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THE IMPACT OF SOME TRAITS PROVIDING TOLERANCE TO PESTS IN COTTON IN CREATING A CLEAN ECOLOGICAL ENVIRONMENT

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Abstract
The hybridization of the lines of the wild polyploid species of cotton growing in the Hawaiian Islands, G.tomentosum Nutt. ex Seem. and G.hirsutum L., was carried out using the lines isolated as a result of a single selection from the interspecific hybrids obtained by crossing them, and the L-001 analyzer line of G.hirsutum L., and the study of the importance of certain traits providing tolerance to cotton pests in the generations in creating a clean ecological environment, that is, the study of the nature of inheritance of the type of hairiness on the leaves of hybrids, and the genetic analysis of their variability are described.

Keywords: cotton, pure ecological environment, wild polyploid species G.tomentosum Nutt. ex Seem., G.hirsutum L. species, hybridization, L-001 analyzer ridge, leaf hair type, nature of inheritance.

INTRODUCTION

Pesticides are chemicals used to control harmful organisms. Pesticides are widely used in agricultural production, horticulture and other industries. Pesticides are used to destroy insects, rodents, weeds and other harmful organisms.
Pesticides can be of different types. Some common types of pesticides are:
1. Insecticides: used to control insects.
2. Herbicides: used to control weeds.

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3. Fungicides: used to control fungi.
4. Rodenticides: used to control rodents.
5. Acaricides: Used to control mites.

Since pesticides are used to control harmful organisms, they pose some risks to the environment and human health. Effects and harms of pesticides:

1. Soil pollution: Pesticides can cause soil pollution when used on agricultural land. This pollution can lead to reduced plant growth, poor soil quality, and contamination of water resources.
2. Water pollution: Pesticides can cause water pollution when used on agricultural land. This pollution can be linked to water sources and kill other aquatic organisms.
3. Human health: Pesticides pose some risks to human health. The effects of pesticides on human health include cancer, birth defects, nervous system damage, and respiratory problems.
4. Biodiversity loss: The use of pesticides can reduce biodiversity in agricultural lands. Therefore, it can lead to the destruction of natural habitats.

Although pesticides are necessary in agriculture and horticulture, their rational and safe use is important. By understanding their effects and risks and following the recommendations, the environment and human health can be protected. At the same time, the need for pesticides can be reduced by focusing on organic agriculture and biological control methods.

MATERIALS AND METHODS

The study of the heritability of quantitative traits is of particular importance for applied breeding. It is especially important to determine the phenotypic expression of quantitative traits under the influence of gene interactions and the external environment. It is known that one of the main factors in increasing the efficiency of cotton cultivation is planting varieties with economically valuable properties in cotton fields. Such properties, including yield, early maturity, weight of one boll, fiber yield, fiber quality, resistance to various diseases and pests, are the main indicators of the variety being planted.

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The achievement of breeding science to date is that the cotton varieties grown today cannot be compared with the varieties of 30-40 years ago. However, the selection process is continuous, and due to the fact that the demand for cotton varieties is increasing year by year, new tasks are being set before breeding scientists. This includes the cultivation of varieties that are superior to existing varieties in terms of economic characteristics, resistant to various diseases and pests, and to extreme conditions - drought, salt. Such traits are present in various types and forms of cotton, and their concentration, strengthening and stabilization in a particular variety today determine a specific direction in selection work.
There are various methods of combating cotton pests, including agrotechnical, genetic, ecological, etc. Among the methods of combating such pests, the most effective and economical

RESEARCH RESULTS

The resistance of cotton to sucking pests, as noted by most researchers, depends on the morphological characteristics of the plant (type of hairiness, density of hairs), biochemical composition (amount of mono- and polysaccharides, and secondary metabolism products) and anatomical structure of the leaf (structure of the cuticle, mesophyll layers, thickness, degree of development of mechanical tissues, shape of the leaf, stipule, calyx, etc.).
According to the literature, in the species G.tomentosum Nutt ex Seem, the number of hairs on the leaf surface is controlled by polygenes, but the nature of the inheritance of this trait has not been well studied by scientific researchers.
We used the wild polyploid species of cotton growing in the Hawaiian Islands, G.tomentosum Nutt. ex Seem. and G. hirsutum L., we studied and genetically analyzed the inheritance of the hairiness type trait, which ensures fiber quality and pest resistance in the offspring, by crossing the ridges isolated as a result of individual selection from the interspecific hybrids obtained by crossing the ridges of the species G. hirsutum L. and the ridges of the species G. hirsutum L. As a result of the conducted scientific research, due to the fact that the genes controlling the type of hairiness on the leaf surface differed in different allelic

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states, the F1 plants obtained with their participation showed that the differentiation of the genes controlling the trait at the HA and HD loci, since these plants were digeterozygous HA hA HD hD, allowed the population to show separation into 15 “twisted” and 1 “normal” type for the trait in F_2:

P T-5/8, T-21/24, T-25/27 (twisted) x T-26 (twisted)

HSAHSA hsD hsD x hsA hsA HSDHSD

F_1 HSA hsA HsD hsD - twisted

Genotypic class	Phenotyp	Phenotypic class
F2		
1. HSAHSAHSDHSD - 1 twisted	1	
2. HSAHSAHSD hsD - 2 twisted	2	
3. HSAhsAHSDHSD - 2 twists	2	
4. HSA hsAHSD hsD - 4 twists	4	15 twists
5. HSAHSAhsD hsD - 1 twist	1	
6. HSAhsAhsD hsD - 2 twists	2	
7. hsAhsAHSDHSD - 1 twist	1	
8. hsAhsAHSDhsD - 2 twists	2	
9. hsAhsAhsDhsD - 1 simple	1	1 simple

For the first time, the inheritance and variability of the hairiness type, hair number, leaf plate thickness, among the traits that provide resistance to sucking pests of the wild species, were analyzed in the hybrids obtained by crossing the lines obtained with the participation of the wild G.tomentosum Nutt. ex Seem. and the cultivated G.hirsutum L. species with the analyzer line; It was found that the inheritance of the hairiness type and genotype, the role of dominant alleles in

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the formation of the number of hairs in generations, and the role of cytoplasmic genes in the high thickness of the leaf plate are of great importance.

CONCLUSION

In conclusion, it can be said that there are agrotechnical, genetic, ecological and other methods of combating cotton pests in cotton growing. Among the methods of combating, the most effective and productive method is to search for donors (genotypes) with natural resistance factors and invent varieties using them. Of course, this process takes a long time, but the cost of funds spent on pest control and pollution of the environment with various chemical compounds will decrease - there will be an ecologically clean environment.

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