



## No Link Between Microwave Cooking and Cancer, Expert Says

**Auburn, Sept. 10, 2002** --- An Alabama Cooperative Extension food scientist has this advice for people disturbed by a widely forwarded e-mail claiming that microwave cooking of food in plastic wrap causes cancer: Relax.

In fact, if you're really intent on reducing potentially harmful trace amounts of carcinogens in your food during cooking, she advises giving your frying pan a rest instead.

The e-mail, which has since proven to be largely a hoax, claims a seventh-grade Arkansas student discovered that two supposedly cancer-causing substances, DEHA and dioxin, leach into food from plastic wrap during microwave cooking.

Part of this is true. A seventh-grade Arkansas student named Claire Nelson was, in fact, curious to learn whether potentially harmful chemicals released from heated plastic during microwave cooking ended up in food.

It's also true that Nelson, working with the FDA-affiliated Center for Toxicological Research in Jonesboro, Ark., tested the effects on olive oil enclosed in plastic wrap during microwave cooking. Her testing revealed that one of the substances, known by its initials DEHA, turned up in trace amounts in the oil after cooking and migrated into the oil at between 200 parts and 500 parts per million. The current FDA standard for DEHA is 0.05 parts per billion.

DEHA is a phthalate, one of many types of plasticizers commonly added to plastics to enhance their flexibility.

Likewise, xenoestrogens, believed to reduce sperm-count levels in men and cause breast cancer in women, also were found in the oil. However, it was difficult for Nelson to determine how much was too much, since there currently are no FDA guidelines establishing tolerance levels for xenoestrogens in foods.

This much is true.

What is not true is that DEHA is a known cancer-causing agent or that dioxin was one of the substances uncovered during testing, says Dr. Jean Weese, an Alabama Cooperative Extension System food scientist.

"While some forms of phthalates have been shown to cause health effects, including cancer, in laboratory mice and rats, DEHA isn't one of them," Weese says.

"In fact, the most recent studies involving DEHA and some other phthalates have shown no link with cancer," she adds, stressing that the EPA and the European Union agencies currently do not recognize DEHA as a known carcinogen.

Equally untrue is the claim that dioxin is produced from plastic wraps during microwave cooking. While dioxin is a serious health risk, causing a variety of health problems, including cancer, Nelson's studies turned up no evidence that dioxin was released into food during microwave cooking.

"It is true that dioxins are produced by the burning of plastics, especially polyvinyl chloride, but to my knowledge, no scientific study has ever shown that dioxins are formed in plastics heated by microwaves," Weese says.

Indeed, frying is the only form of cooking that has ever been associated with the production of trace amounts of dioxins in food. The problem stems from the fact that oils and fats typically used in frying contain triglycerides.

"Once these substances reach high temperatures from frying, the fats attached to this glycerol backbone begin breaking down into peroxide and other substances, including, in some cases, dioxins and PCBs, another known carcinogen," Weese says.

Under the circumstances, she says, consumers would be better off putting away the frying pan and broiling your food instead.

She also offers this advice to consumers who still harbor any lingering concerns about using plastics in the microwave.

First, use only cookware that is labeled for use in the microwave oven.

Second, avoid using plastic storage containers such as margarine tubs, takeout containers and other one-time use containers, all of which can melt or warp, possibly causing chemicals to migrate into the food.

Third, never use thin plastic storage bags, brown paper, plastic grocery bags, newspaper or aluminum foil in the microwave oven.

On the other hand, microwave plastic wraps, wax paper, cooking bags, parchment paper, and white microwave-safe paper towels are safe to use. And to be extra safe, be sure to not let plastic wrap touch foods during microwave cooking, Weese advises.

**(Source: [Dr. Jean Weese](#), Extension Food Scientist, 334-844-3269)**