

Preparation of a New Diphalant Based on Aminoguanidine, Soliguaidine and 2-Chloroethylphosphonic Acid

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Annotation: The article discusses the development of technology for defoliants with insecticidal activity based on sodium chlorate, liquid magnesium chlorate, sodium tricarbamidochlorate, acephate, ethamipride, ethanol, and physical ethamipride with insecticidal activity. Based on the above, the purpose of this work is to develop and physico-chemical substantiation of the technology for obtaining defoliants based on salts of 2-chloroethylphosphonic acid, magnesium chlorate, guanidine and aminoguanidine.

Keywords: 2-chloroethylphosphonic acid, magnesium chlorate, guanidine, defoliants, star, chemicals, cotton fiber.

Introduction

In agriculture, defoliants are used to shed leaves before harvesting cotton and other technical crops. In recent years, great attention has been paid to the creation of new preparations that are highly effective, environmentally safe, and have a rapid effect on plants. Soliguaidin is an organic nitrogen compound that increases the biological activity of the drug when used in combination with 2-

chloroethylphosphonic acid. It affects metabolic processes in plant cells, ensuring faster drying of leaves [1, 2].

The main direction of the development of the economy of our republic is the steep ascent of the national economy based on the intensive development of all sectors and the acceleration of scientific and technological progress, and the achievement on this basis of a further increase in the welfare of the peoples of the Republic of Uzbekistan [3, 4].

Methodology

Cotton growing in our country is one of the most important branches of agriculture. Today, the primary task of technological progress in cotton production is mechanized harvesting, in which the pre-harvest chemical decontamination of cotton using chemicals (defoliant) plays an extremely important role. Without this important agrotechnical measure, it is impossible to achieve high productivity of cotton harvesters and success in cotton production at the present stage of cotton cultivation.

To successfully solve the problems of artificial leaf removal, it is necessary to have highly effective defoliant that ensure the loss of cotton leaves by more than 80% in one treatment at low consumption rates, acting "gently" on plants, and therefore not adversely affecting them and not reducing the yield, its quality and oil content of seeds, as well as not leading to clogging cotton fiber.

In addition, one of the most important indicators of defoliant, which determine the widespread practical use of drugs, is their environmental safety from the point of view of environmental protection.

Results and Discussion

Significant disadvantages of defoliant based on 2-chloroethylphosphonic acid are low efficiency, high consumption rates (12-14 kg/ha), harsh action on plants and a high stimulating ability to open the pods, its quality and oil content to the seeds, as well as leading to clogging of cotton fiber [5, 6].

One of the ways to eliminate these disadvantages is the synthesis and application of new compounds of 2-chloroethylphosphonic acid in cotton production [7, 8].

In this regard, the solubility in triple systems of 2-chloroethylphosphonic acid- guanidine carbonate - water and 2-chloroethylphosphonic acid- aminoguanidine carbonate - water and a wide concentration and temperature range was studied by the visual - polythermal method. Semi-thermal solubility diagrams are constructed, on which the ice crystallization scales of the initial components and new compounds of the compositions are distinguished [9, 10].

$\text{ClCH}_2\text{CH}_2\text{PO}(\text{OH})_2 * \text{NH}_2\text{CNHNH}_2$, $\text{ClCH}_2\text{CH}_2\text{PO}(\text{OH})_2 * \text{NH}_2\text{NHCNHNH}_2$

Based on the studied solubility diagrams of the system, the optimal conditions for obtaining the above compounds were determined.

The defoliating activity of the obtained compounds was determined by agrochemical tests on cotton varieties "star" [11, 12].

Table

Connection	The rate of growth	Effectiveness on day 6. %	Effectiveness on day 12. %
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	is kg/ha	Opav. Sheet.	Suhish. Sheet.	Expand the box	Opav. sheet	Dry ones. sheet	The box is opened
2- chloroethylphosphonic acid (50% - and pp)	12	56,4	15,9	60,4	69,2	6,5	90,6
2- chloroethylphosphonic guanidine	5	52,2	5,8	38,4	86,1	1,2	68,6
2- chloroethylphosphonaminoguanidine	6	54,9	7,0	40,2	88,2	1,6	70,8

The tables show that the data obtained indicate the high effectiveness and mildness of the proposed defoliant. Along with this, the drug helps to stimulate the process of full maturation and opening of the cotton pods [13]. It was found out that after agrochemical consumption at consumption rates of 5-6 kg/g, the isolated compounds had a mild effect on plants, and on the 12th day after treatment, the degree of box opening was 86.1-88.2. After defoliation, secondary regrowth of cotton is not observed, which is important for high-quality mechanized harvesting of raw cotton [14, 15].

Conclusion

Thus, based on the conducted agrochemical studies, it can be concluded that the proposed defoliants exhibit high defoliating activity and mild effects on plants compared to the known defoliants of magnesium chlorate and 2-chloroethyl phosphonic acid, prevent secondary regrowth of cotton leaves after defoliation, ensure full maturation and opening of cotton pods and do not reduce its quality and the oil content of the seeds, which also do not lead to clogging of the cotton fiber. In addition, one of the most important indicators of defoliants, which determine the widespread practical use of drugs, is their environmental safety from the point of view of environmental protection.

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