



LAWS OF DISTRIBUTION AND DEVELOPMENT OF POTATO VIRUSES AND THEIR INSECTS IN UZBEKISTAN

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Article history:		Abstract:
Received	August 28 th 2021	Taking into account the predominance of crop viruses and their vectors in potato seeds for each climatic zone of the soil, the development of control measures makes it possible to grow high-quality seed potatoes. In the conditions of the Zarafshan oasis of Uzbekistan, the first field populations of winged aphids begin to appear at an average air temperature of 23 ° C. Most of them were peach (<i>Mizodes persicae</i>) and melon (<i>Aphiz gossupi</i> Glov) lice. It was observed that the number of wingless lice (20-70 pieces per 100 leaves) was much less than the limit of economic damage. Some wild and cultivated plants are considered "furnaces" of X, S, M and Y viruses in potatoes. Carrying out preventive, organizational, agrotechnical and protective measures on seed potato crops ensures the cultivation of high-quality seed potatoes.
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INTRODUCTION.

In recent years, potato fields in Uzbekistan have been expanding. Taking into account the biological characteristics of cultivated varieties and soil and climatic characteristics, the development of effective technologies for growing crops, taking into account the prevalence of "furnaces" of crop viruses in seed pods, their transmission potential, information about vectors is one of the important factors 4). Since these diseases can reduce yields by an average of 30% [3], depending on the type of disease, type of crop and growing conditions, this figure can be reduced by 50-70%, and sometimes even more [5]. It should also be noted that aphids are the main vectors and vectors of potato viruses [2]. Consequently, the prevalence of viral diseases depends on their number and species composition [1]. Thus, for each climatic zone of the soil occupied by the cultivation of potato seeds, the development of measures to combat them, taking into account the prevalence of crop viruses and their vectors, allows the cultivation of compact seed potatoes.

PURPOSE OF THE STUDY

In the Zarafshan oasis of Uzbekistan, potato cultivation is based on the study of the "oven" of viruses in the primary sown areas on a virus-free basis, the number of insect vectors - the number of aphids, the composition and development of the population patterns.

OBJECT AND METHODS OF RESEARCH.

The object of field experiments were selected clones of seed potatoes of spring varieties Kuvonch 16/56 m. Standard potato Santa grown in spring and summer was carried out. Infection of plants with obvious viral diseases was determined visually based on the detection of normal color, wrinkled color, leaf torsion and stolbur marks in them, and latent infection of plants with X, S, M and U viruses was determined by serological analysis during flowering and flowering.

Scientific research is carried out on the basis of "Methods of field experiments" (1985), "Methods of field experiments" (2007), the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, agricultural research and production centers of Uzbekistan (1995-2000). In our field experiments, the samples were placed in 3 turns in one tier.

The number of wingless lice in the plant is determined by the "100 leaves" method, the time of appearance, the number and intensity of flight of winged lice - using the yellow Merike vessels, and their type - using the identifier A.G. Zykina (1968). Meteorological data corresponding to the growing season were obtained from the Samarkand meteorological station. The results of the study were statistically processed by B.A. Dospekhov (1979).

RESEARCH RESULTS.

In the study, the time of the first mass aphid raid on the plains of the Zarafshan oasis was observed at the end of May, and the second - in the last decade of September. Studies have shown that, in contrast to some

published data, the appearance of the first field populations of winged aphids in potatoes depended more on air temperature than on relative humidity. They begin to appear at an average air temperature of 23 ° C. The relative humidity difference was 7-8%.

During the period of plant growth, two massive flies of winged aphids were observed. Based on data on insect biology, the first of them can be considered as a search-dispersed flight, and the second as a mass flight for mating and laying eggs. The results of determining the species composition of lice show that under the conditions of the experiment, 48.2-64.9% of the composition of the winged population of aphids were virus-carrying species. Therefore, it is recommended to take this period of mass emergence of viral lice into account when determining the growing season of seed potatoes. Most of them are peach (*Mizodes persicae*) and melon (*Aphiz gossupi Glov*) lice, which account for 65-87% of the total number of lice. It was noticed that the number of wingless lice (20-70 pieces per 100 leaves) during the growing season of plants was much less than the limit of the amount of economic damage. These indicators are associated with the relatively low temperature and relative humidity of the region during the growing season of plants.

Our research on agrotechnical measures in the cultivation of seed potatoes continues to limit the growth period to the mass emergence of virus-carrying insects. It has been found that it is possible to reduce the ability of insects to carry entomophilic viruses by growing bolls before planting and harvesting or dehydrating the buds after 20-25 days when the plants are in mass bloom.

With the help of research, some alien and cultivated plant species with potato virus planes have been identified. Scanning potatoes on plants such as *Solanum nigrum*, *Convolvullus arvensis*, *Datura stramonium*, *Plantago lanceolato*, *Citullus vulgarus* detected viruses X, S, M and Y.

Table-1
Potato viruses in cultivated and wild plants

Plant species	Viruses			
	X	S	M	Y
<i>Solanum nigrim</i>	+	+	-	+
<i>Datura stramonium</i>	+	+	+	+
<i>Plantago lanceolato</i>	+	+	+	+
<i>Artemizia toureforiana</i>	+	+	+	+
<i>Rumex confurtus</i>	+	+	+	+
<i>Convolvulus arvensis</i>	+	+	+	+
<i>Cucumus aoriental</i>	-	-	+	-
<i>Cucumus melo</i>	-	-	+	-

Potato viruses X, S, M and Y were found in these plants. Viruses stored in these plants can be transmitted to potato plants and vice versa. Therefore, it is necessary to organize the fight against such foci of infection in the fields and around them, where sowing work is being carried out.

CONCLUSIONS.

In Uzbekistan, for potato viruses X, S, M and Y, wild and cultivated plants, such as *Solanum nigrum*, *Convolvullus arvensis*, *Datura stramonium*, *Plantago lanceolato*, *Citullus vulgarus*, can serve as "breeding grounds" for potato viruses. Under the experimental conditions, the main part of the winged aphid population is made up of peach (*Mizodes persicae*) and melon (*Aphiz gossupi Glov*) lice, which make up 65-87% of the total number of lice. Based on these data, the implementation of preventive, organizational, agrotechnical and protective measures on seed potato crops will ensure the cultivation of high-quality seed potatoes.

REFERENCES:

1. Normurodov D., Eshonqulov B., Ergashev I., Obloqulov F. Virus-free potato seed production in Uzbekistan. Actual problems of modern science. Moscow. 2018. p.195-202
2. Ergashev I.T., Begimkulov.I.B. The importance of choosing potato varieties in obtaining starch.International Journal of Innovations in Enjineering Research and Technology.Volume 7.ISSUE 5. May 2020 edition ISSN:2394-3696. Page No. 315-317.
3. Eshonkulov B. Ergashev I. Obloqulov F. "Potato production from True Potato Seed" Wissenschaftliche Zeitschrift „European Applied Sciences“ ISSN 2195-2183, № 4 2016
4. Ergashev I.T., Virus-free potato seed production.T. 2006. 165c.