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EXTRACTING JUICE TO MAKE JELLY

Place fruit into a flat-bottomed saucepan and add cold water. For apples and other hard fruits, add up to 1 cup per pound of fruit. For berries and grapes, use only enough water to prevent scorching. Crush soft fruits to start the flow of juice.

Bring to a boil on high heat. Stir to prevent scorching. Reduce heat.

Grapes and berries need to cook for 10- minutes or less or until soft. Apples and other hard fruits usually need to cook for 20 to 25 minutes depending on the firmness of the fruit. Do not overcook; excess boiling will destroy the pectin, flavor, and color.

Pour everything into a damp jelly bag and suspend the bag to drain the juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing or squeezing.

If a fruit press is used to extract the juice, restrain the juice through a jelly bag.

NOTE: Juice berries can be crushed and the juice extracted without heating.

Source:

Reviewed May 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist North Carolina State University, Raleigh, NC
TESTING JELLY MADE WITHOUT ADDED PECTIN FOR DONENESS

Three methods of testing for doneness in jelly made without added pectin are below. Of these three, the temperature test is the most dependable.

**Temperature test** — Use a jelly or candy thermometer and boil until the mixture reaches the following temperatures at altitudes of:

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For an accurate reading, place the thermometer in a vertical position and read at eye level. The bulb of the thermometer must be completely covered with the jelly but must not touch the bottom of the pot in which you are cooking the jelly.

**Spoon or sheet test** — Dip a cool metal spoon into the boiling jelly mixture. Raise the spoon about 12 inches above the pan (out of steam). Turn the spoon so the liquid runs off the side. The jelly is done when the syrup forms two drops that flow together and sheet or hang off the edge of the spoon.

**Refrigerator/freezer test** — Pour a small amount of boiling jelly on a plate, and put it in the freezing compartment of a refrigerator for a few minutes. If the mixture gels, it should be done. During this test, the rest of the jelly mixture should be removed from the heat.

Source:

Reviewed May 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist
North Carolina State University, Raleigh, NC
MAKING JELLY WITH ADDED PECTIN

Jelly made from powdered or liquid pectin is prepared differently from jelly made without added pectin. Follow the manufacturer's directions carefully. Pectin, acid, and doneness tests are not needed for this type of product.

Using powdered pectin:

- Sterilize canning jars for 10 minutes and keep hot.
- Treat new canning lids.
- Measure sugar and set aside.
- Measure juice and mix with pectin a large saucepot; bring to a boil.
- Add sugar at once. Stir and bring to a full rolling boil.
- Boil hard for 1 minute, stirring constantly.
- Remove from heat and skim off foam with a metal spool or a jelly skimmer.
- Pour quickly into clean, hot jars, leaving 1/4-inch headspace.
- Wipe jar rims, adjust lids, and process in a boiling water bath for 5 minutes.

Using liquid pectin:

- Sterilize canning jars for 10 minutes and keep hot.
- Treat new canning lids.
- Measure juice and sugar. Combine in a large saucepot.
- Bring to a rapid boil and add liquid pectin.
- Bring back to a boil and boil hard for 1 minute, stirring constantly.
- Remove from heat and skim off foam with a metal spoon or jelly skimmer.
- Pour quickly into clean, hot jars, leaving 1/4-inch headspace.
- Wipe jar rims, adjust lids, and process in a boiling water bath for 5 minutes.

Source:

Reviewed March 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist
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MAKING JELLIED PRODUCTS WITHOUT ADDED SUGAR

A variety of fruit spreads can be made that are tasteful, yet lower in sugars and calories than regular jams and jellies. Four methods can be used:

Special modified pectins — These pectins are not the same as regular pectin. Look for packages that read "light", "less sugar", or "no sugar needed." Follow the directions that are inside the package.

Regular pectin with special recipes — These recipes have been formulated so that no added sugar is needed.

Recipes using gelatin — Some recipes used unflavored gelatin as the thickener for jelly or jam. Artificial sweetener is often added.

Long-boil method — Boiling fruit pulp for extended periods of time will make a product thicken and resemble a jam, preserve, or fruit butter. Artificial sweetener may be added.

Follow the directions on the modified pectin box or in a no-sugar recipe exactly. Alterations in the recipe could result in product failure. Because these products do not have sugar as their preservative, be sure to process or store them as directed. Some need longer processing in a boiling water bath and some need refrigeration.

