Food and Nutrition
EXTENSION
UtahStateUniversity

extension.usu.edu
June 2017 FN/Preservation/2017-01pr

Pretreatments to Prevent Darkening of Fruits Prior to Canning or Dehydrating

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Light colored fruits such as apples, peaches, apricots and bananas darken when cut and exposed to air. The browning action is a natural occurrence in these fruits and is harmless to consume. This darkening may be prevented or reduced by pretreating fruits before canning or dehydrating. Keep fruit in the pretreatment solution until placed in jars. Drain fruit well before placing in canning jars or on dehydrating racks. If darkening fruits are not pretreated, they will continue to darken throughout the preservation process.

Citric acid and ascorbic acid are similar substances that occur naturally in fruits and vegetables, especially citrus fruits such as lemons and limes. Both acids have nutritional benefits, and they are commonly used in food manufacturing and as a preservative, but there are several differences between the two compounds, including flavor.

Ascorbic Acid (Vitamin C): Ascorbic acid is the chemical name for Vitamin C. It is a water soluble and heat sensitive vitamin. It can be destroyed when foods are heated or canned. Ascorbic acid is an excellent food preserving agent because it helps maintain the natural color of certain foods, especially fruits, vegetables and even meats that turn brown when cut open and exposed to oxygen. Ascorbic acid has a bitter, acidic flavor. Ascorbic acid, mixed with water, helps prevent browning. It is available in powdered or tablet form from grocery stores or drugstores.

Vitamin C tablets are an economical method of getting ascorbic acid. They are available year round and easily purchased in specific milligram quantities. Buy 500-milligram tablets; crush and dissolve six tablets per gallon of water as a treatment solution. Fillers in the tablets may result in white flecks, but they are not harmful.

While preparing a canner load of jars, keep peeled, halved, quartered, sliced, or diced apples, apricots, nectarines, peaches, and pears in the pretreatment solution. This procedure is also useful in maintaining the natural color of mushrooms and potatoes, and for preventing stem-end discoloration in cherries and grapes. If using the powdered form, mix 1 teaspoon of pure powdered ascorbic acid (or six 500 mg tablets, crushed) in 2 cups water. Place the fruit in the solution for 3 to 5 minutes. Remove fruit and drain well. After every two batches of fruit, add more ascorbic acid to the mixture or make a new mixture. If using pure ascorbic acid, use 1 level teaspoon per gallon of water. (One teaspoon of pure ascorbic acid is equal to 3,000 milligrams.)

Citric Acid Powder or Lemon Juice

Citric acid also has antioxidant properties, but it is not a vitamin or an essential nutrient like ascorbic acid. It comes from lemon, lime, grapefruit and orange juice, as well as lemonade. Citric acid is the more commonly used preservative because it is less expensive and readily available in large commercial quantities. Citric acid has a more sour or tart flavor than ascorbic acid. Citric acid lowers the pH of

foods and beverages, which helps to prevent microbial growth and bacteria.

Citric acid powder or lemon juice can be used as a pretreatment but neither is as effective as ascorbic acid in preventing discoloration of fruit before canning. Add 1 teaspoon of citric acid (U.S.P. grade) or ¾ cup lemon juice to 1 gallon water. Drain fruit before canning.

Citric acid is found in most grocery stores in the canning department.

Ascorbic Acid and Citric Acid Mixtures

Commercially prepared mixes of ascorbic acid and citric acid and sugar are seasonally available with home canning supplies in grocery stores and supermarkets. Generally, these products have a label that will indicate they are used to prevent darkening of fruit. If they are NOT 100% ascorbic acid, do not use when ascorbic acid is required for acidification (e.g., in canning tomatoes) or in a specific recipe. These mixtures should only be used for making a solution to hold cut foods to prevent darkening. If you choose to use these products for holding solutions or in syrups for freezing fruits, follow the manufacturer's directions for quantities.

Commercial mixes are more expensive and are not as concentrated as using pure ascorbic acid, but are easier to find. Sometimes citric acid powder is sold in supermarkets, but it is less effective in controlling discoloration. If you choose to use these products, follow the manufacturer's directions. Commercial mixes may be found under the brand names of Fruit Fresh, Ever Fresh, etc.

Fruit Juice

Fruit juice high in vitamin C may be used as a pretreatment. It is not as effective as pure ascorbic acid. Juices high in Vitamin C include orange, lemon, pineapple, grape, and cranberry. Each juice will add its own flavor and color to the fruit. To use fruit juice as a pretreatment, place enough juice to cover fruit in bowl. Add cut fruit. Soak for 3 to 5 minutes. Remove fruit and drain well. Use this solution only twice and then it must be replaced.

Sulfites

Sulfur and sulfite compounds have been used for centuries as pretreatments to prevent darkening of preserved fruits. They also prevent microbial growth and reduce spoilage.

Sulfites may initiate asthmatic reactions and have been banned by the Food and Drug Administration (FDA) on fruits and vegetables for sale or served raw to consumers. About 1 in 100 individuals have a sensitivity to sulfites. USE WITH CAUTION. Sulfite is still used as an antimicrobial agent in some commercially dehydrated fruit products. This product must be special ordered through a pharmacy.

If you use this type of pretreatment, use only U.S.P. (food grade) or Reagent Grade sodium bisulfite. Do not use Practical Grade Sodium bisulfite, which is found in many places such as pharmacies or where wine making supplies are sold. To use mix 1 tablespoon of sodium bisulfite per gallon of water or ¾ teaspoon per quart of water. Soak fruit for 5 minutes, Drain. Rinse lightly with tap water. Spread on clean cloth or paper towels to absorb any excess moisture.

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