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Hygienic assessment of the movement of the insecticide seller in the soil layer

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ABSTRACT: *More than 4 million pesticides are used against pests worldwide, of which only 1% is effective. The development of hygienic standards for pesticides is of particular importance to prevent the negative effects of pesticides on the human body and the environment. The resistance of Seller's insecticide to soil, its movement through layers, accumulation, the degree of transfer of plants to the surface, the level of atmospheric air pollution at the workplace and atmospheric air when processing crops were evaluated.*

KEYWORDS: *insecticide, sanitary and toxicological, permissible concentrations, migration, hygienic regulation.*

INTRODUCTION

More than 100 chemical compounds used in agriculture are known in our republic . Agriculture agenda, many of the pesticides used on the one hand xosildorli care and economic efficiency as well as a new biologically active substances into the environment which could lead to problems of environmental protection. [1] .

Large amounts of chemicals are used to protect agricultural crops. All of this is aimed at the destruction of living organisms together and separately (3). Most chemicals are highly resistant to the environment and retain their toxic properties under natural conditions. (4). Some pesticides have carcinogenic, mutagenic, gonadotoxic properties. Therefore, in the study of the toxicity of pesticides, it is important to assess their gonadotoxic, carcinogenic, mutagenic effects [5] . Pesticides with such properties are prohibited for use in agriculture. In some countries around the world, the use of toxic

chemicals with such properties continues. As mentioned above, it is estimated that the annual damage from agricultural pests in the CIS countries is 45 billion soums [6,7] .

Pesticides areas of the environment, human health, in order to prevent the negative impact of their food, food products, the working environment, air pollution, air, soil, water basins to allow the standards and regulations, in this case, to avoid factors that affect the nature of their condition detection is the basis for preventing the adverse effects of pesticides [7 , 8].
It is known from the above literature that insecticides belonging to the class of synthetic pyrethroids are stored in the soil for a certain period of time and pollute the surrounding objects (air, workplaces, water, food). The duration of storage of synthetic pyrethroids in the soil, their movement in the soil layer, and the degree of transition of the plant to the surface depends on the climatic geographical conditions of the region, the amount of them used, soil type and moisture and other factors. In the hygienic assessment of new pesticides, it is important to assess their fate in the soil system, their movement in the soil layer (migration), their accumulation and their transition to plant-derived food. Because their results play a special role in the development of preventive measures for the safe use of pesticides in agriculture. It is the study and evaluation of these situations that form the basis of this scientific research. Resistance of Seller insecticide in soil, its movement in layers, accumulation, the degree of transition of plants to the surface were studied in different soil-climatic conditions of the republic (fine-grained yellow soil, fine-grained gravel-yellow soil) [8,9] . Initially, the level of air pollution in the workplace and atmospheric air during the processing of agricultural crops with Seller insecticide was assessed.

The purpose of the study.

It consists of scientifically substantiating the development of safe hygienic norms and regulations for the human body and the environment (soil, water, air) and the toxicological and hygienic assessment of agricultural (food) products grown in hot climates for consumers.

Materials and research methods

The object of inspection is the drug Seller 20% ks, developed by Euro Team Uzbekistan - Germany.

Empirical: $C_{22} H_{19} CL_2 NO_3$

Molecular weight: 416.3

Aggregate state: fine-grained white powder with a faint chemical odor.

There is no drug volatile and explosive . Seller 20% ks drug belonging to the class of synthetic pyrethroids in agriculture , grain crops against pests .

It does not have mutagenic and phytosanitary effects on plants . During the season against pests .

To achieve this research we have conducted on 150 adult white mice .

Seller toxic properties of the drug sharp sharp (one month), underground (four months) and chronic (12 months) studied the experience .

Seller methodsof the specifics of the acute toxicity ofthedrug sharp surnkalik contamination, t he following learning objectives .

1. Determine the average killing or concentration (LD_{50} , SL_{50});
2. Maximum spindle b (LD_{0} ,
SL_{0}) and absolutely lethal doses or concentrations (LD_{100} and SL_{100}) ;
3. Threshold (very sensitive) caused by a change in dose or concentration (Limac) ;

- to determine the sensitivity of the experiment , depending on the type of animals ;
- the level of insecticide- organism (kumulyatsiya) ;

Development of Permissible Concentration (ODC) of Seller insecticide in **soil** . Soil Permissible Level (ODK) of cellar insecticide was developed. By calculation, the permissible level of Seller insecticide in the soil was hygienically based [10] . As a result, the dose of insecticide in the soil was set at 0.2 mg / kg.

