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Can It Safely

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Home food preservation is a time-honored way to extend the safety and quality of fresh foods. One form of home food preservation is canning. This publication introduces safe ways to can food at home.

Planning and preparation are key. Always start with high quality produce and a clean kitchen (counter tops, sink, cutting boards, jars, etc.). It is important to use research-tested home food preservation methods. Unsafe canning methods include open kettles, conventional or microwave ovens, dishwashers, canning powders, or jars with wire bails and glass caps.

When canning foods at home, always follow a trusted recipe with tested process times. Resources for tested recipes and in-depth instructions for canning can be found from Virginia Cooperative Extension and The National Center for Home Food Preservation.

High-acid and Low-acid Foods

The canning method used will be determined by whether you are preserving **high-** or **low-acid** foods. **High-acid** foods have a pH of 4.6 or less. **High-acid** foods naturally prevent the growth of *Clostridium botulinum*, the organism responsible for botulism. Examples of **high-acid** foods include apples, apricots, berries, cherries, yellow peaches, pears, plums, rhubarb, most jams and jellies, pickles, and acidified tomatoes.

Low-acid foods have a pH greater than 4.6. The pH of **low-acid** foods is too high to prevent the growth of *C. botulinum*. Examples of **low-acid** foods include: beans, beets, carrots, corn, okra, peppers, potatoes, peas, milk, meats, poultry, and seafood.

Figure 1: A selection of canned foods in their sealed jars. Photo credit: The National Center for Home Food Preservation

Clostridium botulinum & Botulism

Most microorganisms are killed by the high cooking temperatures used during the canning process. *C. botulinum* is an exception. *C. botulinum* produces spores that grow in the absence of oxygen and cannot be destroyed at the boiling point of water. *C. botulinum* produces a toxin that causes the illness botulism.

C. botulinum spores are resistant to extreme temperatures, drying, and UV light. Under the right conditions, such as those created during improper canning processes, spores grow into cells which produce a deadly toxin that you cannot smell or taste. Symptoms from the consumption of the toxin develop within 6 hours to 10 days and include double and blurred vision, drooping eyelids, slurred speech, difficulty swallowing, and muscle weakness.

Boiling Water Bath Canning

Boiling water bath canning is safe for preserving **high-acid** foods.

Steam Canning

Steam canning is appropriate for preserving **high-acid** foods. Most recipes created for boiling water bath canning can be used with a steam canner. A benefit of using a steam canner is that less water and less energy is required to safely preserve your food.

Pressure Canning

Pressure canning is the only safe method for preserving **low-acid** foods. Pressure canners can be used to increase the temperature of food to 240°F, which is high enough to destroy *C. botulinum* spores.

There are two styles of stove-top pressure canners – dial gauge and weighted gauge. If you use a dial gauge pressure canner, remember to have the dial gauge tested each year to ensure gauge accuracy and safe canning. You can contact your local Extension agent for assistance.

Adjusting for Altitude

Increasing altitude lowers the boiling point of liquid, therefore adjustments must be made to the process when canning food at altitudes of 1,000 feet above sea level or higher. If you do not know your altitude, you can find it by using https://whatismyelevation.com/

For boiling water bath and steam canning processes, this will include processing for more time. For pressure canning processes, this will include increasing the amount of pressure. Recipes from trusted sources should give you instructions for how much to adjust your process based on your altitude.

Testing the Seal

Test the seal of jars within 12 to 24 hours of processing (jars should be completely cool), by pressing the center of the lid or tapping the lid with a spoon. The lid should stay down and give a clean ringing sound when tapped. If it makes a dull sound, the lid is not sealed. If a jar is not sealed, refrigerate and reprocess with 24 hours or refrigerate and consume within 3 days.

Reprocessing Unsealed Jars

Reprocess within 24 hours. Repack food into a new container if necessary, using a new lid and process using the same method. Label the jar as reprocessed and consume first.

Additional Resources

Boiling Water Bath Canning (FST 426P)

Pressure Canning (FST-222)

Preserving High Acid Foods with a Steam Canner (FST-427NP)

National Center for Home Food Preservation

United States Department of Agriculture Complete Guide to Home Canning

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