
Canning Breads and Cakes ?

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Canned breads and cakes in glass jars surfaces are popular gift-giving ideas. The bread or cake is not really home-canned. It is baked in an open glass canning jar and then covered with a canning lid; there is no further canning process given to the product.

Canned breads and cakes are not recommended for home cooks or canning; choose cake or bread recipes that you can freeze. Many cake and quick bread recipes contain very little or no acid and thus have the potential for supporting the growth of hazardous bacteria, such as *Clostridium botulinum*, if they are present inside the closed jar. *C. botulinum* causes an often fatal foodborne illness, called botulism. Given that many of these bread and cake recipes have been shown to be low in acid, the major barriers to prevent microbial growth are limited to: (1) the dryness of the product and (2) the lack of oxygen inside the closed jar (because of vacuum seals). Recipe variations such as the addition of fruit, zucchini, liquids, etc. all contribute to available water for microorganisms to use. In addition, lack of oxygen alone does not prevent the growth of all harmful bacteria. The vacuum seals do not remove all oxygen, so some would still be available to the bacteria which do need it.

Research at Kansas State University, reported in the *Journal of Food Protection* in October 1994, showed that heat-stable microorganisms can survive the baking process and multiply in the breads during storage. Using their own banana-nut bread recipe, the researchers at Kansas State University baked the bread in glass jars and sealed them following methods consumers are typically using. A heat resistant microorganism that is often used in tests to determine when a canning process is adequate to produce a safe product was added to the batter for some of the jars. In the breads that had the test microorganism added, it survived all baking and storage treatments. Vacuums in the jars (an indication of oxygen removal from the headspace) were good, but apparently not good enough to be the only control; microbial growth still occurred since enough moisture was available. Underbaking was found to be another serious problem. The Kansas State researchers also looked at a range of baking times that still produced acceptable bread to taste panelists. Those breads baked at the shorter times even showed that microorganisms that were naturally present could survive in the baked breads.

Research at other universities with commonly available recipes for consumers has shown the same potential for dangerous products to result. Nevertheless, recipes for home-canned breads and cakes do continue to be available. They appear occasionally in major newspapers, in books, on television and on the web. Availability

is not a guarantee that the finished product is safe, however. Recipes also appear in some older canning jar company booklets. However, canning jar manufacturers do not currently endorse baking in their canning jars. They would not be liable for any damage or illness that occurs from a non-recommended use of their jars.

Breads and cakes in sealed glass canning jars can often be found for sale at fairs and craft shows. This should not be taken to mean that the consumer can duplicate the product at home safely. When breads and cakes in jars are made for sale commercially by reputable companies, additives, preservatives and processing controls not available for home recipes are used. Safety tests would have been conducted for each specific recipe for commercial products. It is possible that homemade products may also appear for sale. Do not purchase canned breads and cakes in glass jars unless they contain additives to prevent microbial growth and meet all labeling requirements for commercial foods.

Given that no reliable, safe recipes for baking and sealing cakes or breads in jars for room temperature storage are available to the home cook, it is best to say these products are not recommended at this time.

References:

- Aramouni, F.M., Kone, K.K., Craig, J.A. and Fung, D.Y.C. (1994). Growth of *Clostridium sporogenes* PA 3679 in Home-Style Canned Quick Breads. *Jn. of Food Protection* 57(10):882-886.
- Harrold, J. (1999). Manager, Consumer Affairs & Fulfillment, Alltrista Consumer Products Company. Personal communication. February.
- Hillers, V.N. (1995). Extension Food Specialist, Washington State University. Email communication. January.

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