of mustards.

Bacon, Sausage and Sauerkraut Pie

- Dough for one 9-inch piecrust
- 6 slices thick bacon, cut into ½-inch pieces
- 1 large onion, halved and thinly sliced
- 1 pound sauerkraut, drained and squeezed dry
- ¼ tsp caraway seeds, optional
- 3 large eggs
- 1 ⅓ cups sour cream
- ⅓ cup whole milk or half and half
- 1 Tbsp. Dijon mustard
- 2 tsp flour
- ¼ tsp salt
- Black pepper to taste
- 1 ½ cups grated Swiss cheese
- 6 oz cooked bratwurst or kielbasa, cut into bite-size pieces

On a lightly floured sheet of wax paper, roll dough into a 13-inch circle. Flip into a 9-inch pie pan; peel off paper. Gently tuck pastry into pan without stretching it, fluting the edges. Refrigerate for 1 hour.

Preheat oven to 375°. Position rack in center of oven.

Prick bottom of chilled pie shell with a fork 8-10 times. Fit a 16-inch long piece of foil snugly into the shell. Fill with dried beans. Bake 25 minutes. Remove foil and beans. Bake 5-7 minutes or until bottom is dry and pale golden. Put onto wire rack to cool.

While shell prebakes, heat a large skillet over medium heat. Add bacon; cook 8 minutes or until crisp. Remove bacon to paper-towel-lined plate, reserving 3 tbsp fat in

Add onion to pan; cook 12 minutes or until light golden, stirring occasionally.

Stir in sauerkraut and caraway, if using; remove from heat.

In a large bowl, whisk eggs until blended. Whisk in sour cream, milk, mustard, flour, salt and pepper. Spread sausage in bottom of prebaked shell. Top with sauerkraut mixture. Pour egg mixture over sauerkraut mixture, smoothing top with a spoon.

Crumble bacon over top.

Bake 40-45 minutes or until set.

Transfer to wire rack, cool at least 30 minutes before serving.

Serves 8

Chocolate Sauerkraut Cake

The sauerkraut cannot be tasted; you think you're eating coconut!

- ⅔ cup butter
- 1 ⅓ cups white sugar
- 3 eggs
- 1 tsp. vanilla extract
- ½ cup unsweetened cocoa powder
- 2 ¼ cups sifted all-purpose flour
- 1 tsp. baking powder
- ¾ tsp. baking soda
- ¼ tsp. salt
- 1 ¼ cups water
- ⅓ cup drained and chopped sauerkraut

Preheat oven to 350 degrees F (175 degrees C).

Grease and flour two 8-inch square or round pans.

Cream together the butter and sugar. Beat in eggs and vanilla.

Sift together cocoa, flour, baking powder, soda, and salt, and add alternately with water to egg mixture. Stir in the sauerkraut. Pour batter into prepared pans.

Bake at 350 degrees F (175 degrees C) for 30 minutes or until a wooden pick comes out clean.

Use your favorite chocolate or white frosting.

Resources

- *Adapted from: Make Your Own Sauerkraut, Mary E. Mennes, University of Wisconsin-Extension, Cooperative Extension, B2087 (Revised 1994), and Sauerkraut, University of Alaska Fairbanks Cooperative Extension Service, FNH-00170. Additional Sources: USDA Complete Guide to Home Canning, Agriculture Information Bulletin No. 539, and Using, Storing and Preserving Cabbage, Michigan State University Extension Bulletin HNI09.*
- National Center for Home Food Preservation [Internet]. University of Georgia [cited 2014 September 4]. Available from: <http://nchfp.uga.edu/>
- **Make Your Own Sauerkraut.** Mary E. Mennes. University of Wisconsin-Extension, Cooperative Extension. B2087 (Revised 1994).
- Penn State Extension, <http://extension.psu.edu/food/preservation/safe-methods/sauerkraut>

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03/01/2020