

Preservatives, They Are Not Preserving Life

Have you ever bought a bag of bread, and regretted not looking at the expiration date? You probably saw large green mold spores growing on the insides and outside of the slices, rendering it completely inedible, or maybe it had white powdery patches that simply looked unappetizing. How about turned milk? Browning apples? Do you eat bananas that have turned black? Most likely you do not, along with 99% of the food eating public.

In order to maintain a fresh appearance, food processors use special food additives that prevent mold and fungus from growing or inhibit oxidation (browning). There are hundreds of preservatives on the market. Depending on the type of food being preserved, its pH, its optimal storage temperature, humidity exposure, etc. determines which preservative or combination is best to use.

Probably, the oldest added preservative is salt. Salt's food preservation comes from its ability to attract and absorb moisture and thus prevent mold and other bacteria from growing. While salt is still used quite commonly, especially in canned meats and sauces, other additives have become commonplace. One of the most prominent among these is sodium benzoate.

Sodium benzoate is a very common preservative that is commonly used in acidic beverages like sodas, fruit juices, flavored water, as well as solid foods, sauces and other

products. Sodium benzoate was used in a very famous English study at the University of Southampton on children with various behavioral disorders, namely hyperactivity. Sodium benzoate, along with a number of food coloring agents were included in children's diets along with control groups fed a diet free of these additives. The additive-diet children had a significantly higher rate of behavioral disorders than the controls, so much so that the English government has agreed to prohibit the use of those food-coloring agents. What is interesting, however, is because two different combinations of agents were used and sodium benzoate was in both of them, scientific rationale says that you cannot conclusively claim that sodium benzoate was a contributor because you cannot rule out one of the coloring agents as the primary culprit.

The Coca-Cola Company thinks differently. They have claimed that due to consumer demands, they are going to phase sodium benzoate out of Diet Coke. They are not going to remove it from their other products until an adequate substitute is discovered. The news of hyperactivity and behavioral disorders connected to this preservative was actually not the prime motivator that drove the public to demand action from Coca-Cola, it was the discovery, which has been proven in numerous studies, that when three substances are combined together: sodium benzoate, potassium benzoate, and ascorbic acid, a chemical reaction can occur that produces benzene.

Benzene is a known carcinogen. Scientists use certain terminology to describe the amount of research that has been done on carcinogens. The use of the term “known” carcinogen implies a massive amount of research has been conducted on that toxin.

Benzene is not a “probable” carcinogen.

Benzene is not a “suspected” carcinogen.

Benzene is a carcinogen.

The FDA and the EPA have at numerous times conducted field tests of various consumer products to make sure that the benzene levels in those products are below the “safe” level of 5 parts per billion. In 2006, the results of a benzene product test conducted by the FDA’s Center for Food Safety and Applied Nutrition (CFSAN) tested nearly a hundred products. Though many of them contained less than the limit, there were several products that contained benzene traces that were well above that limit. The limit is 5ppb. Several products tested were over 80ppb.

The CFSAN states that the results they obtained are not perfectly reliable because they tested only a limited number of products from a particular region. They mentioned that the benzene levels in certain products made by the same company varied from product to product, and even batch-to-batch. One lot of one product would have one benzene level, and a different lot of the same product would have higher or lower reading. It depended on the storage temperature, how much sunlight the product had been exposed to and a number of other

determining factors that all contribute to benzene development.

In defense of the manufacturers that made the very high benzene products, once alerted of the information they either removed the sodium benzoate, reformulated the product, or just discontinued it. It’s good to know that those high-spike products are off the market, but what about all the products that have never been tested? New products? They can also vary from batch to batch and how are consumers supposed to test every product they drink? Avoiding products that contain sodium benzoate is the simplest answer.

Because sodium benzoate is mostly effective at killing bacteria and mold in low pH environments, another common preservative is used in high pH environments called calcium propanoate. This preservative has not been as well researched as sodium benzoate, but there is one interesting animal study that found that when the parent chemical of calcium propanoate, propionic acid, was given to rats they developed a number of disorders that affected the nervous system and psychological behaviors similar to autism.

