Colorado State University Extension

Food Preservation Without Sugar or Salt

Fact Sheet No. **9.302** Food and Nutrition Series | **Preparation**

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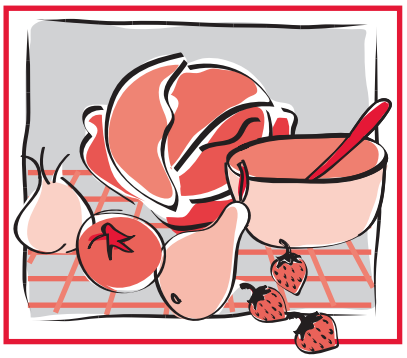

People who need to restrict their intake of sugar or salt often wonder if it is safe to preserve foods without these ingredients. Most often, the answer is yes.

Canning Fruit

Recipes for canning fruit usually call for adding sugar or sugar syrup. While sugar helps hold the texture, shape and color of fruit, it is primarily added for flavor. It is not needed to prevent spoilage. You can safely can all fruits in water or in fruit juice by following reliable canning directions for preparing and processing the fruit. Substitute water or fruit juice for the syrup or sugar pack.

When canning without sugar, use high quality fruit. Overripe fruit will soften excessively. Take special care to follow steps that prevent darkening of light-colored fruit. Several treatments may be used to prevent or retard darkening. One is to coat the fruit as it is cut with a solution of 1 teaspoon (3 g) crystalline ascorbic acid or 3,000 mg crushed vitamin C tablets per cup of water. Another is to drop the cut pieces in a solution of water and ascorbic acid, citric acid or lemon juice. Use 1 teaspoon (3,000 mg) ascorbic acid, 1 teaspoon citric acid or 3/4 cup lemon juice to 1 gallon water.

An ascorbic acid/water solution serves as a desirable anti-darkening treatment, adds nutritive value in the form of vitamin C, and does not change the flavor of the fruit as lemon juice may do. Ascorbic acid is available in crystalline or tablet form in drug stores and supermarkets. Ascorbic acid mixtures, such as ascorbic acid combined with sugar or with citric acid and sugar, also are available. For these, follow the manufacturer's directions. In such mixtures, ascorbic acid usually is the important active ingredient. Because of its dilution with other materials, these forms may be more expensive than pure ascorbic acid.

For best results, prepare fruits to be canned without sugar using hot-pack methods described in fact sheet 9.347, *Canning Fruit.* However, use water or regular unsweetened fruit juices instead of a sugar syrup. Juice made from the fruit being canned works well. To prepare, bring thoroughly ripe, crushed fruit to a simmer over low heat. Strain through a clean jelly bag or cloth. Blends of unsweetened apple, pineapple and white grape juice also are good filling over solid fruit pieces.

If ascorbic acid products are not used in the pretreatment of cut fruit, they may be added to the canning juices or liquids before processing. This will help keep the fruit from darkening during storage. Use 1/4 to 1/2 teaspoon crystalline ascorbic acid or 750 to 1,500 mg crushed vitamin C tablets per quart of fruit. Commercial ascorbic and citric acid mixtures such as "Fruit Fresh" or "ACM" also may be used according to manufacturer's directions.

Honey or light-colored corn syrup may be substituted for up to half the sugar called for in a canning syrup recipe. However, these products do not reduce the calorie or carbohydrate content of the sugar syrup, and thus are not accept-able sugar replacements for people on diabetic diets.

Substituting plain water for the sugar syrup reduces the calorie content of canned fruit by approximately 205, 280 or 375 calories per pint, assuming 2/3 cup of thin, medium or thick syrup, respectively, is replaced with water.

Adjust headspace and add lids. Process jars of fruit packed with water or fruit juice as for fruits packed with syrup. Use USDA recommended procedures and timetables that have been adjusted for altitude.

When serving fruit preserved without sugar, count fruit exchanges as for fresh or commercially prepared, unsweetened or artificially sweetened fruit.

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Quick Facts

- All fruits can safely be canned or frozen without sugar.
- Sweet relish and pickle recipes do not adapt as well to sugar-free canning as do plain fruits.
- Use recipes from reliable sources. Process all pickles by the boiling-water method using timetables adjusted for altitude.
- Jams and jellies can be made without added sugar but will resemble more of a fruited gelatin desert than a true jam or jelly.
- Salt is not necessary for safe processing of canned or frozen fruits and vegetables. It is necessary for the preservation of most pickles and cured or smoked foods.

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Freezing Fruit

All fruits may be frozen without added sugar. Sugar is not needed for the preservation of frozen fruits, but it does help the fruit maintain quality longer.