Source:

Reviewed March 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist North Carolina State University, Raleigh, NC
MAKE JELLY WITHOUT ADDED PECTIN — TESTING ACID IN THE JUICE

A simple test can be performed at home to determine the amount of acid present. Mix together 1 teaspoon lemon juice, 3 tablespoons water, and 1/2 teaspoon sugar. If the fruit juice does not taste as tart as this mixture, there is not enough acid to form a good gel. Therefore, add 1 tablespoon lemon juice or 1/8 teaspoon citric acid to each cup of fruit juice.

Source:

Reviewed May 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist North Carolina State University, Raleigh, NC
MAKING JELLY WITHOUT ADDED PECTIN — TESTING PECTIN IN THE JUICE

For jellies made without added pectin, it is important to know whether there is enough natural pectin to form a gel. There are three ways to determine this:

*Cooking test* — Measure 1/3 cup of juice and 1/4 cup of sugar into a small saucepan. Heat slowly, stirring constantly until all the sugar is dissolved. Bring the mixture to a boil and boil rapidly until it sheets off of a cool, metal spoon. Then pour the jelly into a clean, hot jelly jar or a small bowl and let cool. If the cooled mixture is jelly-like, the fruit juice will gel.

*Alcohol test* — Add 1 teaspoon of juice to 1 tablespoon of rubbing alcohol. To mix, gently stir or shake the mixture in a closed container so that all the juice comes in contact with the alcohol. *Do not taste this mixture as it is poisonous.* Fruit high in pectin will form a solid jelly-like mass that can be picked up with a fork. If the juice clumps into several small particles, there is not enough pectin for jelly.

*Jelmeter test* — The jelmeter is a graduated glass tube that measures the rate at which fruit juice flows through the tube. It gives a rough estimate of the amount of pectin present in the juice and how much sugar should be used.

Source:

Reviewed May 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist
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STORING COOKED JAMS AND JELLY

Store jams and jellies in a cool, dry place; the shorter the storage time, the better the eating quality of the product. After the jelly has been opened, refrigerate it. Jams and jellies can be frozen successfully. Freezing has no adverse effects on the color, flavor, or texture of jellied products. However, if jelly has been properly processed, there is no reason to freeze it. It is a shelf-stable product.

Reviewed June 2003 by:
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STORING UNCOOKED JAM

Store uncooked (freezer) jams in the refrigerator or freezer. They can be stored for up to 4 weeks in a refrigerator or up to one year in a freezer. If kept at room temperature, they will mold or ferment in a short time. Once a container is opened, store it in the refrigerator — do not refreeze.

Reviewed June 2003 by:
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JAM AND JELLY PROBLEMS, CLOUDY JELLY

One or more of the following might cause cloudy jelly:

- Green fruit was used so use firm, ripe fruit, or slightly underripe fruit
- Imperfect straining of the juice, therefore, do not squeeze juice but let it drip through the jelly bag.
- Juice was allowed to stand before it was poured into jars or it was poured too slowly. Therefore, pour into clean, hot jars immediately upon reaching the gelling point.
JAM AND JELLY PROBLEMS -- CRYSTALS IN JELLY

Crystals throughout jelly or jam may be caused by:

- Too much sugar in the jelly mixture so test fruit juice with jelmeter for proper proportions of sugar.
- Cooking the mixture too long or too slowly -- long slow cooking results in too much evaporation of water. Cook at a rapid boil. Remove from heat immediately when jellying point is reached.
- Undissolved sugar sticking to sides of saucepot so wipe all crystals from side of pan with damp cloth before filling jars.
- Tartrate crystals in grape juice so extract grape juice and allow tartrate crystals to settle out by refrigerating the juice overnight. Strain juice to remove any remaining crystals before making jelly.
JAM AND JELLY PROBLEMS -- TOO SOFT

Jam or jelly is too soft or syrupy if:
- The fruit was overcooked to extract juice. Avoid overcooking as this lowers the jellying capacity of the pectin.
- Too much water was used to extract the juice. Use only the amount of water suggested in the instructions.
- Incorrect proportions of sugar and juice were used. Follow recommended proportions.
- The mixture was undercooked causing insufficient concentration. Cook rapidly to the jellying point.
- Insufficient acid is present. Lemon juice is sometimes added if the fruit does not have sufficient acid.
- Too large a batch was made at one time. Use only 4 to 6 cups of juice in each batch of jelly.
- The product was moved too soon. Do not move jellied products for 12 hours after they are made.
JAM AND JELLY PROBLEMS -- TOO STIFF

