

# ROOT BEER/BIRCH BEER

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## Materials Needed

Root beer or birch beer extract  
sucrose, cane sugar  
yeast, champagne, beer, or wine yeast preferred. If not available, an active dry yeast such as Red Star will also work.  
bottles and bottle caps. Reusable beer bottles or PET 1-L or 2-L soft drink bottles.  
large pot or container, to hold 1 gallon of liquid  
graduated cylinder or measuring spoons  
measuring cup, quart size

## Safety

Safety glasses or goggles must be worn in the laboratory at all times.

If this experiment is performed in a chemistry laboratory, all work surfaces must be cleaned and free from laboratory chemicals. After cleaning work surfaces, it is advised to cover all work areas with aluminum foil or a food-grade paper covering.

All glassware and apparatus must be clean and free from laboratory chemicals. Use only special glassware and equipment, stored away from all sources of laboratory chemical contamination, and reserved only for food experiments is recommended.

Use only bottles that are rated for holding a pressurized liquid, such as reusable beer bottles (not the disposable type). Bottles must be inspected for chips or cracks and any defective bottles should be discarded. Bottles can explode if the pressure becomes too great.

There are no safety hazards associated with the materials used in this experiment.

## Disposal

Generally, all waste materials in this experiment can be disposed in the trash or poured down the drain with running water. All disposal must conform to local regulations.

## **Procedure**

This procedure makes one gallon of root beer or birch beer.

Thoroughly clean the bottles to be used to hold the root beer. For glass bottles, use of a dishwasher with a sanitary cycle is recommended.

Dissolve 1/4 tsp. of yeast in one cup of warm water (37°C or 98°F). Let this stand for 5 minutes. The mixture should become bubbly and become thick.

Dissolve 454 g (2 cups) sugar in two quarts of warm water.

Measure 15 mL (1 Tbs.) root beer (or birch beer) extract and add it to the sugar solution.

Add the yeast mixture to sugar-root beer solution. Stir well.

Add additional warm water to a total volume of 1 gallon. Stir well.

Fill sterilized bottles, leaving one to two inches of air space at the top. Seal the bottles.

Lay the bottles on their side. Check for leaks. Age for 3 to 4 days at room temperature.

After the initial aging, move the bottles to a cool place. They may be refrigerated at this time.

After one week of aging (total), the root beer is ready to drink. When serving, pour carefully so as not to disturb the sediment of yeast on the bottom of the bottle. The sediment is not harmful, but may give an off flavor.

The flavor will continue to improve if the root beer is aged for a second week.

### **VARIATION: Low Calorie Root Beer**

Prepare one gallon of mix, as described above, without adding any sugar. Add artificial sweetener to taste. Add 6 Tbs. sugar. Stir well and bottle. The sugar will be consumed by the yeast during the aging process.

### **VARIATIONS:**

#### **Dry Ice Root Beer**

Prepare one gallon of mix, as described above, with the following changes:

Add only one cup of sugar (or artificial sweetener to taste).  
Do not add any yeast.

Add several pieces of dry ice to the mixture in an *open* container. The root beer should be ready to drink in about 5 minutes.

### **Instant Root Beer**

Prepare one gallon of mix, as described above, with the following changes:

Add only one cup of sugar (or artificial sweetener to taste).  
Do not add any yeast.

Pour the mixture into a soda siphon bottle. Pressurize with carbon dioxide according to the directions that come with the bottle. Chill before serving.

### **Make Your Own Root Beer Extract**

You may make your own root beer extract according to the following recipe from Papazian, Charlie, *The Home Brewer's Companion*, Avon Books, 1994. The author warns that this mixture, when fermented, builds up pressure quickly and may cause exploding bottles. This mixture is best carbonated by artificial means. This was not tested by the author due to difficulties in obtaining all ingredients.

Ingredients for 5 gallons (19 L):

3 quarts (2.9 L) brown molasses  
2 oz. (57 g) sassafras bark (US government regards sassafras as a carcinogen.)  
2 oz. (57 g) sarsaparilla (woody, shredded)  
2 oz. (57 g) wintergreen (herb)  
1/2 oz. (14.2 g) licorice bark of root (woody, shredded)  
1 vanilla bean (chopped)  
up to 1 lb. (0.45 kg) honey, corn or cane sugar to taste  
Optional flavorings: teaberry, dearberry, checkerberry, boxberry, spiceberry, clove, cinnamon, star anise, ginger, ginseng, juniper berries, and malt extract.

Bring two gallons of water to a boil. Add the ingredients, without any honey or sugar, stir, and immediately turn off the heat. Cover and allow to steep for 2 to 4 hours. Strain the mixture and add cold water to a total volume of 5 gallons. Add honey and sugar to taste. Chill. Force carbonate with carbon dioxide in a soda siphon bottle or carbonate with pieces of dry ice. If stored for a long time, check the pressure to avoid possible explosions.