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EFFECTS OF CHEMICALS ON THE GERMINATION, GROWTH AND DEVELOPMENT OF SOME MELON CROPS

Numonjonov Mukhiddin Gulomjon ugli,
Andijan State University, Student of Biology
Gulamjon22@gmail.com +998914760919

Tuychiyeva Dilfuza Sidikjanovna
Andijan State University, Candidate of Biological Sciences, Associate Professor

Parpiyeva Mashxura Javdatovna
Andijan State University, 2nd Stage Basic Doctoral Student

Annotation:
This article describes the cultural species of cucumbers and pumpkin, the most widely grown varieties of cucumbers (PS1939) in Uzbekistan, the botanical and morpho-physiological characteristics of the varieties of pumpkin (Pilav kadi), the chemical composition of some species, detailed information on the effect of certain biologically and chemically active substances, as well as various factors on the germination of seeds.

Key words: Cucurbitaceae Juss, cucumbers, Cucurbita L, chemical composition, germination, optimal temperature, vegetation time, cupurbitacin, solution, vitamin.

It is known that one of the conditions for high yields of agricultural crops is its protection from pests. The rapid growth of the world's population is leading to an increase in the need for food. Applied pesticides increase the production of plant-based foods by 20%.

Pesticides help increase productivity while protecting plants from pests and diseases. However, in recent times, they have been used in soils and landscapes, increasing the negative impact on phytocenoses, biocenoses and, through them, on many wildlife and humans.

As the President of the Republic of Uzbekistan Sh.M.Mirziyoyev noted, "The blind use of chemical plant protection products and mineral fertilizers causes pollution of the environment. To prevent such a risk, it is necessary to radically change the supply of agriculture with the necessary mineral fertilizers and chemical preservatives, to increase the demand for strict adherence to agrochemical regulations "[1].

Like any xenobiotic, pesticides affect the lipid layer of cell and organoid membranes, altering their permeability. This is mainly due to the accelerated peroxidation of lipids and the proliferation of free radicals.

It is also important to study the effect of plant antioxidants in order to correct and prevent adverse processes in the body during poisoning with various pesticides [5].

Depending on the nature of the pesticide, its consumption rate and the type and age of the plant, as well as the effects of the external environment, it can have both negative and positive effects on the plant. Based on these ideas, in this study, we aimed to study the effects of certain chemicals on the germination of seeds of cucumbers and squash plants from melons.

The optimum temperature for cucumber growth and development until harvest is + 24… + 30 ° C on sunny days. The optimum temperature at harvest is + 24- + 30 ° C during the day, + 16 ° C at night. If the air temperature during the day is below +15 ° C, the growth and development of plants slows down, the formation of pollen is disrupted. In parthenocarpic varieties, the flowers do not need pollination, but such flowers do not have seeds even though they bear fruit [4]. Typically, in sunny and hot weather conditions, many members of the squash family (squash, cucumbers) experience dryness and withering of the leaves, and re-tension of the leaves again after the emergence of a cool, optimal environment.

Cucumber fertileness is associated with the quality of seeds. Therefore, the seeds need to be processed before sowing, they are soaked in various salts, vitamins, auxins, trace elements. Based on these data, we studied the effect of various chemical and biologically active substances on the germination of seeds of cucumber plants stored for several years. The experiments were carried out in the following scheme:

1. Option: Group treated with potassium permanganate solution;
2. Option: Group treated with Potash (potassium carbonate) solution;
3. Option: Group treated with a solution of kalnite (calcium nitrate);
4. Option: Group treated with a solution of salt (sodium chloride);
5. Option: Group treated with hydrogen peroxide solution;
6. Option: Group treated with Nurell D solution;
7. Option: Group treated with Detsis solution;
8. Option: Group treated with 15-30-15 TE solution;
9. Option: Control, unprocessed group;

For the experiment, 100 seeds of the Cucumber Plant Productive Seed (PS1939) variety (for each variant) were counted and placed in sterilized containers. The forgetfulness of the seeds I.G. It was studied on the basis of Leurda's manual "International rules for determining the quality of semen" [6]. To study the effect of chemicals on seed germination, solutions of different concentrations of the above substances and distilled water were used for control.

