

INTRODUCTION

Apple cider vinegar is an all-natural product made from fermented apple juice that goes back to the time when the first Romans sailed to the British Isles in 55 B.C. The locals were drinking a cider-like drink made from apples, which their new visitors quickly fell in love with. Soon enough, cider spread throughout the Roman Empire and across Europe, becoming popular with people from the Germanic tribes to the Normans, whose conquest of England in the 9th century brought apple orchards and the very word “cider” into the English language.

It can be used in food preservation, as it makes the food more acidic, which deactivates its enzymes and kills any bacteria in the food that may cause spoilage. It can also be used as a salad dressing, marinade, sauce, and soup. It can help to boil better eggs and can also be found as a component in some homemade cakes, candies, and hot drinks since it enhances flavor in foods.

INGREDIENTS



Apples



Water



Brown Sugar



MATERIALS



Jar



Measuring spoon



Cheesecloth

Rubber band



PROCEDURES

Part 1 - Making the Cider Base

1. **Choose quality apples.** The apples you choose can significantly shape the flavor of your finished vinegar. Choosing the best quality apples available to you can help in getting the best apple cider vinegar at the end.
2. **Wash your apples in cold water.** Rinse the apples thoroughly and scrub with cold water to remove particles you don't want in the vinegar.
3. **Cut the apples into small cubes.** Use a clean knife to cut your apples into 1-inch (2.5 cm) cubes, keeping the peel and the core in as well.
4. **Transfer the apples to a glass jar.** As the apples will be fermenting for up to 3-4 weeks, keep them in a sterilized, wide mouth, 500ML glass jar. The apples shouldn't fill the jar more than $\frac{3}{4}$ of the way.



5. **Cover the apples with water.** Make sure the apples are completely covered with water, as any exposed apple will begin to rot rather than ferment into vinegar. Use filtered or mineral water that will be free from impurities that could ruin your vinegar.
6. **Add 1 teaspoon (4 grams) of brown sugar for each apple.** Stir the mixture thoroughly to make sure everything combines fully. The sugar will ferment and turn into alcohol, making the apple cider that will eventually become apple cider vinegar.
7. **Cover the jar with a cheesecloth.** As the apples ferment into cider and eventually vinegar, the mixture will still need to be able to breathe. Use a piece of cheesecloth held in place around the mouth of the jar with a rubber band. This will keep everything out of the jar, but still let the gases release during the fermentation process.

PROCEDURES

Part 2 - Fermenting the Sugar

1. **Keep the jar in a warm, dark place.** Leave the vinegar to ferment for a long time in a place where it will not be disturbed unintentionally. Keep it somewhere where it will not be exposed to direct sunlight.
2. **Stir the mixture once or twice a day.** Stirring the mixture will help the fermentation process, as well as shifting apples around in the jar. Stir the cider with a wooden spoon once or twice a day for the first week or two.
3. **Wait for the apples to sink to the bottom of the jar.** As you check on the apples every day or so, keep an eye out for bubbles indicating the fermentation process. If the apples will fully sink to the bottom of the jar, it indicates that the apples have fermented and are no longer needed to make the vinegar.



4. **Strain the apples from the cider and pour the cider back into the jar.** Use another cheesecloth to strain the apples out of the cider. Avoid using metal as this can ruin the fermentation process. Pour the cider back into the jar, cover with a cheesecloth secured with a rubber band, and put it back in the same warm, dark place.
5. **Leave the cider to ferment for 3 to 4 weeks, stirring every few days.** This is where the apple cider will begin to turn into apple cider vinegar. Stir the jar every 3 to 4 days, just to move the vinegar around a little as it ferments.
6. **Transfer the fermented vinegar to a lidded glass jar and store.** Use a clean, sterilized glass jar with a tight lid in order to halt the fermentation process and keep the vinegar fresh. Store the vinegar in your refrigerator and it should never go bad.

A P P L E C I D E R V I N E G A R

FUN FACTS

- ✓ Lowers Blood Sugar Levels and Fights Diabetes
- ✓ Helps You Lose Weight and Reduces Belly Fat
- ✓ Lowers Cholesterol and Improves Heart Health

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How Fermentation occurs in Apple Cider Vinegar

Apple cider vinegar is created from apples, sugar and yeast. The apples are crushed which creates a liquid that is mixed with yeast to start the process of alcoholic fermentation - the sugar produced by the apples is turned into alcohol.

A second fermentation process then takes place, as the sugar-turned-alcohol is converted into vinegar, thanks to the formation of a bacteria called acetobacter, which creates acetic acid. This is the key element in vinegar, as acetic acid provides the tangy taste in vinegar. It also contains small amounts of phosphorus, magnesium, potassium and calcium, which are all elements that we need for our bodies to maintain a normal function.

A by-product of the process, is 'mother of vinegar'. This is a acetic acid bacteria that is created during the second fermentation process that sees alcohol turned into vinegar. It takes the form of a membrane-like material and although completely harmless, many vinegar producers may filter it out in order to make their products more appealing. However, such filtering process will remove the enzymes and 'good' bacteria which may have potential benefits towards wellbeing. In this instance, the presence of the mother is a sign that the particular vinegar on offer retains as much natural goodness as possible.



APPLE CIDER VINEGAR