1 Table

Hygienic parameters of seller insecticide

Indicator	Defined and permissible norm
Atmospheric air mg / m^3	0.002
Workplace air mg / m^3	0.24
Water basins mg / l	0.04
In the soil, mg / m^3	0.2
Food - mg / kg	Not allowed

Results of the study of the degree of resistance, condition and action of seller insecticide in the soil in the soil plant system

It is known from the above literature that insecticides belonging to the class of synthetic pyrethroids are stored in the soil for a certain period of time and pollute the surrounding objects (air, workplaces, water, food). The duration of storage of synthetic pyrethroids in the soil, their movement in the soil layer, and the degree of transition of the plant to the surface depends on the climatic geographical conditions of the region, the amount of them used, soil type and moisture and other factors. New pesticides hygiene in terms of the fate of their land evaluation system, the accumulation of soil movement (migration), h as well as their food product to assess the plant plays an important role. Because the results of their agriculture pesticides used safely at a special role in the production of preventive measures. Resistance of Seller insecticide in soil, its movement in layers, accumulation, degree of transition of plants to the surface were studied in soil-climatic conditions of the republic (fine-grained yellow soil, fine-grained gravel-yellow soil), which differ from each other . Initially, the level of air pollution in the workplace and atmospheric air during the processing of agricultural crops with Seller insecticide was assessed.

Seller resistance to insecticide in the soil and layers of action and the results of the study

The action of Seller insecticide in the soil layer was studied in its three layers (0-10, 10-20, 20-30 cm). Soil samples were taken 60 days after insecticide application. The results of the audit are presented in Table 2 .

Table 2

Results of testing the action of Seller insecticide on fine-grained yellow soil

The amount used is kg / ha	Sampling time, days	The drug was detected in mg / kg		
		Soil layer cm		
		0 - 10	10 - 20	20 - 30
0 , 0 1	60	0	0	0
0.02	60	0.0 1	0	0
0.04	60	0.0 2	0	0
0.05	60	0.0 3	0.0 1	0
0.1	60	0.0 5	0.0 2	0.0 1
0.2	60	0.0 6	0.0 3	0.0 2

Research has shown that insecticides used in amount of 0.01 kg / ha 60 days after the drug is a single layer of soil was detected .

When the amount of drug used increased to 0.02 kg / ha, the insecticide was detected only in the amount of 0.01 mg / kg in 0 - 10 cm layer of soil .

As the amount of Seller drug increased, so did its content in the soil.

For example, when the amount of the drug was increased to 0.04 kg \, its residue was not detected in the amount of 0.02 in the 0-10 cm layer of fine-grained yellow soil .

In other untested soil layers (10-20, 20-30cm) no insecticide was detected. When the insecticide was used at a rate of 0.05 kg / ha, the action of the drug with the soil layer was observed.

When using insecticide in an amount of 0.04 kg / ha, 0 -10 cm of soil. to 0.03 mg / kg, 10 - 20 cm. at a rate of 0.01 mg / kg. It should be noted that the higher the amount of Seller used, the greater its action in the soil layer.

When the insecticide was applied in the amount of 0.1 and 0.2 kg / ha, the insecticide was determined at a depth of 10 - 20 cm in the soil at a depth of 0.02 and 0.03 mg / kg, respectively, at a depth of 20 - 30 cm in the amount of 0.01 and 0.02 mg / kg.

The action of Seller insecticide in the soil layer was also investigated in fine-grained gravel soils. When the insecticide was applied at a rate of 0.01kg / ha under these soil conditions, no residue was found in any layer of soil after 60 days. The insecticide used in the amount of 0.02kg / ha of the drug was detected only in the surface part of the soil (0 -10 cm) in the amount of 0.02 mg / kg. When increasing the amount of insecticide application to 0.05 kg / ha, the drug acted on the next part of the soil (10 -20cm) and in a layer of 20 - 30 cm. Thus, it was determined at a depth of 0.03 at 10 - 20 cm and 0.02 mg / kg at a depth of 20 - 30 cm (Table 6). This is 17 and 22 percent more than this layer of fine-grained yellow soil, respectively.

Table 3

Results of testing the action of Seller insecticide on fine-grained yellow soil

The amount used is kg / ha	Sampling time, days	The drug was detected in mg / kg		
		Soil layer cm		
		0 - 10	10 - 20	20 - 30
0 , 0 1	60	0	0	0
0.02	60	0.0 1	0	0
0.04	60	0.03	0	0
0.05	60	0.04	0.03	0.02
0.1	60	0.0 5	0.04	0.02
0.2	60	0.0 6	0.05	0.03

Insecticide soil when the application rate is increased to 0.1 and 0.2 mg / kg in three layers (0 - 10, 10 - 20, 20 - 30 cm) (from 0.05 ± 0.006 to 0.03 ± 0.003 mg. / kg).

