

Chemical Watch Factsheet

A Beyond Pesticides/ NCAMP Factsheet

Sabadilla

As of May, 1986, an internal EPA memorandum noted that there were no toxicology data on this botanical insecticide/miticide in EPA files. However, sabadilla alkaloids from the dried ripe seeds of a member of the lily family, *Schoenocaulon officinale*, are often used by self-described "organic" farmers as a general low-persistence insecticide that is believed to be safe.

Discovered by native American Indians in northern South and Central America centuries ago, it was used in wounds against vermin, and came to be used also by the Spanish invaders. They used it as a louse powder. Sabadilla has many general domestic uses, but is not in wide use today.

Much of the literature on sabadilla predates 1960. Reported acute toxicity of the crude dust to mammals is low (oral rat LD50 = 4000 mg/kg), but the purified sabadilla alkaloids are known to be toxic to bees. The powdered seeds have been known to require aging to become really active, but potency can be increased by heat treatment and extraction of the alkaloids into a solvent, like kerosene. The alkaloids are unstable to light. Poisoning symptoms include: retching, muscle spasms, and, especially, slowed

heart beat and decreased blood pressure (not unlike that seen with the drug digitalis). The symptoms

chemicalWATCH Stats:

CAS Registry Number: 8051-02-3

Chemical Class: Botanical

Use: Agriculture (citrus, avocados, and mangos)

Toxicity rating: No consensus

Signal Word: Caution

Health Effects: Highly irritating to the eyes and can produce sneezing if inhaled.

Environmental Effects: Toxic to bees

are slow to disappear. A researcher noted in 1901 that repeated small doses showed possible cumulative effects.

A data call-in notice for sabadilla had been sent by EPA to registrants in April, 1985, requiring that a full toxicological testing battery be undertaken. However, in response to a petition by Dunhill Chemical Co., of California for classification of sabadilla alkaloids as "low volume/minor use pesticides" -- so that toxicology data requirements could be waived -- EPA decided in May, 1986 to require a limited data-set in support of food-use registration (sabadilla is used on citrus), including only: acute toxicity tests, sub chronic feeding studies in the rat and dog, a single teratology (birth defects) study, and a battery of mutagenicity tests. Non-food use registrations will require: acute toxicity tests, a subchronic dermal study, a

teratology study, a mutagenicity test battery, and exposure information. Sabadilla (cebadilja, caustic barley) is produced by fourteen different companies in the U.S., both large and small, including such giants as W.R. Grace, Uniroyal, and FMC. It is usually used as a 5%-20% dust in a lime or sulfur carrier.

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Update, November 2007:

EPA signed the reregistration eligibility decision (RED) for sabadilla alkaloids in September 2004. At that time there was only one registered product with sabadilla as the active ingredient (Veratran D, EPA Registration Number 39834-1). Sabadilla has low acute toxicity (Toxicity Category III for dermal exposure and Toxicity Category IV for all other routes). Developmental effects, including increased skeletal variations, were observed in a rat study, but the changes were attributed to reduced fetal weight, not a direct effect of sabadilla.

Very little information is available on the environmental fate or the physical and chemical properties of sabadilla alkaloids, but EPA anticipates that the substances will have low mobility in soil, based on what is known of their physical and chemical

properties. EPA also expects that sabadilla presents minimal risks to small mammals on an acute basis, as indicated by available and estimated toxicity and exposure data. The RED states that ecological risks should not be very wide-spread, as small amounts of sabadilla are used every year, much of it taking place in a limited geographic area. Less than 500 pounds of active ingredient are applied to each crop per year, and six of the ten uses occur only in California.

***Sabadilla chemicalWATCH* Factsheet Bibliography**

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