



University of California  
Cooperative Extension  
Tulare County

Agriculture and Natural Resources



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## 'NATURAL' FOODS ARE NOT CARCINOGEN-FREE

The holiday season is a good time to remember that the American food supply is by far the best in the world—and the best it has been in the history of this country. It is the best not only in terms of its abundance and variety, but also in terms of its safety. Our diet—like diets around the world—is made up of water, macronutrients (carbohydrates, proteins, and fats), micronutrients (vitamins and minerals), and tens of thousands of other naturally occurring chemicals. A few of these latter chemicals either have been shown to cause cancer in laboratory rodents in research studies or have been shown to be "mutagens" when tested with bacteria.

We hear much about "carcinogens" in our food. But the media use the designation "carcinogen" most frequently in conjunction with man-made rodent carcinogens—substances such as Alar (a fruit-ripening chemical), saccharin (a synthetic, noncaloric sweetener), and BHA (butylated hydroxyanisole, a synthetic antioxidant).

Many of these naturally occurring rodent carcinogens are natural pesticides—chemicals that plants produce to repel or kill predators. Of the approximately 10,000 such natural pesticides occurring in the diet, only about 60 have been tested in rodent experiments. These chemicals are found in a wide variety of our food plants: Brussels sprouts, cantaloupe, cauliflower, cherries, chili peppers, cocoa, garlic, grapes, kale, lentils, lettuce, and radishes—to name just a few that are not in our Holiday Menu.

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The consumption of small doses of rodent carcinogens, whether of natural or synthetic origin, is quite unlikely to pose a cancer hazard to humans. When you understand that carcinogens and mutagens are everywhere in Mother Nature's own food supply, you can see the absurdity of panicking over tiny levels in the food supply of synthetic chemicals (such as pesticide residues) that are "carcinogens" when fed in large doses over a lifetime to rodents

For example, on the Holiday Menu that features bread in the stuffing, the consumer will find that bread contains furfural, a rodent carcinogen. But when you take into account the difference in body weight between a human and a rodent, you will see that, based on the carcinogenicity data available from the laboratory, a person would have to eat 82,600 slices of bread a day to consume an amount of furfural equal to the amount that increased the risk of cancer in rodents.

The primary risk factor in holiday meals—other than the risk of food poisoning from the improper handling or preparation of food—is getting too much of a good thing. A hungry holiday eater can easily consume 2,000-plus calories at one sitting. A consistent intake of excessive calories contributes to obesity, with its attendant higher risk of heart disease. Interestingly, excessive caloric intake has been called the "most striking" carcinogen in rodent carcinogenicity studies. Body weight is a good predictor of a rat's risk of cancer as shown in comparisons of rats on calorie-restricted diets and rats permitted to eat all they want.

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