Jam or jelly is too stiff if it is usually because the mixture was overcooked. Cook jelly mixture to a temperature 8°F higher than the boiling point of water or until it “sheets” from a spoon.
REMAKING COOKED JELLY OR JAM WITH POWDERED PECTIN

Recook a trial batch using 1 cup of jelly. Do not recook more than 8 cups at one time. For each cup of jelly or jam, measure 2 tablespoons sugar, 1 tablespoon water, and 1-1/2 teaspoons of powdered pectin. (Stir the package contents well before measuring.) Mix the pectin and water and bring to a boil, stirring constantly. Add jelly or jam and sugar. Stir thoroughly. Bring to a full rolling boil over high heat, stirring constantly. Boil mixture hard for 1/2 minute. Remove from the heat, skim, and pour into hot, sterilized containers. Seal and process in a boiling water bath for 5 minutes.

Source:

Reviewed March 2003 by:
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REMAKING COOKED JELLY OR JAM WITH LIQUID PECTIN

Recook a trial batch using 1 cup of jelly or jam. Do not recook more than 8 cups at one time. For each cup of jelly or jam, measure 3 tablespoons sugar, 1-1/2 teaspoons lemon juice, and 1-1/2 teaspoons of liquid fruit pectin. Place jelly or jam in a saucepot and bring to a boil, stirring constantly. At once add sugar, lemon juice, and liquid pectin. Bring to a full rolling boil, stirring constantly, and boil hard for 1 minute. Remove from heat, skim, and pour into hot, sterilized jars. Seal and process for 5 minutes in a boiling water bath.

Source:

Reviewed March 2003 by:
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REMAKING UNCOOKED JELLY OR JAM WITH LIQUID PECTIN

Remake a trial batch using 1 cup of jelly or jam. Do not remake more than 8 cups at one time. In a bowl, mix jelly or jam and for each 1 cup of jelly or jam add 3 tablespoons sugar and 1-1.2 teaspoons lemon juice. Stir well until sugar is dissolved (about 3 minutes). Add 1-1/2 teaspoons liquid pectin per cup or jelly or jam and stir until well blended (about 3 minutes). Pour into clean containers. Cover with tight lids. Let stand in refrigerator until set. Then store in refrigerator or freezer.

Source:

Reviewed March 2003 by:
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REMAKING UNCOOKED JELLY OR JAM WITH POWDERED PECTIN

Remake a trial batch using 1 cup of jelly or jam. Do not remake more than 8 cups at one time. In a bowl, mix jelly or jam and 2 tablespoons sugar for each cup of jelly or jam. Stir well until dissolved (about 3 minutes). Measure 1 tablespoon water and 1-1/2 teaspoons powdered pectin for each cup of jelly or jam. Place in small saucepan and place over low heat, stirring, until the powdered pectin is dissolved. Add to the sugar and fruit mixture and stir until thoroughly blended (about 2-3 minutes). Pour into clean containers. Cover with tight lids. Let stand in refrigerator until set. Then store in refrigerator or freezer.

Source:

Reviewed March 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist North Carolina State University, Raleigh, NC
REMAKING COOKED JELLY WITHOUT ADDED PECTIN

If the fruit juice was not acid enough, add 1-1/2 teaspoons bottle lemon juice per cup jelly before boiling. Heat the jelly to boiling and boil until the jellying point is reached. Remove jelly from heat, skim, pour immediately into sterilized hot jars, seal, and process for 5 minutes in a boiling water bath.

Source:

Reviewed March 2003 by:
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FREEZER JAMS AND JELLIES

Freezer jam is sometimes called an uncooked jam. As noted by at least one manufacturer of pectin, a few sugar crystals will remain in freezer jams. Nothing can be done about this. If freezer jam is too firm, stir to soften. If it tends to separate, stir to blend. If it is too soft, bring it to a boil. It will thicken on cooling. Store uncooked jams in the refrigerator or freezer. Freezer jams can be stored for up to four weeks in a refrigerator or up to one year in a freezer. If kept at room temperature, they will mold or ferment very quickly. Once a container is opened, the jam should be refrigerated. Freezer jams can be made with powdered or liquid pectin. Check commercial packages for the recipes.