From the above, it can be concluded that seller insecticide moves through the soil layer when used in agriculture. Its rate of movement depends on the amount of chemical used and the type of soil. The higher the amount of insecticide application, the higher its deep penetration into the soil layer. In addition, celery insecticide has a higher migration in fine-grained gravelly soil than in fine-grained yellow soil. This situation, in our opinion, is due to the difference in the

rhizosphere of the soil, the amount of organic matter in it, the difference in microflora and the agronomic practices carried out in such soils.

Results of testing the resistance of celery insecticide and the dynamics of its action in the soil layer.

In order to develop a regulation (management) of the possibility of using the seller insecticide in agriculture, in field experiments, its quantity at different times, the degree of resistance, its movement in the soil layer was checked. The insecticide was used separately in the areas planted with wheat in the amount of 0.01, 0.02, 0.04, 0.05, 0.1, 0.2kg / ha. Resistance levels and migration (movement) of the pesticide were studied for 10, 20, 30, 60, 90, 115 days. 10, the result of the study are as follows (Table).

When the insecticide was applied at a rate of 0.01 kg / ha, the drug was found to accumulate on the surface of the soil (0 - 10 cm) during the test dates (0.1 ± 0.03 - 0.01 ± 0.002 mg / kg). Experience 60 - the second day of pesticides examined all part of the soil was not recognized. When the amount used increased to 0.02 kg / ha, the insecticide was stored in 0-10 cm of soil for 60 days (0.01) . In addition, on days 10 and 20, the pesticide was applied to 10-20 cm of soil (0.04 and 0.01 mg, respectively). / kg) was observed. When using the drug Seller in the amount of 0.04 kg / ha, it was noted that it reached 20-30 cm of the soil. In the 0 -10 cm layer of the soil in 10-60 days 0.3 mg / kg and 0.02. mg / kg, stored at 20 - 30 cm of soil for 10 to 20 days (0.04 and 0.01 mg / kg, r 0.05).

It was noted that when increasing the amount of pesticide application to 0.04 kg / ha, the drug reached a layer of 20-30 cm of soil. For example, when using the drug in the amount of 0.04 kg / ha, the drug is applied in 0-10 cm layer of soil for 10 to 60 days (0.3 - 0.02 mg / kg) and in 20-30 cm layer for 10-20 days (0.02 - 0 , 01). When the insecticide is used in the amount of 0.05 kg / ha, the drug is found in 10-20 cm of soil for 10 to 60 days, in a layer of 20-30 cm for 10 to 30 days. Such a rule applies insecticide 0.1 and 0.2 kg / ha. also occurred when used in quantities.

Table 4

The results of the study of the dynamics of the movement status (migration) of the seller insecticide in the small-grained yellow soil layer

The amount used is kg / ha	Sampling time, days	The drug was detected in mg / kg		
		Soil layer cm		
		0 - 10	10 - 20	20 - 30
0 , 0 1	1 0	0.1	0	0
	20		0	0
	30	0.2	0	0
	60	0.1	0	0
	90	0	0	0

	115	0 0	0	9
0.02	1 0 20 30 60 90 115	0.2 0.03 0.02 0.01 0 0	0.04 0.01 0 0 0 0	0 0 0 0 0 0
0.04	1 0 20 30 60 90 115	0.3 0.05 0.04 0.02 0 0	0.06 0.02 0.01 0 0 0	0.02 0.01 0 0 0 0
0.05	1 0 20 30 60 90 115	0.4 0.06 0.05 0.03 izi 0	0.3 0.03 0.02 0.01 0 0	0.03 0.02 0.01 0 0 0
0.1	1 0 20 30 60 90 115	0.5 0.07 0.06 0.04 0.01	0.4 0.04 0.03 0.02	0.04 0.03 0.02 0.01 0
0.2	1 0 20 30 60 90 115	0.3 0.05 0.07 0.06 0.02 0.01	0.5 0.06 0.04 0.03 0.02	0.06 0.04 0.03 0.03 0.01 0