Berries and fruits such as cherries, plums, dates, grapes, melon balls, pineapple chunks and rhubarb slices that do not darken when exposed to air are best frozen in single layers on trays, then packed into freezing bags or containers. These fruits may be served partially thawed, giving some juice, but with some frozen firmness still remaining in the fruit itself.

Light-colored fruits such as apples, peaches and apricots freeze well in unsweetened juice or water. Pack them in rigid containers, leaving 1/2 inch of headspace for square pint containers and 1 inch for quart containers. Retard darkening of light-colored fruits by one of the methods discussed in the section on canning fruit without sugar. Artificial sweeteners, if available, may be added to the water in an amount equal in sweetness to a sugar-sweetened syrup. Make a small batch to test for acceptability before freezing large quantities.

Canning Relishes and Pickles

Sweet relish and pickle recipes do not adapt as well to sugar-free canning as do plain fruits. Try recipes that call for artificial sweeteners, but don't be too discouraged if some batches are disappointing. Finished products often are mushy or have an unsuitable flavor. When canning pickles and relishes, use the boiling water bath method and processing times that are adjusted for altitude.

Preserving Jams and Jellies

Sugar helps in gel formation, serves as a preserving agent, and contributes to the flavor of jams and jellies. It also has a firming effect on fruit, a property useful in making preserves.

Jams and jellies can be made somewhat satisfactorily without added sugar but tend to resemble more of gelatin-fruited dessert than a true jam or jelly. Such products generally are sweetened with a non-nutritive sweetener and gelled with unflavored gelatin, gums or modified pectin. Jams with less sugar than usual also may be made with concentrated fruit pulp that contains less liquid and less sugar.

Two types of modified pectin are available for home use. One gels with one-third less sugar. The other is a low-methoxyl pectin that requires a source of calcium for gelling.

To prevent spoilage, process jars of low-sugar jams and jellies longer in a boiling water-bath canner than regular jams or jellies. Carefully follow recipes and processing times provided with each modified pectin product. Altering the proportion of acids and fruits may result in spoilage. Low-sugar jams and jellies also may be stored in the refrigerator for use within three to four weeks or in the freezer for longer storage.

Note: Sugar-free jams and jellies contain the carbohydrate that is naturally present in the fruit. Commercial low-calorie jelling mixes may provide additional carbohydrates in the form of maltodextrin or other saccharides. Jams and jellies made with artificial sweeteners and unflavored gelatin or added pectin generally provide 8 to 12 calories (2 to 3 grams carbohydrate) per tablespoon. Those made with a commercial low-calorie jelling mixture such as maltodextrin provide 16 to 20 calories (4 to 5 grams carbohydrates) per tablespoon.

Reduced-Calorie Peach-Pineapple Spread

4 cups drained peach pulp (procedure below)
2 cups drained, unsweetened crushed pineapple
1/4 cup bottled lemon juice
2 cups sugar (optional)

Note: This recipe may be made with any combination of peaches, nectarines, apricots and plums, and without sugar or with as little as 2 cups.

Yield: 5 to 6 half-pints

Procedure: Thoroughly wash 4 to 6 pounds of firm, ripe peaches. Drain well. Peel and remove pits. Grind fruit flesh with a medium or coarse blade, or crush with a fork (do not use a blender). Place ground or crushed fruit in a 2-quart saucepan. Heat slowly to release juice, stir constantly until fruit is tender. Place cooked fruit in a jelly bag or strainer lined with four layers of cheesecloth. Allow juice to drip about 15 minutes. Save the juice for jelly or other uses.

With the exception of cured or smoked foods and most pickled products, salt is not necessary for safe processing of home-canned or frozen fruits and vegetables. Its addition does help retain the natural color and texture of the canned product. It is primarily added for flavor.

Measure 4 cups of drained fruit pulp for making spread. Combine the 4 cups of pulp, pineapple and lemon juice in a 4-quart saucepan. Add up to 2 cups of sugar, if desired, and mix well. Heat and boil gently for 10 to 15 minutes. Stir enough to prevent sticking.

Fill half-pint or pint jars quickly, leaving 1/4 inch of headspace. Wipe rims; adjust lids and process in a boiling water bath. Process half-pints for 20 minutes at 1,001 to 6,000 feet or 25 minutes at 6,001 to 10,000 feet. Process pints for 25 minutes at 1,001 to 3,000 feet, 30 minutes at 3,001 to 6,000 feet, 35 minutes at 6,001 to 8,000 feet, or 40 minutes at 8,001 to 10,000 feet.

Remove jars from canner and cool overnight upright on a rack or towel. Label and store in cool, dark, dry place.

