

Pyrethrins and Pyrethroids

What are Pyrethrins and Pyrethroids?



Pyrethrins and pyrethroids are insecticides included in over 3,500 registered products, many of which are used widely in and around households, including on pets, in mosquito control, and in agriculture. The use of pyrethrins and pyrethroids has increased during the past decade with the declining use of organophosphate pesticides, which are more acutely toxic to birds and mammals than the pyrethroids. This change to less acutely toxic pesticides, while generally beneficial, has introduced certain new issues. For example, residential uses of pyrethrins and pyrethroids may result in urban runoff, potentially exposing aquatic life to harmful levels in water and sediment.

Exposure

For immediate assistance, call the Poison Control Center Hotline: 1-800-222-1222.

Pyrethrins and pyrethroids are primarily released into the air because of their use as insecticides. Sometimes they are sprayed on crops from planes and helicopters or sprayed from the ground by trucks, tractors, or hand-held applicators. They are also used to control flying insects like mosquitos and flies on livestock and pets. These compounds are also in aerosol bombs and sprays that can be used indoors. Pyrethrins can be released naturally from chrysanthemum flowers, but these releases are small compared with the amounts used as commercial insecticides. Manufacturing facilities that produce these compounds can also release them to the environment during the production process.

In the air all pyrethrins and many pyrethroids are broken down rapidly (one to two days) by sunlight or other compounds found in the atmosphere. Rain and snow help remove the pyrethroids from air that are not rapidly degraded. Since many of these compounds are extremely toxic to fish, they are usually not sprayed directly onto water, but they can enter lakes, ponds, rivers, and streams from rainfall or runoff from agricultural fields. These compounds bind strongly to dirt and usually are not very mobile in soil.

People can be exposed to pyrethrins and pyrethroids in several ways. Eating foods that are contaminated with these compounds is the most likely way. People can also breathe in air that contains these compounds. This is especially possible soon after the insecticide has been sprayed. After spraying, these compounds can also come in contact with skin and there can be dermal contact exposure. These compounds are contained in many household insecticides, pet sprays, and shampoos. Some pyrethroids are also used as lice treatments that are applied directly to the head and as mosquito repellents that can be applied to your clothes. A common treatment for scabies is the application of a pyrethroid to the affected skin surface excluding the scalp.

Health Effects

Pyrethrins and pyrethroids interfere with the normal way that the nerves and brain function. Exposure to very high levels of these compounds for a short period in air, food, or water may cause dizziness, headache, nausea, muscle twitching, reduced energy, changes in awareness, convulsions and loss of consciousness. Changes in mental state may last several days after exposure to high levels of pyrethroids has ended. There is

no evidence that pyrethrins or pyrethroids affect the ability of humans to produce children, but some animal studies have shown reduced fertility in males and females.

Diagnosis

Pyrethrins, pyrethroids, and their breakdown products can be detected in blood and urine, but only within a few days after your last exposure. These tests are not usually available at a doctor's office, but a doctor can send the samples to a laboratory that can perform the tests. None of these tests can predict whether someone will experience any related health effects.

If a person feels sick after a pesticide has been used in the home, call the local poison control center.
1-800-222-1222.

Prevention

If a close neighbor or someone living nearby is applying pyrethrins or pyrethroids, remain indoors with children and pets in order to avoid being accidentally exposed to these chemicals. Certain pyrethroids, such as permethrin, phenothrin, and resmethrin, are sprayed to control mosquitos during the spring and summer. Remaining indoors and closing y windows while neighborhood is being sprayed will lessen exposure.

Since these compounds frequently are used on crops, they are often detected in fruits and vegetables. Make sure fruits and vegetables are washed thoroughly before eating them. Trim the fat from meat and poultry because pesticides often concentrate in fat.

These compounds are often detected in soils, especially in agricultural areas. Some children love to play in and eat a lot of dirt. Make sure they always wash their hands frequently and before eating. Discourage children from putting their hands in their mouths or any other hand-to-mouth activity.



For more sources of information on this topic visit or contact:

ST. CLAIR COUNTY HEALTH DEPARTMENT www.scchealth.co

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH www.michigan.gov/mdch

CENTERS FOR DISEASE CONTROL AND PREVENTION www.cdc.gov

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH TOXICS AND HEALTH HOTLINE: 1-800-648-6942

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY: www.atsdr.cdc.gov 1-888-422-8737