

A “Perfect Storm” in a Jar

PREVENTING BOTULISM: WHY PROPER CANNING PROCEDURES MATTER

Home canning is about more than creating a quality, shelf-stable product. When it really comes down to it, the home canning process is about making a *safe* product. That goal entails preventing foodborne illness by following canning procedures developed for the specific type of food being canned, whether it be a jam or a pickle or a jar of meat. Of greatest concern is preventing botulism, a very serious (and potentially deadly) disease caused by the bacteria *Clostridium botulinum*.

When canning, jars of food are heated to destroy pathogens and to expel air and create a vacuum seal. This helps provide the shelf stability, but it also helps create the perfect environment in which *Clostridium botulinum* spores are able to germinate and produce the toxin that causes botulism. That environment includes **moisture** (from the food being canned), a **temperature range that allows for growth** (40°F - 120°F), and **lack of oxygen** (resulting from the air being driven out of the jar during heating). If the food also has a **low acidity** level, then the conditions become favorable for *Clostridium botulinum* spores to produce toxin: A “perfect storm” in a jar.

The only way to destroy *Clostridium botulinum* bacteria is with high heat (240°F), which can only be achieved in a pressure canner. For this reason, low acid foods such as vegetables and meats *must* be processed in a pressure canner. Because *Clostridium* cannot grow in acidic environments, foods that are naturally high in acid (such as most fruits) or have had acid added to them (such as vinegar added to pickles) can be processed in a boiling water or atmospheric steam canner.

Clostridium botulinum bacteria are naturally present all around us. They can be found in the dirt or on the surfaces of food, and spores can be carried by air currents. There’s just no way to know if the bacteria is in that batch of food you’re canning. For this reason, it’s imperative to always choose recipes from reputable resources and follow processing recommendations precisely.

For further information, visit the National Center for Home Food Preservation (NCHFP) website at <https://nchfp.uga.edu> or contact your local Cooperative Extension office.

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