Table 1. FERTILITY OF PLANT CUCUMBER (PS1939) VARIETY SEEDS IN DIFFERENT SOLUTIONS

Experience options solutions / **seeds number, solution C%**			**Number of germinated seeds,%**										Average germination %
			Experimental duration, days and initial root length (cm)										
			3	5/ **cm**		7	9/ **cm**		11	13/**cm**		15	
1	Potassium permanganate	100 1%	48,2	58,6	**1**	63,5	78,9	**3**	80,1	88,6	**7**	93,4	73,04
2	Potash (potassium carbonate)	100 7%	50,6	65,8	**2,5**	76,9	88,3	**4**	92,5	100	**8**	100	82,01
3	Calcite (calcium nitrate)	100 5%	45,6	56,0	**1,5**	60,7	71,7	**3**	75,3	78,0	**5**	79,8	66,73
4	Salt (sodium chloride)	100 3%	18,9	42,7	**2**	57,7	66,3	**4**	74,1	80,8	**6**	89,3	61,40
5	Hydrogen peroxide	100 0,4%	37,9	49,7	**4,5**	56,9	68,2	**6**	75,3	84,8	**9**	91,7	66,36
6	Nurell D	100 0,3%	17,6	34,5	**2**	42,0	49,1	**3**	55,6	75,8	**6**	79,2	50,54
7	Detsis	100 0,2%	18,4	39,9	**1**	50,7	64,8	**2**	78,3	81,4	**5**	86,5	60,00
8	15-30-15 TE	100 1%	52,4	78,2	**3**	89,5	100	**5**	100	100	**9**	100	88,58
9	Control water	100	47,5	71,3	**1,5**	82,5	91,8	**3**	100	100	**7**	100	84,72

The experiments were carried out under laboratory conditions in a special cabinet at a temperature of + 16- + 20 ° C. The results of the experiment were studied for a period of 15 days from the start of the study. The results of the experiment were repeated 5 times.

As can be seen from Table 1, the PS1939 variety in variant 8 treated with 15-30-15TE (N-15%, P_2O_5-30%, K_2O-15%, Zn, B, Mn, Co, Cu) 3 days after germination 52.4% of the seeds germinated. It can be seen that 47.5% of the controlled seeds germinate. Although the difference between the germination efficiency of the controlled seeds and the seeds of variant 8 is not large (4.9% more) but we can see the difference with the thickness of the initial root and the high degree of rooting. Another substance in variant 2 we can see the same effect under the influence of potash, in which 50.6% of the seeds germinated on the 3rd day, in this variant the difference in the percentage of germination of seeds was 3.1% more than in water. The weak alkaline environment in this solution was felt to have a positive effect on the seeds.

This state of germination lasted until the 15th day of the experiment. When comparing the seeds of all variants, the germination rate in variant 8 averaged 88.58%, which was 3.86% higher than in the control water and the root rate was maximal. Nurell D in option 6 averaged 50.54% and Detsis in option 7 averaged 60.0%. Thus, the control over the germination of seeds of these pesticides showed that the difference compared to water was 34.18% in option 6 and 24.72% in option 7. This effect was also evident in the 3-, 4-, and 5-solutions with relatively low permeability.

As a result of our research, it can be noted that some of the chemicals studied slow down the release of cucumber seeds from the dormant state, while others increase or decrease their germination.

In our next study, we examined the effect of chemicals on another melon crop - pumpkin seed.

The family Cucurbitaceous Juss. Is distributed in almost all regions of the Earth and includes 800 species. The flora of Uzbekistan includes 18 species of this family that grow naturally. There are about 900 pumpkin varieties, 400 of which are edible [3].

The optimum temperature for pumpkin to grow and develop until harvest is + 24… + 28 ° C on sunny days and + 18… + 22 ° C on non-sunny days. The optimum temperature at harvest is + 24… + 30 ° C during the day, + 16 ° C at night. If the air temperature is below + 15 ° C during the day, the growth and development of plants is slowed down, the formation of pollen is disrupted [2].

