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STUDY OF THE VARIABILITY AND HERITABILITY OF INTERSPECIFIC F_5 HYBRID COMBINATIONS AND PARENTAL FORMS OF TOMATO WITH INCREASED RESISTANCE UNDER WATER-STRESSED CONDITIONS

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An important direction in improving the creation of hybrids, lines and varieties is represented by highlighted and selected forms, which combine resistance to extreme climate factors with increased fruit productivity. In order to obtain new hybrids and tomato varieties with a high level of manifestation of the characters necessary for the breeding process with precocity, productivity, quality and resistance to climate factors, it is necessary to carry out research on genetics, physiology and plant improvement with genotypic and phenotypic genetic variability of quantitative characters that are manifested through bio morphological uniformity.

The laboratory has a very rich selection material in the form of perspective lines, high-performance varieties obtained from intra- and interspecific hybrids in previous years, hybrid progeny of different generations. The material will serve as a germplasm base for testing in selection, control, competition and comparative competition nurseries.

Research goal: Study, evaluation, highlighting and selection of spontaneous F5 hybrid tomato progeny based on a complex of valuable traits: productivity, precocity, resistance to extreme climate conditions.

In accordance with the study stage of the samples included in the research, the gene pool of the tomato collection's germplasm was established, studied and assessed. As initial material for the planned research, 10 F_5 hybrid combinations ($F_5$164; $F_5$380; $F_5$386; $F_5$388; $F_5$390; $F_5$393, $F_5$395, $F_5$396, $F_5$397, $F_5$398), obtained on the basis of interspecific hybridizations and *in vitro* culture, 12 parental forms were used. As a result of the investigations carried out on the plant height trait, a variability with a coefficient of 3.2% was manifested in the $F_5$396 combination, up to approxi-

mately 8.0% in the $F_5$380 combination, the paternal parental forms varied between 3.6-6.7%, including for the maternal parental forms 5.4-12.0%. Hybrid generations possess a potential for major variability of traits capable of proportionally expanding the determined genetic pool, especially of quantitative and qualitative characters. It has been demonstrated that for the emergence-maturation period, tomato genotypes are classified into 3 main groups: early (95-100 days), semi-early (111-130 days) and late (over 130 days). It was found that the number of flowers and fruits on I, II, III inflorescences and the main stem, bloomed and fructified very well, fruit setting had maximum values. A positive correlation was manifested r =0.70-0.78 and negative in some genotypes r =0.10-0.27. The inheritance of genes is marked in characters and is highlighted during the development and growth of plants visually, which allows us to make a complete and complex estimation of several characters with a larger breeding material. For these reasons, the creation of the tomato genetic collection becomes a constituent of the genetic pool identified for expanding the effectiveness of the amelioration processes. The creation of such a gene pool is closely related to research in quantitative genetics, the study of variability, heredity and genetic determinism of economically valuable characters for the amelioration process.

Keywords: hybrid combinations, variability, parental forms, resistance to climate conditions.

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