

### What is capsaicin?

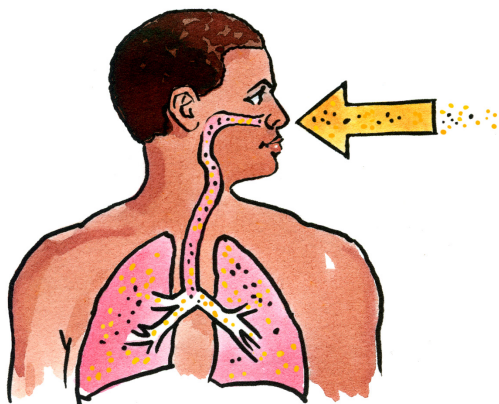
Capsaicin is the main chemical that makes chili peppers hot. Capsaicin is an animal repellent that is also used against insects and mites. Capsaicin was first registered for use in the United States in 1962. The U.S. Environmental Protection Agency considers it to be a biochemical pesticide because it is a naturally occurring substance.



### What are some products that contain capsaicin?

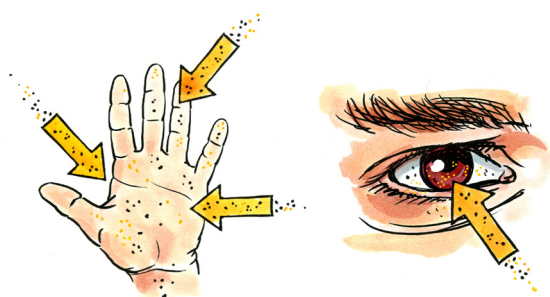
Products containing capsaicin can be aerosols, liquids, or granular formulations. There are several dozen products containing capsaicin on the market in the United States. Many of these products are animal repellents. Always follow label instructions and take steps to avoid exposure.

If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.



### How does capsaicin work?

Capsaicin is very irritating to the skin and eyes, and it causes swelling in lung tissue. It can also irritate the mucous membranes in the mouth. In insects and mites, it appears to damage membranes in cells and disrupt the nervous system.



### How might I be exposed to capsaicin?

Products containing capsaicin are used to deter bears and dogs. They may also be used as repellents against wildlife or pets in backyards and gardens. Other products can be used in nurseries or in agriculture. You may be exposed if you are applying capsaicin and you breathe it in or get it on your skin. You may also be exposed if you eat or smoke after using a product that contains capsaicin without first washing your hands. You also may be exposed if you touch plants that are still wet with spray. You can limit your exposure by staying away from plants that have been sprayed with capsaicin until they are dry. You can also limit exposure by following all label instructions carefully.

NPIC General Fact Sheets are designed to provide scientific information to the general public. This document is intended to promote informed decision-making. Please refer to the Technical Fact Sheet for more information.

### What are some signs and symptoms from a brief exposure to capsaicin ?

Capsaicin is used in food in many parts of the world including the United States, in the form of hot chili peppers. Although it is often used in cooking, eating too much capsaicin can lead to irritation of the mouth, stomach, and intestines. People may develop vomiting and diarrhea. Inhaling sprays containing capsaicin can cause coughing, difficulty breathing, production of tears, nausea, nasal irritation, and temporary blindness. Capsaicin can cause severe eye irritation and is also irritating to the skin. In animals, capsaicin causes coughing, temporary blindness, and prevents the vocal cords from working for a short time. Pets may be exposed to capsaicin if they are sprayed with an animal repellent, if they eat plants treated with a repellent, or if they walk on surfaces that have just been sprayed and are still wet.

### What happens to capsaicin when it enters the body ?

Humans do not absorb capsaicin through their skin. In animals, researchers have shown that capsaicin is absorbed by the stomach. Capsaicin moves throughout the body with the greatest amounts in the brain and spinal cord. The liver breaks down capsaicin. In one study, researchers could not find any residues of capsaicin 17 hours after injecting rats with it.

### Is capsaicin likely to contribute to the development of cancer ?

Whether capsaicin causes cancer in animals is uncertain. The US Environmental Protection Agency has not published a cancer rating for capsaicin. One study found that people eating 90-250 milligrams of Jalapeño peppers were more likely to develop gastric cancer than people eating less than 30 milligrams of Jalapeño peppers a day. Another study found that pure capsaicin seemed to stop human prostate cancer cells from increasing in number.

### Has anyone studied non-cancer effects from long-term exposure to capsaicin ?

Scientists studied developmental and reproductive effects of capsaicin in rabbits and rats. The bones in the paws of baby rats did not develop normally when their pregnant mothers were fed capsaicin at doses that made the mothers sick. Baby rabbits were not affected even when their mothers ate enough capsaicin to be sick. There was no information about reproductive or developmental effects of capsaicin in people. Exposure to capsaicin causes increased airway resistance. People who suffer from asthma or other respiratory diseases may be more sensitive to capsaicin.

### Are children more sensitive to capsaicin than adults ?

While [children may be especially sensitive to pesticides](#) compared to adults, there are currently no data to conclude that children have increased sensitivity specifically to capsaicin.



### What happens to capsaicin in the environment ?

Capsaicin should not be very mobile in soil based on its chemical properties. It is also not expected to turn into a vapor. Bacteria in the soil break down capsaicin. Capsaicin is not expected to get into groundwater although it may leach from soil in some cases. Half of the capsaicin applied to soil broke down in 2 to 8 days.

### Can capsaicin affect birds, fish, or other wildlife ?

Most wildlife will avoid capsaicin because it has such a strong odor and taste. However, birds cannot taste capsaicin and will not be repelled by it. Capsaicin is toxic to bees and other beneficial insects. Researchers believe that capsaicin and similar compounds protect the seeds inside the peppers from fungus.



### Where can I get more information ?

For more detailed information call the National Pesticide Information Center, Monday - Friday, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time) at 1-800-858-7378 or visit us on the web at <http://npic.orst.edu>. NPIC provides objective, science-based answers to questions about pesticides.

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