The fertileness of pumpkin is also associated with the quality of seeds, the seeds are processed before sowing, and they are fermented in various saline solutions, vitamins, auxins, trace elements. In this experiment, we also studied the effect of various chemical and biologically active substances on the germination of pumpkin seeds. The experiments were carried out in the scheme shown above.

For the experiment, 10 (for each variant) seeds of the Pilav kadi variety of the squash plant were counted and placed in sterilized containers. To study the effect of chemicals on seed germination, solutions of different concentrations of the above substances and distilled water were used for control.

Table 2. FERTILITY OF PUMPKIN PILAV KADI VARIETY SEEDS IN DIFFERENT SOLUTIONS

Experience options solutions / **seeds number, solution C%**			**Number of germinated seeds,%** **Experimental duration, days and initial root length (cm)**								Average germination %
			7	9/ **cm**		11	13/**cm**		15/**cm**		
1	Potassium permanganate	10 1%	0	10	**3**	50	65	**7**	80	**8**	**41,0**
2	Potash (potassium carbonate)	10 7%	0	15	**4**	65	85	**8**	100	**9**	**53,0**
3	Calcite (calcium nitrate)	10 5%	0	10	**3**	45	60	**5**	80	**6**	**39,0**
4	Salt (sodium chloride)	10 3%	10	45	**4**	70	90	**7**	100	**9**	**63,0**
5	Hydrogen peroxide	10 0,4%	10	30	**6**	60	75	**9**	90	**10**	**53,0**
6	Nurell D	10 0,3%	0	10	**3**	30	40	**6**	65	**7**	**29,0**
7	Detsis	10 0,2%	0	5	**2**	25	40	**5**	60	**6**	**26,0**
8	15-30-15 TE	10 1%	20	50	**5**	75	100	**9**	100	**11**	**69,0**
9	Control water	10	0	20	**3**	50	70	**7**	100	**8**	**48,0**

These experiments were also carried out in a laboratory in a special cabinet at a temperature of 16-20 ° C. The results of the experiment were studied for a period of 15 days from the start of the study. The results of the experiment were conducted in 3-4 repetitions. As can be seen from Table 2, 7 days after sowing the seeds were treated with 15-30-15 TE (N-15%, P_2O_5-30%, K_2O-15%, Zn, B, Mn, Co, Cu). 2/10 of Pilav kadi seeds, 20%, germinated. It can be seen that the seeds under control have not yet sprouted at this time. The difference between the control efficiency and the seed germination efficiency in option 8 is more than 20% and we can see the difference in the thickness of the initial root. Another substance we can see in variant 4 under the influence of table salt, in which 10% of the seeds germinated on day 7, in this variant the difference in the percentage of germination of seeds was 10% greater than that of water. The environment in this solution was felt to have a positive effect on the seeds.

This state of seed germination lasted until the 15th day of the experiment. When seeds in all variants were compared, seed germination in variant 8 averaged 69%, which was 21% higher than in control water and root rate was maximal. in variants, under the influence of pesticides, Nurell D in variant 6 had an average germination of 29% and Detsis in variant 7 had an average forgetfulness of 26%. This means that these pesticides showed a difference of 19% in Option 6 and 22% in Option 7 compared to the control water for seed germination. Such an effect was also evident in the 1-3 solutions with a relatively low permeability.

It should be noted that a similar situation was observed in these experiments, some chemicals slowed down the release of pumpkin seeds from the dormant state, while others increased or decreased their fertility.

In conclusion, the importance of various factors and biologically active substances in the yield of these farms to ensure that the various varieties of cucumbers and squash planted in the fields of many farms in the country fully meet the demand of the economy and the population for these melons and various raw materials, it is advisable to fully explore their benefits and harms. Because the yield from these crops is higher than any other melon crop. In addition, on private farms, planting more of these crops and increasing their consumption will have a positive effect on public health and prevention of various diseases.

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