Insecticide used in the amount of 0.2 kg / ha of soil layer 10 - 20sm 10kundan 90 days (0.5 and 0.02), 20 -30smqatlamida 10 days to 90 days (0.06 - 0.01) were identified. The degree of resistance of Seller insecticide, its action in the soil layer was studied under fine-grained gravel yellow soil conditions. When using the drug in an amount of 0.01 kg / ha. It was noted that the insecticide accumulates mainly in 0-10 cm of soil for 10-30 days. But in such soils the insecticide reached 10 cm of soil. At 10–20 days of the experiment , 0.02 and 0.01mg / kg, respectively, were not detected in the 10–20 cm layer of soil . When the drug was used at a rate of 0.01 kg / ha in fine-grained yellow soil, migration of flour in a layer of 10 - 20 cm of soil was observed. Even when using the drug Seller in the amount of 0.02 kg / ha, its migration in the soil layer of 10 - 20 cm was observed (0.03 - 0.02 mg / kg). When the pesticide application rate was increased to 0.04 kg / ha, the insecticide reached a 20-30 cm layer of soil on the 10th and 20th day. When using this amount of the drug Seller was detected in the amount of 10-90 days (0.4 - 0.01) in the 0 -10 cm layer of soil, 10-60 days (0.03 - 0.01) in the layer of 10 - 20 cm . This, in turn, is 18% higher when found in a 10–20 cm layer of fine-grained yellow soil, and 21% higher than when found in a 20–30 cm layer. When using celery insecticide in the amount of 0.1 kg / ha in 10 - 90 cm (0.6 - 0.02) 10 - 20 cm layer of soil for 10 to 90 days (0.6 - 0.01), 20 cm in the amount of 10 to 90 days (0.05 - 0.01). When the pesticide was applied at a rate of 0.2 kg / ha, its residue was also detected in 115 days in a clean portion of the soil - 0.01 in 0-10 cm . Insecticides were detected in the amount of 0.05 - 0.01 in 10 - 20 cm layer of soil for 10 - 90 days, and 0.05 - 0.01 in the layer of 20-30 cm .

Table 4

Results of the dynamics of the movement (migration) dynamics of the seller insecticide in the fine-grained yellow soil

The amount used is kg / ha	**Sampling time, days**	**The drug was detected in mg / kg**		
		Soil layer cm		
		0 - 10	**10 - 20**	**20 - 30**
0 , 0 1	**1 0** **20** **30** **60** **90** **115**	0.1 0.02 0.1 **0** **0** **0**	0.2 0.01 **0** **0** **0** **0**	**0** **0** **0** **0** **0** **9**
0.02	**1 0** **20**	0.2	0.03	**0** **0**

	30 **60** **90** **115**	0.04 0.03 0.02 **0** **0**	0.02 **0** **0** **0** **0**	**0** **0** **0** **0**
0.04	**1 0** **20** **30** **60** **90** **115**	0.4 0.06 0.05 0.04 0.03 **0**	0.3 0.03 0.02 0.01 **izi** **0**	0 0 **0** **0** **0** **0**
0.05	**1 0** **20** **30** **60** **90** **115**	0.5 0.07 0.06 0.05 0.02 **izi**	0.4 0.04 0.03 0.02 **izi** **0**	0.04 0.03 0.02 0.01 **0** **0**
0.1	**1 0** **20** **30** **60** **90** **115**	0.6 0.06 0.05 0.04 0.02	0.06 0.05 0.04 0.03 0.01	0.05 0.04 0.03 0.02 0.01
0.2	**1 0** **20** **30** **60** **90** **115**	0.7 0.07 0.06 0.05 0.03 0.01	0.06 0.06 0.05 0.04 0.03	0.05 0.04 0.03 0.02 0.01

Conclusion

Based on the above, it can be concluded that Seller insecticide is stored in the soil for a long time (115 days). This condition contaminates the plants planted in such areas and contaminates the food products derived from them . The amount of insecticide in the soil depends on the type of soil and the amount used. The insecticide accumulates in the deep layer of soil (0-10 cm) depending on the dose used. The greater accumulation of Seller on the surface of the soil can be explained on the one hand by the low solubility of the insecticide in water, on the other hand by the abundance of organic matter on the surface of the soil. It should be noted that the fate of the seller insecticide in the soil depends directly on the type of soil. Insecticide fine-grained gravel has higher migration in the soil layer than in fine-grained yellow soil. This is because gravel soil retains less organic matter. Based on field experiments, it was found that Seller was partially (T_{50}) and completely decomposed under fine-grained yellow soil conditions.

It can be concluded from the above. When seller insecticides are used in agriculture, it is observed that the insecticide penetrates not only the soil but also the chemical preparation of plants into the surface layer.

Hence, it leads to contamination of food products derived from these plants. The rate of transfer of Seller insecticide to the surface part of the plants depends on the type of soil. Therefore, in the development of hygienic regulation and preventive measures of new pesticides, it is important to take into account the level of their resistance in the soil, the transition of plants to the surface. The type of soil should also be taken into account.

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