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PREPARING BUTTERS, JAMS, JELLIES, AND MARMALADES

Sweet spreads are a class of foods with many textures, flavors and colors. They all consist of fruits preserved mostly by means of sugar and they are thickened or jellied to some extent. Fruit jelly is a semi-solid mixture of fruit juice and sugar that is clear and firm enough to hold its shape. Other spreads are made from crushed or ground fruit. Jam also will hold its shape, but it is less firm than jelly. Jam is made from crushed or chopped fruits and sugar. Jams made from a mixture of fruits are usually called conserves, especially when they include citrus fruits, nuts, raisins, or coconut. Preserves are made of small, whole fruits or uniform-size pieces of fruits in a clear, thick, slightly jellied syrup. Marmalades are soft fruit jellies with small pieces of fruit or citrus peel evenly suspended in a transparent jelly. Fruit butters are made from fruit pulp cooked with sugar until thickened to a spreadable consistency.

Reviewed March 2003 by:
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JAM AND JELLY INGREDIENTS

For proper texture, jellied fruit products require the correct combination of fruit, pectin, acid, and sugar. The fruit gives each spread its unique flavor and color. It also supplies the water to dissolve the other ingredients and furnishes some or all of the pectin and acid. Good-quality, flavorful fruits make the best jellied products. Pectin is a substance in fruits that forms a gel if in the right combination with acid and sugar. All fruits contain some pectin. Apples, crab apples, gooseberries and some plums and grapes usually contain enough natural pectin to form a gel. Other fruits, such as strawberries, cherries and blueberries, contain little pectin and must be combined with other fruits high in pectin or with commercial pectin products to obtain a gel. Because fully ripened fruit has less pectin, one-fourth of the fruit used in making jellies without added pectin should be underripe. The proper level of acidity is critical to gel formation. If there is too little acid, the gel will not set; if there is too much acid, the gel will lose liquid and weep. For fruits low in acid, add lemon juice or other acid ingredients, as directed. Commercial pectin products contain acids that help to ensure gelling. Sugar is a preserving agent, contributes to flavor and aids in gelling. Cane and beet sugar are the usual sources of sugar for jelly or jam. Corn syrup and honey can be used to replace part of the sugar in recipes, but too much will mask the fruit flavor and alter the gel structure. Use tested recipes for replacing sugar with honey and corn syrup. Do not try to reduce the amount of sugar in traditional recipes. Too little sugar prevents gelling and may allow yeasts and molds to grow.

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JAMS AND JELLIES WITH REDUCED SUGAR

Jellies and jams that contain modified pectin, gelatin or gums can be made with non-caloric sweeteners. Jams with a lower sugar content can also 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, jars of these products must be processed longer in a boiling water canner. Recipes and processing times provided with each modified pectin product must be followed carefully. The proportions of acids and fruits should not be altered, as spoilage may result. Acceptably gelled refrigerator fruit spreads also can be made with gelatin and sugar substitutes. Such products spoil at room temperature, must be refrigerated and should be eaten within one month.

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METHODS TO MAKE JAMS AND JELLIES

There are two basic methods of making jams and jellies. The standard method, that does not require added pectin, works best with fruits naturally high in pectin. The other method that requires the use of commercial liquid or powdered pectin is much quicker. The gelling ability of various pectins differs. To make uniformly gelled products, be sure to add the quantities of commercial pectins to specific fruits as instructed on each package. Overcooking may breakdown pectin and prevent proper gelling. When using either method, make one batch at a time, according to the recipe. Increasing the quantities often results in soft gels. Stir constantly while cooking to prevent burning. Recipes are developed for specific jar sizes. If jellies are filled into larger jars, excessively soft products may result.

Reviewed March 2003 by:
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PREVENTING SPOILAGE OF JAMS, JELLIES

Even though sugar helps preserve jellies and jams, molds can grow on the surface of these products. Research now indicates that the mold that people usually scrape off the surface of jellies may not be as harmless as it seems. Mycotoxins have been found in some jars of jelly that show signs of mold growth. Mycotoxins are known to cause cancer in animals; their effects on humans are still being researched. Therefore, if you see mold on the surface, throw out the entire contents of the jar. If you wish to save the jar, sterilize it to kill the mold spores. Because of possible mold contamination, paraffin or wax seals are no longer recommended for any sweet spread, including jellies. To prevent growth of molds and loss of good flavor or color, fill products hot in hot sterile half-pint canning jars, leaving 1/4-inch headspace, seal with self-sealing lids, and process 5 minutes in a boiling water canner. Correct process time at higher elevations by adding one additional minute per 1000 feet above sea level. If jars are not sterilized before use, the jars should be processed 10 minutes. Use of sterile jars is preferred, especially when fruits are low in pectin, because the added 5-minute process time might cause weak gels.

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