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DESCRIPTION OF THE MAIN TYPES OF DEFOLIANTS

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Abstract
The article provides information on reducing the "hard" action of chlorate-containing defoliants, increasing the efficiency of defoliation and creating low-toxic, highly effective defoliants and desiccants on their basis.

Keywords: Defoliants, cotton, agriculture, sodium chlorate, magnesium chlorate, chlorate-containing defoliants, inorganic defoliation.

Introduction

Today, 1.4 billion hectares of the 13.5 billion hectares of land in the world are devoted to agricultural production. The growing world population and its needs require more efficient land use [1-3].

Particular attention is paid to the widespread introduction of modern agricultural technologies in the agriculture of Uzbekistan, the improvement of reclamation of irrigated lands. Chemical preparations - mineral fertilizers, plant stimulants, pesticides, as well as defoliants and desiccants - play a significant role in increasing yields and constantly increasing soil fertility [4-9].

The main Part

One of the important conditions for successful cotton harvesting is timely and optimal cotton defoliation. Qualitatively carried out defoliation allows you to carry out a full cotton harvest in a short time. This will make it possible to sow grain, start autumn-winter activities on time and get a good harvest next year. Despite the fact that the defoliant magnesium chlorate [$(MgClO_3)_2$], widely used in cotton growing in our country, is less toxic, with an increase in consumption, leaves and young shoots are burned [10-13]. This leads to contamination of the cotton fiber, deterioration in quality and a decrease in the yield of raw cotton. Therefore, it is important to expand the range of chlorate-containing preparations and produce highly effective defoliants based on them, which have a mild effect on plants. In this regard, it is of interest to obtain a defoliant based on magnesium

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chlorate. In this task, it is important to create new highly effective defoliants, less toxic, accelerating the shedding of cotton leaves and the full ripening of the pods under the action of triethanolammonium phosphate on magnesium chlorate, thereby reducing the cost of production and reducing the cost of production [14-17].

The main disadvantage of chlorates is that they have a "heavy" effect on cotton and leaves. For example, when magnesium chlorate is used under optimal conditions, the plant dries out, the leaves dry up and do not fall off, and the young shoots above burn, which leads to a decrease in cotton yield, fiber quality and seed oil content. Therefore, magnesium chlorate and calcium chlorate-chloride defoliants are commonly used for treatment [18-23].

One of the urgent problems of cotton growing is to reduce the "hard" action of chlorate-containing defoliants, increase the efficiency of defoliation and create low-toxic, highly effective defoliants and desiccants on their basis. The use of defoliants in combination with phosphorus and nitrogen fertilizers is promising for improving the effect of the main active substance on the plant [24-26].

Siksat represents white crystal substance of light yellow color without smell. The liquefaction temperature of the compound is 86 ℃, specific gravity is 1.67 g/cm^3. Solubility in water at 25 ℃ is 215.5 kg (68%) per 100 liters of water. The drug is less hygroscopic, does not melt, is stable during storage, and is fire and explosion safe. Aqueous solutions of the drug do not have corrosive properties, aqueous solutions have a pH of 7.3-7.4 (neutral). The active substance of the defoliant is a complex salt of sodium chlorate, urea [27-31].

Of great interest is the use of phosphorus and thiophosphoric acid derivatives for cotton defoliation. It has been established that potassium dibutyl dithiophosphate, which neutralizes acids containing butyl alcohol and phosphorus pentasulfur, has a high defoliating activity [32].

The drug has a combined effect: first, the leaves dry up, then fall off. 5 days after treatment, at a consumption of potassium dibutyl dithiophosphate of 15-20 kg/ha, shedding of cotton leaves is 90%.

$3C_4H_9SH + PCl_3 \rightarrow (C_4H_9S)_3P$

Long-term trials of butifos as a cotton defoliant have shown a “mild” effect on plants and are quite effective only at an application rate of 2.5–3.0 kg/ha for fine-grained cotton varieties [33-37].

Long-term trials of Butifos as a cotton defoliant have shown a “mild” effect on plants and are quite effective only at an application rate of 2.5–3.0 kg/ha for fine-

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grained cotton varieties. Its main disadvantages are high toxicity, unpleasant odor and volatility in the hot Central Asian climate.

It is very dangerous for the environment and human life. For rats, LD50 is 225-500 mg/kg, the allowable concentration in the working area is 0.2 mg/m3. therefore, the production and use of biofos is prohibited [38-43].

Another organophosphate defoliant, tributyltrithiophosphate ("folex" or "mephos"), is a starving oily liquid. Folex is a strong unpleasant odor, highly toxic, fast-acting defoliant [44-45].

Depending on the state of development of cotton and climatic conditions, it is recommended to use it in an amount of 1.5-2.5 q/ha. Organophosphorus defoliants are highly toxic to warm-blooded animals, as they inhibit the level of cholesterol in the blood. LD50-150-850 mg/kg for Folex experimental animals [46-49].

The production and use of this defoliant is due to its high toxicity, rapid volatility in hot climates, harmfulness to humans and the environment, LD50-25-500 mg/kg for mice, REC in the working air - 0.2 mg/m3, as well as unpleasant odors. Prohibited [50-59].

Another organic defoliant is butylcaptax, a colorless oily liquid with a boiling point of 162-163oC. The drug is insoluble in water, but soluble in organic solvents.

Conclusion

It is obtained from butyl chloride as a result of its interaction with captax at high pressure and temperature in a medium containing sodium hydroxide (NaOH).

Butylcaptax is a moderately toxic pesticide. LD50 for mice - 1300 mg/kg, REC in the air of the working area - 2 mg/m^3.

When studying the activity of the drug in the defoliation of cotton, it was found that this drug is effective on fine-fiber varieties of cotton. The consumption rate is 10 kg/ha, with 50-60% leaf fall.

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