Another sector of the food industry that relies heavily upon the use of preservatives is packaged meat. As meat spoils it either turns green or grey. Because certain types of meat, like salami, deli meats, and other meat products that could remain in their packaging for weeks before their consumption, in order to maintain saleability, processors will often turn to a specific set of

preserving agents. For meats, this typically means nitrates, nitrites, and sulfites.

Nitrates and nitrites typically read on the label as sodium or potassium nitrate/nitrite. The food processors receive large bags of these preserving agents, which are pink in order to distinguish it from normal salt or sugar. The next time you are in the grocery store, check out the packaged meat section and look at the color of the meat. You might notice that turkey, ham, chick and some beef all have a very similar pink color tone. You might assume that this is normal meat color, when in fact it is the pink color added to the nitrate/nitrite salts used to preserve the meat in the packaging.

While nitrite/nitrates might make the meat look pink and delicious, there is a health concern. Nitrates and nitrites, when broken down in the digestive tract by stomach acid and other fluids undergo a chemical change and become nitrosamines. Sometimes in cured meats nitrosamines form in the meat itself before it is consumed. This was a major problem in the 1970s because many farm animals were being fed cured meat, which were laden with nitrosamines and were causing disease in the livestock. Since that time, it is now a requirement in the US to add 550 ppm of either ascorbic acid or erythorbic acid to inhibit nitrosamine formation in the meat itself. This does not guarantee that nitrosamine formation will not occur nor will it entirely prevent nitrosamine formation in the body.

The real danger with nitrosamines is that certain ones can cause certain types of cancers, namely gastric and esophageal cancer. Some nitrosamines are present in cigarette smoke and may be a contributor to smoking related cancers. Since the preservative industry has been aware of the cancer risk associated with nitrosamines, there has been a concerted effort to reduce the likelihood of nitrosamine formation. Unfortunately, there has not been enough quality research done to determine the actual safe exposure level for humans and what effects long-term low dose exposure to nitrosamines would have on a person over the course of a lifetime. To entirely reduce the risk of nitrosamine-induced cancer, simply avoiding foods with added nitrates/nitrites would suffice.

Another common preservative in fruits, as well as a number of alcoholic beverages are sulfites. Sulfites, while they may not cause cancer, are ranked among the top nine allergens. It has been found that a large number of people have sulfite sensitivities that can cause a number of allergic reactions like swollen throat, sneezing, and hives. In some people it can also induce an asthma attack. While this may only affect a segment of the population, one may have a very difficult time discovering if they have this kind of sensitivity because manufacturers are not required to put sulfites on their ingredient labels unless it is specifically added as a preservative. This may lead people to believe that they have a sensitivity to certain fruits, but in actuality their body is reacting to the sulfites. To avoid

sulfites altogether, avoid wines that are not labeled “sulfite-free” and eat only fresh fruits and vegetables.

While the previously mentioned preservatives primary purpose is to kill microbes and prevent mold and fungi, some preservatives are designed to maintain cosmetic appearance by preventing the food from displaying signs of decay like discoloration and odors.

One of the most common preservatives in this category is an anti-oxidant called Butylated hydroxyanisole (BHA). It is added to certain fat-containing foods to prevent them from becoming odorous and rancid. While this may be an honorable purpose, the fact is that BHA, according to the National Institutes of Health, is “reasonably anticipated to be a human carcinogen”. There have been a number of animal experiments that have resulted in gastric cancer development.

While it may be argued that these preservatives are a necessary evil to prevent harmful bacteria and fungal spores from ruining food and making them inedible, are these benefits really worth the risk of developing cancer?

There are old technologies for preserving food that are still applicable and effective, but to our modern era may seem outdated and old-fashioned. Examples like pickling, canning, smoking meats, and normal salting. While there are pickled and canned foods on the grocery store shelves, most of them contain unnecessary preservatives.

Some of your parents or grandparents probably remember the days of glass jars in the pantry of home canned fruit and vegetables. Those foods, if stored well, kept for tremendously long periods without these serious health risks.

The best way to reduce these risks is to just outright bypass the system. Stick to fresh fruits, fresh vegetables, and fresh meats. Choose organic foods and consider visiting your local farmers market. Read the labels of the foods you buy and learn to identify these unnecessary and unhealthy additives. This knowledge and your choices will pay off in better health for you and your family over the course of your lives.



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