Refrigerated Low-Calorie Grape Jelly With Gelatin

2 Tbsp unflavored gelatin powder
1 bottle (24 oz) unsweetened grape juice
2 Tbsp bottled lemon juice
2 Tbsp liquid artificial sweetener, to equal 1 cup sugar (read label if substituting dry artificial sweetening agent)

Yield: 3 half-pints

Procedure: In a saucepan, soften gelatin in the grape and lemon juices. Bring to a full rolling boil to dissolve gelatin. Boil 1 minute and remove from heat. Stir in sweetener. Pour quickly into hot, sterile half-pint jars, leave 1/4 inch of headspace. Adjust lids. Do not process or freeze –store in refrigerator and use within four weeks.

Canning and Freezing for Salt-Free Diets

To can or freeze foods without salt, follow usual recipes and reliable canning and freezing directions, but without adding salt. The flavor of saltless vegetables can be improved, however. Add 1/2 to 1

tablespoon of lemon or orange juice to each pint of carrots, beets or asparagus. Green beans and peas get a lift from 1/4 teaspoon mace, nutmeg or curry powder per pint. Salt substitutes generally are not recommended in canning. They may contain additives that will react with the foods, impart off-flavors or colors, or give brines a cloudy appearance.

Always add the amount of salt specified in brined pickles and cured and smoked foods. Salt is needed for the safe preservation of these foods. People on low-sodium diets should check with a physician or dietitian to see if these foods should be excluded from their diets or eaten only in limited amounts.

A few low-sodium, high-vinegar, fresh-pack pickle recipes have been developed. Any fresh-pack pickle recipe that calls for as much or more vinegar than water and provides a finished product with at least 1/4 cup of 5 percent acid vinegar per pint jar of pickled products can be safely made without salt. Sweet pickles generally taste better without salt than dill pickles. If salt is omitted from fresh-pack dill pickles, try adding hot peppers, herbs and garlic instead. Dill pickles taste better if as little as 0.5 percent salt by weight of entire contents is added. This is the equivalent of 1/2 to 3/4 teaspoon of salt per pint jar of pickles.

Reduced-Sodium Sliced Sweet Pickles

4 pounds (3- to 5-inch) pickling cucumbers
Brining solution:
1 quart distilled white vinegar (5%)
1 Tbsp canning or pickling salt
1 Tbsp mustard seed
1/2 cup sugar
Canning syrup:
1 2/3 cups distilled white vinegar (5%)
3 cups sugar
1 Tbsp whole allspice
2 1/4 tsp celery seed
Yield: About 4 to 5 pints

Procedure: Wash cucumbers. Cut 1/16 inch off blossom end and discard. Cut cucumbers into 1/4-inch slices. In a large kettle, mix the ingredients for the brining solution. Add the cut cucumbers and cover. Simmer until the cucumbers change color from bright to dull green (about 5 to 7 minutes). Heat to a boil. Drain the cucumber slices. Fill clean pint jars to 1/2 inch of jar tops. Cover with hot canning syrup, leaving 1/2 inch of headspace.

Remove air bubbles with a nonmetallic knife. Wipe jar rims and adjust lids as manufacturer directs. Process in a boiling water-bath canner for 15 minutes at altitudes between 1,001 and 6,000 feet. Process 20 minutes at altitudes between 6,001 and 10,000 feet. Remove jars from canner and cool overnight upright on a rack or towel.

Reduced-Sodium Sliced Sweet Dill Pickles

4 pounds (3- to 5-inch) pickling cucumbers
6 cups vinegar (5 percent)
6 cups sugar
2 Tbsp canning or pickling salt
1 1/2 tsp celery seed
1 1/2 tsp mustard seed
2 large onions, thinly sliced
8 heads fresh dill
Yield: About 8 pints

Procedure: Wash cucumbers. Cut 1/16-inch slice off blossom end and discard. Cut cucumbers in 1/4-inch slices. Combine vinegar, sugar, salt, celery and mustard seeds in large saucepan and bring to a boil. Place 2 slices of onion and 1/2 dill head in each pint jar. Fill jars with cucumber slices, leaving 1/2-inch head-space. Add one slice of onion and one-half head dill on top. Pour hot pickling solution over cucumbers, leaving 1/4-inch headspace. Remove air bubbles. Wipe jar rims and adjust lids as manufacturer directs. Process in a boiling water-bath canner for 20 minutes at 1,001 to 6,000 feet or 25 minutes at 6,001 to 10,000 feet. Remove jars from canner and cool overnight upright on rack or towel. Label and store in cool, dark, dry place.

References

So Easy To Preserve, S. Reynolds and P. Ybarra, 1983. Cooperative Extension Service, University of Georgia, Athens.

The Complete Guide to Home Canning. Agriculture Information Bulletin No. 539-1, U.S. Department of Agriculture Extension Service, revised 1995.