

## Description of Practical Used Insecticides

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### **Abstract**

Due to the unique mechanism of action of pyrethroids on the insect organism, the pest is quickly poisoned. Synthetic pyrethroids are products of cyclopropane acids and differ from natural pyrethrins in their lightfastness.

**Keywords:** pyrethroid, allergic effect, drug, poison, cyclopropane, endoparasite, pure substance.

**Synthetic pyrethroids.** In the last 25 years, a new group of drugs - pyrethroids - has taken a strong place in the protection of plants from pests worldwide. These preparations have several advantages over all other preparations that have been used for many years, but there are also some drawbacks.

Synthetic pyrethroids are products of cyclopropane acids and differ from natural pyrethrins in their light resistance. At the same time, they are less dangerous for people and the environment, because they are used in very small quantities and break down into safe substances in a relatively short time. Because the mechanism of action of pyrethroids on the insect organism is unique, the pest is poisoned quickly. Within a few minutes, as a result of the drug's effect on the surface or inside, it stops feeding, comes out and releases a yellow liquid from its mouth. Finally, depending on the degree of poisoning, he dies in a few minutes to several hours. Pyrethroids have a "knockdown effect", which means that if the body is not poisoned with sufficient amounts of the drug, it may suffer first and then recover. Most pyrethroids can affect eggs, maggots and adults simultaneously.

Pyrethroids can be toxic to humans and warm-blooded animals in different ways. Among them there are low toxic (ambush, corsar, rovikurt, anometrin-M), moderately toxic (tsimbush, sumicidin, etc.) and highly toxic (decis). But usually, the forms of pyrethroid drugs have a very small amount of active substance (for example, 25 grams per 1 liter of decis) and the amount of the drug used per hectare is also small. Therefore, in practice, a very strong diluted amount of the drug is used. This greatly reduces the possibility of poisoning. But pyrethroids are not without their drawbacks. Among them, "allergo effect", that is, an allergy (redness, itching, soreness) can occur in a person under the influence of the drug. Allergoeffekt is not characteristic of all pyrethroids. This effect is manifested in some, but not all, of the people who worked. Many pyrethroids are effective on adults and larvae (maggots) of beneficial insects within 7-12 days, but they are not effective during the period of pupation and therefore endoparasitism. All pyrethroids have a strong effect on aquatic animals. Therefore, it is forbidden to use them near water bodies and water structures.

According to their properties, pyrethroids are divided into the first and second classes. The first ones affect most insects, but not spider mites (suiciding, ripcord, tsimbush, kinemics, deists, etc.). The latter

affect insects as well as spider mites and are more important in practice (karate, talstar, dienitol). At the same time, the consumption of the latter per hectare is much lower.

Treatment with pyrethroids is not expensive compared to other preparations. The reason for this is the low rate of consumption. Pyrethroids have been studied since 1979 at the Republican Scientific Research Institute of Plant Protection. The first pyrethroid substance was suiciding. Later, drugs such as ambush, timbers, rovikurt, desist, Nurell-D, danitol were studied and widely tested against pests of cotton, alfalfa, corn and vegetable crops and recommendations were made.

The effect of pyrethroids on cotton and the presence of residues in seed and extracted oil were studied at the Plant Protection Research Institute of Uzbekistan. It was found that when pyrethroids such as suiciding, tsembush, ripcord, desist were sprayed on pest-free cotton, the yield did not decrease, but even slightly increased. When pyrethroids were sprayed 4 times (every 25 days) during cotton growth, no residues of these drugs were found in seed and oil.

Thus, drugs belonging to the group of pyrethroids were widely introduced because they were the most effective and met the highest requirements. However, over the years, tolerance to pyrethroids has begun to develop. Therefore, it became known that the effectiveness of pyrethroids, which have been used for many years, is decreasing. Therefore, new types of pyrethroids are being developed and mechanisms to prevent tolerance are being discovered.

**ARRIVO (tsimbush, tsirax, nurell, sherpa, Tsipi, tsypermethrin, bestsiper, moermethrin, superkill).** Pure substance: cypermethrin- $\alpha$ -cyano-3-phenoxybenzyl-2,2-dimethyl-3-(2,2-dichlorovinyl)-cyclopropane-carboxylate. Belonging to the first generation of synthetic pyrethroids, it has been used since 1981 to protect almost all technical, vegetable-police crops, garden trees and pastures (from grasshoppers) from various pests (except spider mites). The drug was created by the world's largest pesticide manufacturing companies, and it was called differently. In particular, it is also produced in Uzbekistan under the name of cypermethrin. All manufacturers prepare it in the form of a 25% emulsion concentrate (emu.c.), i.e. 1 l of the preparation contains 250 ml of pure substance.

Preparations with an active (pure) substance called cypermethrin act on insects from the surface and from the inside. These do not have the ability to act systemically (through the plant). According to the annotation of the drug, cypermethrin is among the compounds that have a moderate effect on warm-blooded animals (extremely toxic substance (ETS<sub>50</sub>) is equal to 242-542 mg/kg for rats); slightly toxic through the skin (extremely toxic substance ETS<sub>50</sub> – 3000 mg/kg). In a dry and cool place, it does not lose its strength for 2-3 years.

In Uzbekistan, 15 types of crops and pastures are allowed to be used against various pests at different rates (0.14-1.6 l/ha) (List, 2007).

**DETSIS, 2.5% em.k. (decsis, 10% em.c., patriot, 12.5% em.c., dalmethrin, 10% em.c., deltsis. 2.5% em.c., pilardelta, 2.5% em.c. , ecotsis, 2.5% em.k., ecotsis, 10% n.kuk.).** Pure substance: deltamethrin, as the most effective example of the first generation pyrethroids, has not yet lost its essence. It was produced for the first time by the French company "Prosida". This insecticide is widely used all over the world and in Uzbekistan due to the fact that it has a strong effect on the mature breeds and worms of more rodent insects and the rate of consumption of its pure substance is very low (7.5-25 g/ha). It is currently recommended for the protection of 18 different crops and pastures against various pests (List, 2007). Depending on the amount of the pure substance in the preparation, the rate of consumption varies from 0.1-1.0 l/ha (deices, 2.5%), to 0.05-0.06 l/ha (patriot, 12.5%).

Deltamethrin is a highly toxic substance for warm-blooded animals (ETS<sub>50</sub> for rats 128-139 mg/kg, and for mice 33-44 mg/kg).

In cotton, it is allowed to use desist against autumn nightworm, bollworm, spider mite (0.7 l/ha), candela (0.6 l/ha) and aphids (0.3 l/ha). If desist is used in an area where the spider mite can breed, it can then multiply dramatically. Therefore, in such a situation, an acaricide (Omayt, Neoron, Nissoran) is used.

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